GDCM

3.0.24

Generated by Doxygen 1.9.8

1 GDCM Documentation 1

2 Todo List 3

3 Deprecated List 5

4 Bug List 7

5 Namespace Index 9

5.1 Namespace List . . . 9

6 Hierarchical Index 11

6.1 Class Hierarchy . . . 11

7 Class Index 21

7.1 Class List . . . 21

8 File Index 35

8.1 File List . . . 35

9 Namespace Documentation 43

9.1 gdcm Namespace Reference . . . 43

9.1.1 Detailed Description . . . 58

9.1.2 Typedef Documentation . . . 58

9.1.2.1 AEComp . . . 58

9.1.2.2 ASComp . . . 58

9.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER . . . 58

9.1.2.4 CSComp . . . 58

9.1.2.5 DAComp . . . 58

9.1.2.6 DTComp . . . 59

9.1.2.7 FileList . . . 59

9.1.2.8 IconImage . . . 59

9.1.2.9 LOComp . . . 59

9.1.2.10 LTComp . . . 59

9.1.2.11 MacroEntry . . . 59

9.1.2.12 NestedMacroEntries . . . 59

9.1.2.13 PNComp . . . 59

9.1.2.14 SHComp . . . 59

9.1.2.15 STComp . . . 59

9.1.2.16 TMComp . . . 60

9.1.2.17 UCComp . . . 60

9.1.2.18 UIComp . . . 60

9.1.2.19 URComp . . . 60
9.1.2.20 UTComp . . . 60
9.1.3 Enumeration Type Documentation . . . 60
9.1.3.1 CompOperators . . . 60
9.1.3.2 ECharSet . . . 60
9.1.3.3 ENQueryType . . . 62
9.1.3.4 EQueryLevel . . . 62
9.1.3.5 EQueryType . . . 62
9.1.3.6 ERootType . . . 63
9.1.3.7 LodModeType . . . 63
9.1.4 Function Documentation . . . 63
9.1.4.1 add1() . . . 63
9.1.4.2 backslash() . . . 63
9.1.4.3 Clamp() . . . 64
9.1.4.4 clean() . . . 64
9.1.4.5 doround() . . . 64
9.1.4.6 GetVRFromTag() . . . 64
9.1.4.7 operator"!=() [1/2] . . . 64
9.1.4.8 operator"!=() [2/2] . . . 64
9.1.4.9 operator<<() [1/59] . . . 65
9.1.4.10 operator<<() [2/59] . . . 65
9.1.4.11 operator<<() [3/59] . . . 65
9.1.4.12 operator<<() [4/59] . . . 65
9.1.4.13 operator<<() [5/59] . . . 65
9.1.4.14 operator<<() [6/59] . . . 65
9.1.4.15 operator<<() [7/59] . . . 65
9.1.4.16 operator<<() [8/59] . . . 66
9.1.4.17 operator<<() [9/59] . . . 66
9.1.4.18 operator<<() [10/59] . . . 66
9.1.4.19 operator<<() [11/59] . . . 66
9.1.4.20 operator<<() [12/59] . . . 66
9.1.4.21 operator<<() [13/59] . . . 66
9.1.4.22 operator<<() [14/59] . . . 66
9.1.4.23 operator<<() [15/59] . . . 67
9.1.4.24 operator<<() [16/59] . . . 67
9.1.4.25 operator<<() [17/59] . . . 67
9.1.4.26 operator<<() [18/59] . . . 67
9.1.4.27 operator<<() [19/59] . . . 67
9.1.4.28 operator<<() [20/59] . . . 67

9.1.4.29 operator<<() [21/59] 67
9.1.4.30 operator<<() [22/59] 68
9.1.4.31 operator<<() [23/59] 68
9.1.4.32 operator<<() [24/59] 68
9.1.4.33 operator<<() [25/59] 68
9.1.4.34 operator<<() [26/59] 68
9.1.4.35 operator<<() [27/59] 68
9.1.4.36 operator<<() [28/59] 68
9.1.4.37 operator<<() [29/59] 69
9.1.4.38 operator<<() [30/59] 69
9.1.4.39 operator<<() [31/59] 69
9.1.4.40 operator<<() [32/59] 69
9.1.4.41 operator<<() [33/59] 69
9.1.4.42 operator<<() [34/59] 69
9.1.4.43 operator<<() [35/59] 70
9.1.4.44 operator<<() [36/59] 70
9.1.4.45 operator<<() [37/59] 70
9.1.4.46 operator<<() [38/59] 70
9.1.4.47 operator<<() [39/59] 70
9.1.4.48 operator<<() [40/59] 70
9.1.4.49 operator<<() [41/59] 70
9.1.4.50 operator<<() [42/59] 71
9.1.4.51 operator<<() [43/59] 71
9.1.4.52 operator<<() [44/59] 71
9.1.4.53 operator<<() [45/59] 71
9.1.4.54 operator<<() [46/59] 71
9.1.4.55 operator<<() [47/59] 71
9.1.4.56 operator<<() [48/59] 71
9.1.4.57 operator<<() [49/59] 72
9.1.4.58 operator<<() [50/59] 72
9.1.4.59 operator<<() [51/59] 72
9.1.4.60 operator<<() [52/59] 72
9.1.4.61 operator<<() [53/59] 72
9.1.4.62 operator<<() [54/59] 72
9.1.4.63 operator<<() [55/59] 72
9.1.4.64 operator<<() [56/59] 73
9.1.4.65 operator<<() [57/59] 73
9.1.4.66 operator<<() [58/59] 73
9.1.4.67 operator<<() [59/59] 73

9.1.4.68 operator==() . . . 73
9.1.4.69 operator>>() [1/3] . . . 73
9.1.4.70 operator>>() [2/3] . . . 73
9.1.4.71 operator>>() [3/3] . . . 74
9.1.4.72 Round() . . . 74
9.1.4.73 roundat() . . . 74
9.1.4.74 x16printf() . . . 74
9.1.5 Variable Documentation . . . 74
9.1.5.1 GlobalInstance . . . 74
9.2 gdcm::network Namespace Reference . . . 75
9.2.1 Enumeration Type Documentation . . . 79
9.2.1.1 EEventID . . . 79
9.2.1.2 EStateID . . . 79
9.2.2 Function Documentation . . . 80
9.2.2.1 GetStateIndex() . . . 80
9.2.3 Variable Documentation . . . 80
9.2.3.1 cMaxEventID . . . 80
9.2.3.2 cMaxStateID . . . 80
9.3 gdcm::SegmentHelper Namespace Reference . . . 81
9.4 gdcm::terminal Namespace Reference . . . 81
9.4.1 Detailed Description . . . 81
9.4.2 Enumeration Type Documentation . . . 82
9.4.2.1 Attribute . . . 82
9.4.2.2 Color . . . 82
9.4.2.3 Mode . . . 82
9.4.3 Function Documentation . . . 83
9.4.3.1 setattribute() . . . 83
9.4.3.2 setbgcolor() . . . 83
9.4.3.3 setfgcolor() . . . 83
9.4.3.4 setmode() . . . 83

10 Class Documentation **85**
10.1 gdcm::network::AAbortPDU Class Reference . . . 85
10.1.1 Detailed Description . . . 86
10.1.2 Constructor & Destructor Documentation . . . 86
10.1.2.1 AAbortPDU() . . . 86
10.1.3 Member Function Documentation . . . 86
10.1.3.1 IsLastFragment() . . . 86
10.1.3.2 Print() . . . 86

10.1.3.3 Read() . . . 87
10.1.3.4 SetReason() . . . 87
10.1.3.5 SetSource() . . . 87
10.1.3.6 Size() . . . 87
10.1.3.7 Write() . . . 87
10.2 gdcm::network::AAssociateACPDU Class Reference . . . 88
10.2.1 Detailed Description . . . 89
10.2.2 Member Typedef Documentation . . . 89
10.2.2.1 SizeType . . . 89
10.2.3 Constructor & Destructor Documentation . . . 89
10.2.3.1 AAssociateACPDU() . . . 89
10.2.4 Member Function Documentation . . . 90
10.2.4.1 AddPresentationContextAC() . . . 90
10.2.4.2 GetNumberOfPresentationContextAC() . . . 90
10.2.4.3 GetPresentationContextAC() . . . 90
10.2.4.4 GetUserInformation() . . . 90
10.2.4.5 InitFromRQ() . . . 90
10.2.4.6 IsLastFragment() . . . 90
10.2.4.7 Print() . . . 90
10.2.4.8 Read() . . . 91
10.2.4.9 SetCalledAETitle() . . . 91
10.2.4.10 SetCallingAETitle() . . . 91
10.2.4.11 Size() . . . 91
10.2.4.12 Write() . . . 91
10.2.5 Friends And Related Symbol Documentation . . . 91
10.2.5.1 AAssociateRQPDU . . . 91
10.3 gdcm::network::AAssociateRJPDU Class Reference . . . 92
10.3.1 Detailed Description . . . 93
10.3.2 Constructor & Destructor Documentation . . . 93
10.3.2.1 AAssociateRJPDU() . . . 93
10.3.3 Member Function Documentation . . . 93
10.3.3.1 IsLastFragment() . . . 93
10.3.3.2 Print() . . . 93
10.3.3.3 Read() . . . 93
10.3.3.4 Size() . . . 93
10.3.3.5 Write() . . . 94
10.4 gdcm::network::AAssociateRQPDU Class Reference . . . 94
10.4.1 Detailed Description . . . 96
10.4.2 Member Typedef Documentation . . . 96

10.4.2.1 PresentationContextArrayType . . . 96
10.4.2.2 SizeType . . . 96
10.4.3 Constructor & Destructor Documentation . . . 96
10.4.3.1 AAssociateRQPDU() [1/2] . . . 96
10.4.3.2 AAssociateRQPDU() [2/2] . . . 96
10.4.4 Member Function Documentation . . . 96
10.4.4.1 AddPresentationContext() . . . 96
10.4.4.2 GetCalledAETitle() . . . 96
10.4.4.3 GetCallingAETitle() . . . 97
10.4.4.4 GetNumberOfPresentationContext() . . . 97
10.4.4.5 GetPresentationContext() . . . 97
10.4.4.6 GetPresentationContextByAbstractSyntax() . . . 97
10.4.4.7 GetPresentationContextByID() . . . 97
10.4.4.8 GetPresentationContexts() . . . 97
10.4.4.9 GetReserved43_74() . . . 97
10.4.4.10 GetUserInformation() . . . 97
10.4.4.11 IsAETitleValid() . . . 97
10.4.4.12 IsLastFragment() . . . 98
10.4.4.13 Print() . . . 98
10.4.4.14 Read() . . . 98
10.4.4.15 SetCalledAETitle() . . . 98
10.4.4.16 SetCallingAETitle() . . . 98
10.4.4.17 SetUserInformation() . . . 98
10.4.4.18 Size() . . . 99
10.4.4.19 Write() . . . 99
10.4.5 Friends And Related Symbol Documentation . . . 99
10.4.5.1 AAssociateACPDU . . . 99
10.5 gdcm::AbortEvent Class Reference . . . 99
10.6 gdcm::network::AbstractSyntax Class Reference . . . 100
10.6.1 Detailed Description . . . 101
10.6.2 Constructor & Destructor Documentation . . . 101
10.6.2.1 AbstractSyntax() . . . 101
10.6.3 Member Function Documentation . . . 101
10.6.3.1 GetAsDataElement() . . . 101
10.6.3.2 GetName() . . . 101
10.6.3.3 operator==() . . . 101
10.6.3.4 Print() . . . 102
10.6.3.5 Read() . . . 102
10.6.3.6 SetName() . . . 102

10.6.3.7 SetNameFromUID() . . . 102
10.6.3.8 Size() . . . 102
10.6.3.9 Write() . . . 102
10.7 gdcm::AnonymizeEvent Class Reference . . . 103
10.7.1 Detailed Description . . . 104
10.7.2 Member Typedef Documentation . . . 104
10.7.2.1 Self . . . 104
10.7.2.2 Superclass . . . 104
10.7.3 Constructor & Destructor Documentation . . . 105
10.7.3.1 AnonymizeEvent() [1/2] . . . 105
10.7.3.2 ∼AnonymizeEvent() . . . 105
10.7.3.3 AnonymizeEvent() [2/2] . . . 105
10.7.4 Member Function Documentation . . . 105
10.7.4.1 CheckEvent() . . . 105
10.7.4.2 GetEventName() . . . 105
10.7.4.3 GetTag() . . . 105
10.7.4.4 MakeObject() . . . 106
10.7.4.5 operator=() . . . 106
10.7.4.6 SetTag() . . . 106
10.8 gdcm::Anonymizer Class Reference . . . 106
10.8.1 Detailed Description . . . 109
10.8.2 Constructor & Destructor Documentation . . . 110
10.8.2.1 Anonymizer() . . . 110
10.8.2.2 ∼Anonymizer() . . . 110
10.8.3 Member Function Documentation . . . 110
10.8.3.1 BALCPProtect() . . . 110
10.8.3.2 BasicApplicationLevelConfidentialityProfile() . . . 110
10.8.3.3 CanEmptyTag() . . . 110
10.8.3.4 Clear() [1/2] . . . 110
10.8.3.5 Clear() [2/2] . . . 111
10.8.3.6 ClearInternalUIDs() . . . 111
10.8.3.7 Empty() [1/2] . . . 111
10.8.3.8 Empty() [2/2] . . . 111
10.8.3.9 GetBasicApplicationLevelConfidentialityProfileAttributes() . . . 111
10.8.3.10 GetCryptographicMessageSyntax() . . . 112
10.8.3.11 GetFile() . . . 112
10.8.3.12 New() . . . 112
10.8.3.13 RecurseDataSet() . . . 112
10.8.3.14 Remove() [1/2] . . . 112

10.8.3.15 Remove() [2/2] . . . 112
10.8.3.16 RemoveGroupLength() . . . 113
10.8.3.17 RemovePrivateTags() . . . 113
10.8.3.18 RemoveRetired() . . . 113
10.8.3.19 Replace() [1/4] . . . 113
10.8.3.20 Replace() [2/4] . . . 113
10.8.3.21 Replace() [3/4] . . . 114
10.8.3.22 Replace() [4/4] . . . 114
10.8.3.23 SetCryptographicMessageSyntax() . . . 114
10.8.3.24 SetFile() . . . 114
10.9 gdcm::AnyEvent Class Reference . . . 115
10.10 gdcm::network::ApplicationContext Class Reference . . . 116
10.10.1 Detailed Description . . . 117
10.10.2 Constructor & Destructor Documentation . . . 117
10.10.2.1 ApplicationContext() . . . 117
10.10.3 Member Function Documentation . . . 117
10.10.3.1 GetName() . . . 117
10.10.3.2 Print() . . . 117
10.10.3.3 Read() . . . 117
10.10.3.4 SetName() . . . 117
10.10.3.5 Size() . . . 117
10.10.3.6 Write() . . . 118
10.11 gdcm::ApplicationEntity Class Reference . . . 118
10.11.1 Detailed Description . . . 119
10.11.2 Member Function Documentation . . . 119
10.11.2.1 IsValid() . . . 119
10.11.2.2 Print() . . . 119
10.11.2.3 SetBlob() . . . 119
10.11.2.4 Squeeze() . . . 119
10.11.3 Member Data Documentation . . . 120
10.11.3.1 Internal . . . 120
10.11.3.2 MaxLength . . . 120
10.11.3.3 MaxNumberOfComponents . . . 120
10.11.3.4 Padding . . . 120
10.11.3.5 Separator . . . 120
10.12 gdcm::network::AReleaseRPPDU Class Reference . . . 120
10.12.1 Detailed Description . . . 121
10.12.2 Constructor & Destructor Documentation . . . 121
10.12.2.1 AReleaseRPPDU() . . . 121

10.12.3 Member Function Documentation . . . 122
10.12.3.1 IsLastFragment() . . . 122
10.12.3.2 Print() . . . 122
10.12.3.3 Read() . . . 122
10.12.3.4 Size() . . . 122
10.12.3.5 Write() . . . 122
10.13 gdcm::network::AReleaseRQPDU Class Reference . . . 123
10.13.1 Detailed Description . . . 124
10.13.2 Constructor & Destructor Documentation . . . 124
10.13.2.1 AReleaseRQPDU() . . . 124
10.13.3 Member Function Documentation . . . 124
10.13.3.1 IsLastFragment() . . . 124
10.13.3.2 Print() . . . 124
10.13.3.3 Read() . . . 124
10.13.3.4 Size() . . . 124
10.13.3.5 Write() . . . 125
10.14 gdcm::network::ARTIMTimer Class Reference . . . 125
10.14.1 Detailed Description . . . 125
10.14.2 Constructor & Destructor Documentation . . . 125
10.14.2.1 ARTIMTimer() . . . 125
10.14.3 Member Function Documentation . . . 126
10.14.3.1 GetElapsedTime() . . . 126
10.14.3.2 GetHasExpired() . . . 126
10.14.3.3 GetTimeout() . . . 126
10.14.3.4 SetTimeout() . . . 126
10.14.3.5 Start() . . . 126
10.14.3.6 Stop() . . . 126
10.15 gdcm::ASN1 Class Reference . . . 126
10.15.1 Detailed Description . . . 127
10.15.2 Constructor & Destructor Documentation . . . 127
10.15.2.1 ASN1() [1/2] . . . 127
10.15.2.2 ∼ASN1() . . . 127
10.15.2.3 ASN1() [2/2] . . . 127
10.15.3 Member Function Documentation . . . 127
10.15.3.1 operator=() . . . 127
10.15.3.2 ParseDump() . . . 128
10.15.3.3 ParseDumpFile() . . . 128
10.15.3.4 TestPBKDF2() . . . 128
10.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference . . . 128

10.16.1 Detailed Description . . . 128
10.16.2 Constructor & Destructor Documentation . . . 129
10.16.2.1 AsynchronousOperationsWindowSub() . . . 129
10.16.3 Member Function Documentation . . . 129
10.16.3.1 Print() . . . 129
10.16.3.2 Read() . . . 129
10.16.3.3 Size() . . . 129
10.16.3.4 Write() . . . 129
10.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference . . . 130
10.17.1 Detailed Description . . . 131
10.17.2 Member Typedef Documentation . . . 132
10.17.2.1 ArrayType . . . 132
10.17.3 Member Enumeration Documentation . . . 132
10.17.3.1 anonymous enum . . . 132
10.17.4 Member Function Documentation . . . 132
10.17.4.1 GDCM_STATIC_ASSERT() [1/3] . . . 132
10.17.4.2 GDCM_STATIC_ASSERT() [2/3] . . . 132
10.17.4.3 GDCM_STATIC_ASSERT() [3/3] . . . 132
10.17.4.4 GetAsDataElement() . . . 133
10.17.4.5 GetDictVM() . . . 133
10.17.4.6 GetDictVR() . . . 133
10.17.4.7 GetNumberOfValues() . . . 133
10.17.4.8 GetTag() . . . 133
10.17.4.9 GetValue() [1/2] . . . 134
10.17.4.10 GetValue() [2/2] . . . 134
10.17.4.11 GetValues() . . . 134
10.17.4.12 GetVM() . . . 134
10.17.4.13 GetVR() . . . 134
10.17.4.14 operator"!=() . . . 135
10.17.4.15 operator<() . . . 135
10.17.4.16 operator==() . . . 135
10.17.4.17 operator[]() [1/2] . . . 135
10.17.4.18 operator[]() [2/2] . . . 135
10.17.4.19 Print() . . . 135
10.17.4.20 Set() . . . 136
10.17.4.21 SetByteValue() . . . 136
10.17.4.22 SetByteValueNoSwap() . . . 136
10.17.4.23 SetFromDataElement() . . . 136
10.17.4.24 SetFromDataSet() . . . 137

10.17.4.25 SetValue() . . . 137
10.17.4.26 SetValues() . . . 137
10.17.5 Member Data Documentation . . . 137
10.17.5.1 Internal . . . 137
10.18 gdcm::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference . . . 138
10.18.1 Member Typedef Documentation . . . 139
10.18.1.1 ArrayType . . . 139
10.18.2 Member Enumeration Documentation . . . 139
10.18.2.1 anonymous enum . . . 139
10.18.3 Member Function Documentation . . . 139
10.18.3.1 GDCM_STATIC_ASSERT() [1/4] . . . 139
10.18.3.2 GDCM_STATIC_ASSERT() [2/4] . . . 140
10.18.3.3 GDCM_STATIC_ASSERT() [3/4] . . . 140
10.18.3.4 GDCM_STATIC_ASSERT() [4/4] . . . 140
10.18.3.5 GetAsDataElement() . . . 140
10.18.3.6 GetDictVM() . . . 140
10.18.3.7 GetDictVR() . . . 140
10.18.3.8 GetNumberOfValues() . . . 140
10.18.3.9 GetTag() . . . 141
10.18.3.10 GetValue() [1/2] . . . 141
10.18.3.11 GetValue() [2/2] . . . 141
10.18.3.12 GetValues() . . . 141
10.18.3.13 GetVM() . . . 141
10.18.3.14 GetVR() . . . 141
10.18.3.15 operator"!=() . . . 141
10.18.3.16 operator<() . . . 142
10.18.3.17 operator==() . . . 142
10.18.3.18 Print() . . . 142
10.18.3.19 Set() . . . 142
10.18.3.20 SetByteValue() . . . 142
10.18.3.21 SetByteValueNoSwap() . . . 142
10.18.3.22 SetFromDataElement() . . . 143
10.18.3.23 SetFromDataSet() . . . 143
10.18.3.24 SetValue() . . . 143
10.18.4 Member Data Documentation . . . 143
10.18.4.1 Internal . . . 143
10.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference . . . 144
10.19.1 Member Function Documentation . . . 146
10.19.1.1 GetVM() . . . 146

10.20 gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference . . . 146
10.20.1 Member Function Documentation . . . 148
10.20.1.1 GetVM() . . . 148
10.21 gdcm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference . . . 148
10.21.1 Member Typedef Documentation . . . 149
10.21.1.1 ArrayType . . . 149
10.21.2 Constructor & Destructor Documentation . . . 149
10.21.2.1 Attribute() . . . 149
10.21.2.2 ~Attribute() . . . 149
10.21.3 Member Function Documentation . . . 150
10.21.3.1 GDCM_STATIC_ASSERT() [1/3] . . . 150
10.21.3.2 GDCM_STATIC_ASSERT() [2/3] . . . 150
10.21.3.3 GDCM_STATIC_ASSERT() [3/3] . . . 150
10.21.3.4 GetAsDataElement() . . . 150
10.21.3.5 GetDictVM() . . . 150
10.21.3.6 GetDictVR() . . . 150
10.21.3.7 GetNumberOfValues() . . . 150
10.21.3.8 GetTag() . . . 151
10.21.3.9 GetValue() [1/2] . . . 151
10.21.3.10 GetValue() [2/2] . . . 151
10.21.3.11 GetValues() . . . 151
10.21.3.12 GetVM() . . . 151
10.21.3.13 GetVR() . . . 151
10.21.3.14 operator[]() [1/2] . . . 151
10.21.3.15 operator[]() [2/2] . . . 151
10.21.3.16 Print() . . . 152
10.21.3.17 Set() . . . 152
10.21.3.18 SetByteValue() . . . 152
10.21.3.19 SetFromDataElement() . . . 152
10.21.3.20 SetFromDataSet() . . . 152
10.21.3.21 SetNumberOfValues() . . . 152
10.21.3.22 SetValue() [1/2] . . . 153
10.21.3.23 SetValue() [2/2] . . . 153
10.21.3.24 SetValues() . . . 153
10.22 gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference . . . 153
10.22.1 Member Function Documentation . . . 156
10.22.1.1 GetVM() . . . 156
10.23 gdcm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference . . . 156
10.23.1 Member Function Documentation . . . 158

10.23.1.1 GetVM() . . . 158
10.24 gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference . . . 158
10.24.1 Member Function Documentation . . . 161
10.24.1.1 GetVM() . . . 161
10.25 gdcm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference . . . 161
10.25.1 Member Function Documentation . . . 163
10.25.1.1 GetVM() . . . 163
10.26 gdcm::AudioCodec Class Reference . . . 163
10.26.1 Detailed Description . . . 165
10.26.2 Constructor & Destructor Documentation . . . 165
10.26.2.1 AudioCodec() . . . 165
10.26.2.2 ~AudioCodec() . . . 165
10.26.3 Member Function Documentation . . . 165
10.26.3.1 CanCode() . . . 165
10.26.3.2 CanDecode() . . . 166
10.26.3.3 Decode() . . . 166
10.27 gdcm::Base64 Class Reference . . . 166
10.27.1 Detailed Description . . . 167
10.27.2 Constructor & Destructor Documentation . . . 167
10.27.2.1 Base64() . . . 167
10.27.3 Member Function Documentation . . . 167
10.27.3.1 Decode() . . . 167
10.27.3.2 Encode() . . . 167
10.27.3.3 GetDecodeLength() . . . 168
10.27.3.4 GetEncodeLength() . . . 168
10.27.3.5 operator=() . . . 168
10.28 gdcm::network::BaseCompositeMessage Class Reference . . . 169
10.28.1 Detailed Description . . . 169
10.28.2 Constructor & Destructor Documentation . . . 170
10.28.2.1 ~BaseCompositeMessage() . . . 170
10.28.3 Member Function Documentation . . . 170
10.28.3.1 ConstructPDV() . . . 170
10.29 gdcm::network::BaseNormalizedMessage Class Reference . . . 170
10.29.1 Detailed Description . . . 171
10.29.2 Constructor & Destructor Documentation . . . 172
10.29.2.1 ~BaseNormalizedMessage() . . . 172
10.29.3 Member Function Documentation . . . 172
10.29.3.1 ConstructPDV() . . . 172
10.30 gdcm::network::BasePDU Class Reference . . . 173

10.30.1 Detailed Description . . . 173
10.30.2 Constructor & Destructor Documentation . . . 174
10.30.2.1 ~BasePDU() . . . 174
10.30.3 Member Function Documentation . . . 174
10.30.3.1 IsLastFragment() . . . 174
10.30.3.2 Print() . . . 174
10.30.3.3 Read() . . . 174
10.30.3.4 Size() . . . 175
10.30.3.5 Write() . . . 175
10.31 gdcm::BaseQuery Class Reference . . . 175
10.31.1 Detailed Description . . . 177
10.31.2 Constructor & Destructor Documentation . . . 177
10.31.2.1 BaseQuery() . . . 177
10.31.2.2 ~BaseQuery() . . . 177
10.31.3 Member Function Documentation . . . 177
10.31.3.1 AddQueryDataSet() . . . 177
10.31.3.2 GetAbstractSyntaxUID() . . . 177
10.31.3.3 GetQueryDataSet() [1/2] . . . 178
10.31.3.4 GetQueryDataSet() [2/2] . . . 178
10.31.3.5 GetSOPInstanceUID() . . . 178
10.31.3.6 Print() . . . 178
10.31.3.7 SetSearchParameter() [1/3] . . . 178
10.31.3.8 SetSearchParameter() [2/3] . . . 178
10.31.3.9 SetSearchParameter() [3/3] . . . 178
10.31.3.10 SetSOPInstanceUID() . . . 179
10.31.3.11 ValidateQuery() . . . 179
10.31.3.12 ValidDataSet() . . . 179
10.31.3.13 WriteHelpFile() . . . 179
10.31.3.14 WriteQuery() . . . 179
10.31.4 Friends And Related Symbol Documentation . . . 179
10.31.4.1 QueryFactory . . . 179
10.31.5 Member Data Documentation . . . 179
10.31.5.1 mDataSet . . . 179
10.31.5.2 mSopInstanceUID . . . 180
10.32 gdcm::BaseRootQuery Class Reference . . . 180
10.32.1 Detailed Description . . . 182
10.32.2 Constructor & Destructor Documentation . . . 182
10.32.2.1 BaseRootQuery() . . . 182
10.32.2.2 ~BaseRootQuery() . . . 183

10.32.3 Member Function Documentation . . . 183
10.32.3.1 Construct() . . . 183
10.32.3.2 GetQueryLevelFromQueryRoot() . . . 183
10.32.3.3 GetQueryLevelFromString() . . . 183
10.32.3.4 GetQueryLevelString() . . . 183
10.32.3.5 GetTagListByLevel() . . . 183
10.32.3.6 InitializeDataSet() . . . 184
10.32.3.7 ValidateQuery() . . . 184
10.32.4 Friends And Related Symbol Documentation . . . 184
10.32.4.1 QueryFactory . . . 184
10.32.5 Member Data Documentation . . . 184
10.32.5.1 mHelpDescription . . . 184
10.32.5.2 mImage . . . 184
10.32.5.3 mPatient . . . 185
10.32.5.4 mRootType . . . 185
10.32.5.5 mSeries . . . 185
10.32.5.6 mStudy . . . 185
10.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference . . . 185
10.33.1 Detailed Description . . . 186
10.33.2 Constructor & Destructor Documentation . . . 186
10.33.2.1 BasicCodedEntry() [1/3] . . . 186
10.33.2.2 BasicCodedEntry() [2/3] . . . 186
10.33.2.3 BasicCodedEntry() [3/3] . . . 187
10.33.3 Member Function Documentation . . . 187
10.33.3.1 IsEmpty() . . . 187
10.33.4 Member Data Documentation . . . 187
10.33.4.1 CM . . . 187
10.33.4.2 CSD . . . 187
10.33.4.3 CSV . . . 187
10.33.4.4 CV . . . 188
10.34 gdcm::BasicOffsetTable Class Reference . . . 188
10.34.1 Detailed Description . . . 191
10.34.2 Constructor & Destructor Documentation . . . 191
10.34.2.1 BasicOffsetTable() . . . 191
10.34.3 Member Function Documentation . . . 191
10.34.3.1 Read() . . . 191
10.34.4 Friends And Related Symbol Documentation . . . 192
10.34.4.1 operator<< . . . 192
10.35 gdcm::Bitmap Class Reference . . . 192

10.35.1 Detailed Description . . . 195
10.35.2 Member Typedef Documentation . . . 195
10.35.2.1 LUTPtr . . . 195
10.35.3 Constructor & Destructor Documentation . . . 195
10.35.3.1 Bitmap() . . . 195
10.35.3.2 ∼Bitmap() . . . 196
10.35.4 Member Function Documentation . . . 196
10.35.4.1 AreOverlaysInPixelData() . . . 196
10.35.4.2 Clear() . . . 196
10.35.4.3 ComputeLossyFlag() . . . 196
10.35.4.4 GetBuffer() . . . 196
10.35.4.5 GetBuffer2() . . . 196
10.35.4.6 GetBufferLength() . . . 197
10.35.4.7 GetColumns() . . . 197
10.35.4.8 GetDataElement() [1/2] . . . 197
10.35.4.9 GetDataElement() [2/2] . . . 197
10.35.4.10 GetDimension() . . . 197
10.35.4.11 GetDimensions() . . . 198
10.35.4.12 GetLUT() [1/2] . . . 198
10.35.4.13 GetLUT() [2/2] . . . 198
10.35.4.14 GetNeedByteSwap() . . . 198
10.35.4.15 GetNumberOfDimensions() . . . 198
10.35.4.16 GetPhotometricInterpretation() . . . 199
10.35.4.17 GetPixelFormat() [1/2] . . . 199
10.35.4.18 GetPixelFormat() [2/2] . . . 199
10.35.4.19 GetPlanarConfiguration() . . . 199
10.35.4.20 GetRows() . . . 199
10.35.4.21 GetTransferSyntax() . . . 199
10.35.4.22 IsEmpty() . . . 200
10.35.4.23 IsLossy() . . . 200
10.35.4.24 IsTransferSyntaxCompatible() . . . 200
10.35.4.25 Print() . . . 200
10.35.4.26 SetColumns() . . . 200
10.35.4.27 SetDataElement() . . . 200
10.35.4.28 SetDimension() . . . 201
10.35.4.29 SetDimensions() . . . 201
10.35.4.30 SetLossyFlag() . . . 201
10.35.4.31 SetLUT() . . . 201
10.35.4.32 SetNeedByteSwap() . . . 201

10.35.4.33 SetNumberOfDimensions() . . . 202
10.35.4.34 SetPhotometricInterpretation() . . . 202
10.35.4.35 SetPixelFormat() . . . 202
10.35.4.36 SetPlanarConfiguration() . . . 202
10.35.4.37 SetRows() . . . 203
10.35.4.38 SetTransferSyntax() . . . 203
10.35.4.39 TryJPEG2000Codec() . . . 203
10.35.4.40 TryJPEG2000Codec2() . . . 203
10.35.4.41 TryJPEGCodec() . . . 203
10.35.4.42 TryJPEGCodec2() . . . 203
10.35.4.43 TryJPEGLSCodec() . . . 203
10.35.4.44 TryKAKADUCodec() . . . 204
10.35.4.45 TryPVRGCodec() . . . 204
10.35.4.46 TryRAWCodec() . . . 204
10.35.4.47 TryRLECodec() . . . 204
10.35.4.48 UnusedBitsPresentInPixelData() . . . 204
10.35.5 Friends And Related Symbol Documentation . . . 204
10.35.5.1 ImageChangeTransferSyntax . . . 204
10.35.5.2 PixmapReader . . . 204
10.35.6 Member Data Documentation . . . 205
10.35.6.1 Dimensions . . . 205
10.35.6.2 LossyFlag . . . 205
10.35.6.3 LUT . . . 205
10.35.6.4 NeedByteSwap . . . 205
10.35.6.5 NumberOfDimensions . . . 205
10.35.6.6 PF . . . 205
10.35.6.7 PI . . . 205
10.35.6.8 PixelData . . . 205
10.35.6.9 PlanarConfiguration . . . 205
10.35.6.10 TS . . . 206
10.36 gdcm::BitmapToBitmapFilter Class Reference . . . 206
10.36.1 Detailed Description . . . 207
10.36.2 Constructor & Destructor Documentation . . . 207
10.36.2.1 BitmapToBitmapFilter() . . . 207
10.36.2.2 ~BitmapToBitmapFilter() . . . 207
10.36.3 Member Function Documentation . . . 207
10.36.3.1 GetOutput() . . . 207
10.36.3.2 GetOutputAsBitmap() . . . 207
10.36.3.3 SetInput() . . . 208

10.36.4 Member Data Documentation . . . 208
10.36.4.1 Input . . . 208
10.36.4.2 Output . . . 208
10.37 gdcm::BoxRegion Class Reference . . . 208
10.37.1 Detailed Description . . . 210
10.37.2 Constructor & Destructor Documentation . . . 210
10.37.2.1 BoxRegion() [1/2] . . . 210
10.37.2.2 ∼BoxRegion() . . . 210
10.37.2.3 BoxRegion() [2/2] . . . 210
10.37.3 Member Function Documentation . . . 210
10.37.3.1 Area() . . . 210
10.37.3.2 BoundingBox() . . . 211
10.37.3.3 Clone() . . . 211
10.37.3.4 ComputeBoundingBox() . . . 211
10.37.3.5 Empty() . . . 211
10.37.3.6 GetXMax() . . . 211
10.37.3.7 GetXMin() . . . 211
10.37.3.8 GetYMax() . . . 211
10.37.3.9 GetYMin() . . . 212
10.37.3.10 GetZMax() . . . 212
10.37.3.11 GetZMin() . . . 212
10.37.3.12 IsValid() . . . 212
10.37.3.13 operator=() . . . 212
10.37.3.14 Print() . . . 212
10.37.3.15 SetDomain() . . . 213
10.38 gdcm::ByteBuffer Class Reference . . . 213
10.38.1 Detailed Description . . . 213
10.38.2 Constructor & Destructor Documentation . . . 214
10.38.2.1 ByteBuffer() . . . 214
10.38.3 Member Function Documentation . . . 214
10.38.3.1 Get() . . . 214
10.38.3.2 GetStart() . . . 214
10.38.3.3 ShiftEnd() . . . 214
10.38.3.4 UpdatePosition() . . . 214
10.39 gdcm::ByteSwap< T > Class Template Reference . . . 214
10.39.1 Detailed Description . . . 215
10.39.2 Member Function Documentation . . . 215
10.39.2.1 Swap() . . . 215
10.39.2.2 SwapFromSwapCodeIntoSystem() . . . 215

10.39.2.3 SwapRange() . . . 215
10.39.2.4 SwapRangeFromSwapCodeIntoSystem() . . . 216
10.39.2.5 SystemIsBigEndian() . . . 216
10.39.2.6 SystemIsLittleEndian() . . . 216
10.40 gdcm::ByteSwapFilter Class Reference . . . 216
10.40.1 Detailed Description . . . 217
10.40.2 Constructor & Destructor Documentation . . . 217
10.40.2.1 ByteSwapFilter() [1/2] . . . 217
10.40.2.2 ~ByteSwapFilter() . . . 217
10.40.2.3 ByteSwapFilter() [2/2] . . . 217
10.40.3 Member Function Documentation . . . 217
10.40.3.1 ByteSwap() . . . 217
10.40.3.2 operator=() . . . 217
10.40.3.3 SetByteSwapTag() . . . 217
10.41 gdcm::ByteValue Class Reference . . . 218
10.41.1 Detailed Description . . . 220
10.41.2 Constructor & Destructor Documentation . . . 220
10.41.2.1 ByteValue() [1/2] . . . 220
10.41.2.2 ByteValue() [2/2] . . . 220
10.41.2.3 ~ByteValue() . . . 220
10.41.3 Member Function Documentation . . . 221
10.41.3.1 Append() . . . 221
10.41.3.2 Clear() . . . 221
10.41.3.3 ComputeLength() . . . 221
10.41.3.4 Fill() . . . 221
10.41.3.5 GetBuffer() . . . 221
10.41.3.6 GetLength() . . . 222
10.41.3.7 GetPointer() . . . 222
10.41.3.8 GetVoidPointer() [1/2] . . . 222
10.41.3.9 GetVoidPointer() [2/2] . . . 222
10.41.3.10 IsEmpty() . . . 223
10.41.3.11 IsPrintable() . . . 223
10.41.3.12 operator const std::vector< char > &() . . . 223
10.41.3.13 operator=() . . . 223
10.41.3.14 operator==() [1/2] . . . 223
10.41.3.15 operator==() [2/2] . . . 223
10.41.3.16 Print() . . . 223
10.41.3.17 PrintASCII() . . . 224
10.41.3.18 PrintASCIIXML() . . . 224

10.41.3.19 PrintGroupLength() . . . 224
10.41.3.20 PrintHex() . . . 224
10.41.3.21 PrintHexXML() . . . 224
10.41.3.22 PrintPNXML() . . . 224
10.41.3.23 Read() [1/2] . . . 224
10.41.3.24 Read() [2/2] . . . 225
10.41.3.25 SetLength() . . . 225
10.41.3.26 SetLengthOnly() . . . 225
10.41.3.27 Write() [1/2] . . . 225
10.41.3.28 Write() [2/2] . . . 225
10.41.3.29 WriteBuffer() . . . 225
10.42 gdcm::CAPICryptoFactory Class Reference . . . 226
10.42.1 Constructor & Destructor Documentation . . . 227
10.42.1.1 CAPICryptoFactory() . . . 227
10.42.2 Member Function Documentation . . . 227
10.42.2.1 CreateCMSProvider() . . . 227
10.43 gdcm::CAPICryptographicMessageSyntax Class Reference . . . 227
10.43.1 Constructor & Destructor Documentation . . . 229
10.43.1.1 CAPICryptographicMessageSyntax() . . . 229
10.43.1.2 ∼CAPICryptographicMessageSyntax() . . . 229
10.43.2 Member Function Documentation . . . 229
10.43.2.1 Decrypt() . . . 229
10.43.2.2 Encrypt() . . . 229
10.43.2.3 GetCipherType() . . . 229
10.43.2.4 GetInitialized() . . . 229
10.43.2.5 ParseCertificateFile() . . . 230
10.43.2.6 ParseKeyFile() . . . 230
10.43.2.7 SetCipherType() . . . 230
10.43.2.8 SetPassword() . . . 230
10.44 gdcm::network::CEchoRQ Class Reference . . . 231
10.44.1 Detailed Description . . . 232
10.44.2 Member Function Documentation . . . 232
10.44.2.1 ConstructPDV() . . . 232
10.44.3 Member Data Documentation . . . 232
10.44.3.1 AffectedSOPClassUID . . . 232
10.44.3.2 MessageID . . . 232
10.45 gdcm::network::CEchoRSP Class Reference . . . 233
10.45.1 Detailed Description . . . 234
10.45.2 Member Function Documentation . . . 234

10.45.2.1 ConstructPDVByDataSet() . . . 234
10.46 gdcm::network::CFind Class Reference . . . 234
10.46.1 Detailed Description . . . 234
10.47 gdcm::network::CFindCancelRQ Class Reference . . . 234
10.47.1 Detailed Description . . . 235
10.47.2 Member Function Documentation . . . 235
10.47.2.1 ConstructPDVByDataSet() . . . 235
10.48 gdcm::network::CFindRQ Class Reference . . . 236
10.48.1 Detailed Description . . . 237
10.48.2 Member Function Documentation . . . 237
10.48.2.1 ConstructPDV() . . . 237
10.49 gdcm::network::CFindRSP Class Reference . . . 237
10.49.1 Detailed Description . . . 238
10.49.2 Member Function Documentation . . . 238
10.49.2.1 ConstructPDVByDataSet() . . . 238
10.50 gdcm::Cleaner Class Reference . . . 239
10.50.1 Detailed Description . . . 241
10.50.2 Constructor & Destructor Documentation . . . 241
10.50.2.1 Cleaner() . . . 241
10.50.2.2 ∼Cleaner() . . . 242
10.50.3 Member Function Documentation . . . 242
10.50.3.1 Clean() . . . 242
10.50.3.2 Empty() [1/4] . . . 242
10.50.3.3 Empty() [2/4] . . . 242
10.50.3.4 Empty() [3/4] . . . 242
10.50.3.5 Empty() [4/4] . . . 242
10.50.3.6 EmptyWhenScrubFails() . . . 243
10.50.3.7 GetFile() . . . 243
10.50.3.8 New() . . . 243
10.50.3.9 Preserve() . . . 243
10.50.3.10 Remove() [1/4] . . . 243
10.50.3.11 Remove() [2/4] . . . 243
10.50.3.12 Remove() [3/4] . . . 244
10.50.3.13 Remove() [4/4] . . . 244
10.50.3.14 RemoveAllGroupLength() . . . 244
10.50.3.15 RemoveAllIllegal() . . . 244
10.50.3.16 RemoveAllMissingPrivateCreator() . . . 244
10.50.3.17 RemoveMissingPrivateCreator() . . . 244
10.50.3.18 Scrub() [1/4] . . . 245

10.50.3.19 Scrub() [2/4] . . . 245
10.50.3.20 Scrub() [3/4] . . . 245
10.50.3.21 Scrub() [4/4] . . . 245
10.50.3.22 SetFile() . . . 245
10.51 gdcm::network::CMoveCancelRq Class Reference . . . 246
10.51.1 Member Function Documentation . . . 247
10.51.1.1 ConstructPDVByDataSet() . . . 247
10.52 gdcm::network::CMoveRQ Class Reference . . . 247
10.52.1 Detailed Description . . . 248
10.52.2 Member Function Documentation . . . 248
10.52.2.1 ConstructPDV() . . . 248
10.53 gdcm::network::CMoveRSP Class Reference . . . 248
10.53.1 Detailed Description . . . 249
10.53.2 Member Function Documentation . . . 249
10.53.2.1 ConstructPDVByDataSet() . . . 249
10.54 gdcm::Codec Class Reference . . . 250
10.54.1 Detailed Description . . . 251
10.55 gdcm::Coder Class Reference . . . 251
10.55.1 Detailed Description . . . 252
10.55.2 Constructor & Destructor Documentation . . . 252
10.55.2.1 ∼Coder() . . . 252
10.55.3 Member Function Documentation . . . 252
10.55.3.1 CanCode() . . . 252
10.55.3.2 Code() . . . 252
10.55.3.3 InternalCode() . . . 253
10.56 gdcm::CodeString Class Reference . . . 253
10.56.1 Detailed Description . . . 254
10.56.2 Member Typedef Documentation . . . 254
10.56.2.1 const_iterator . . . 254
10.56.2.2 const_reference . . . 254
10.56.2.3 const_reverse_iterator . . . 254
10.56.2.4 difference_type . . . 255
10.56.2.5 iterator . . . 255
10.56.2.6 pointer . . . 255
10.56.2.7 reference . . . 255
10.56.2.8 reverse_iterator . . . 255
10.56.2.9 size_type . . . 255
10.56.2.10 value_type . . . 255
10.56.3 Constructor & Destructor Documentation . . . 255

10.56.3.1 CodeString() [1/4] . . . 255
10.56.3.2 CodeString() [2/4] . . . 255
10.56.3.3 CodeString() [3/4] . . . 256
10.56.3.4 CodeString() [4/4] . . . 256
10.56.4 Member Function Documentation . . . 256
10.56.4.1 GetAsString() . . . 256
10.56.4.2 IsValid() . . . 256
10.56.4.3 Size() . . . 256
10.56.4.4 TrimInternal() . . . 256
10.56.5 Friends And Related Symbol Documentation . . . 256
10.56.5.1 operator"!= . . . 256
10.56.5.2 operator<< . . . 257
10.56.5.3 operator== . . . 257
10.57 gdcm::Command Class Reference . . . 257
10.57.1 Detailed Description . . . 259
10.57.2 Constructor & Destructor Documentation . . . 259
10.57.2.1 Command() [1/2] . . . 259
10.57.2.2 Command() [2/2] . . . 259
10.57.2.3 ~Command() . . . 259
10.57.3 Member Function Documentation . . . 259
10.57.3.1 Execute() [1/2] . . . 259
10.57.3.2 Execute() [2/2] . . . 260
10.57.3.3 operator=() . . . 260
10.58 gdcm::CommandDataSet Class Reference . . . 260
10.58.1 Detailed Description . . . 263
10.58.2 Constructor & Destructor Documentation . . . 263
10.58.2.1 CommandDataSet() . . . 263
10.58.2.2 ~CommandDataSet() . . . 263
10.58.3 Member Function Documentation . . . 263
10.58.3.1 Insert() . . . 263
10.58.3.2 Read() . . . 264
10.58.3.3 Replace() . . . 264
10.58.3.4 Write() . . . 264
10.58.4 Friends And Related Symbol Documentation . . . 264
10.58.4.1 operator<< . . . 264
10.59 gdcm::network::CompositeMessageFactory Class Reference . . . 264
10.59.1 Detailed Description . . . 265
10.59.2 Member Function Documentation . . . 265
10.59.2.1 ConstructCEchoRQ() . . . 265

10.59.2.2 ConstructCFindRQ() . . . 265
10.59.2.3 ConstructCMoveRQ() . . . 265
10.59.2.4 ConstructCStoreRQ() . . . 266
10.59.2.5 ConstructCStoreRSP() . . . 266
10.60 gdcm::CompositeNetworkFunctions Class Reference . . . 266
10.60.1 Detailed Description . . . 267
10.60.2 Member Typedef Documentation . . . 267
10.60.2.1 KeyValuePairArrayType . . . 267
10.60.2.2 KeyValuePairType . . . 267
10.60.3 Member Function Documentation . . . 267
10.60.3.1 CEcho() . . . 267
10.60.3.2 CFind() . . . 268
10.60.3.3 CMove() . . . 269
10.60.3.4 ConstructQuery() [1/2] . . . 269
10.60.3.5 ConstructQuery() [2/2] . . . 269
10.60.3.6 CStore() . . . 270
10.61 gdcm::ConstCharWrapper Class Reference . . . 271
10.61.1 Detailed Description . . . 271
10.61.2 Constructor & Destructor Documentation . . . 271
10.61.2.1 ConstCharWrapper() . . . 271
10.61.3 Member Function Documentation . . . 271
10.61.3.1 operator const char *() . . . 271
10.62 gdcm::CP246ExplicitDataElement Class Reference . . . 272
10.62.1 Detailed Description . . . 274
10.62.2 Member Function Documentation . . . 274
10.62.2.1 GetLength() . . . 274
10.62.2.2 Read() . . . 275
10.62.2.3 ReadPreValue() . . . 275
10.62.2.4 ReadValue() . . . 275
10.62.2.5 ReadWithLength() . . . 275
10.63 gdcm::CryptoFactory Class Reference . . . 275
10.63.1 Detailed Description . . . 276
10.63.2 Member Enumeration Documentation . . . 276
10.63.2.1 CryptoLib . . . 276
10.63.3 Constructor & Destructor Documentation . . . 277
10.63.3.1 CryptoFactory() [1/2] . . . 277
10.63.3.2 CryptoFactory() [2/2] . . . 277
10.63.3.3 ~CryptoFactory() . . . 277
10.63.4 Member Function Documentation . . . 277

10.63.4.1 CreateCMSProvider() . . . 277
10.63.4.2 GetFactoryInstance() . . . 277
10.64 gdcm::CryptographicMessageSyntax Class Reference . . . 278
10.64.1 Detailed Description . . . 278
10.64.2 Member Enumeration Documentation . . . 279
10.64.2.1 CipherTypes . . . 279
10.64.3 Constructor & Destructor Documentation . . . 279
10.64.3.1 CryptographicMessageSyntax() [1/2] . . . 279
10.64.3.2 ∼CryptographicMessageSyntax() . . . 279
10.64.3.3 CryptographicMessageSyntax() [2/2] . . . 279
10.64.4 Member Function Documentation . . . 279
10.64.4.1 Decrypt() . . . 279
10.64.4.2 Encrypt() . . . 280
10.64.4.3 GetCipherType() . . . 280
10.64.4.4 operator=() . . . 280
10.64.4.5 ParseCertificateFile() . . . 280
10.64.4.6 ParseKeyFile() . . . 280
10.64.4.7 SetCipherType() . . . 281
10.64.4.8 SetPassword() . . . 281
10.65 gdcm::CSAElement Class Reference . . . 281
10.65.1 Detailed Description . . . 283
10.65.2 Member Typedef Documentation . . . 283
10.65.2.1 DataPtr . . . 283
10.65.3 Constructor & Destructor Documentation . . . 283
10.65.3.1 CSAElement() [1/2] . . . 283
10.65.3.2 CSAElement() [2/2] . . . 283
10.65.4 Member Function Documentation . . . 283
10.65.4.1 GetByteValue() . . . 283
10.65.4.2 GetKey() . . . 284
10.65.4.3 GetName() . . . 284
10.65.4.4 GetNoOfItems() . . . 284
10.65.4.5 GetSyngoDT() . . . 284
10.65.4.6 GetValue() [1/2] . . . 284
10.65.4.7 GetValue() [2/2] . . . 284
10.65.4.8 GetVM() . . . 285
10.65.4.9 GetVR() . . . 285
10.65.4.10 IsEmpty() . . . 285
10.65.4.11 operator<() . . . 285
10.65.4.12 operator=() . . . 285

10.65.4.13 operator==() . . . 285
10.65.4.14 SetByteValue() . . . 286
10.65.4.15 SetKey() . . . 286
10.65.4.16 SetName() . . . 286
10.65.4.17 SetNoOfItems() . . . 286
10.65.4.18 SetSyngoDT() . . . 286
10.65.4.19 SetValue() . . . 286
10.65.4.20 SetVM() . . . 286
10.65.4.21 SetVR() . . . 286
10.65.5 Friends And Related Symbol Documentation . . . 287
10.65.5.1 operator<< . . . 287
10.65.6 Member Data Documentation . . . 287
10.65.6.1 DataField . . . 287
10.65.6.2 KeyField . . . 287
10.65.6.3 NameField . . . 287
10.65.6.4 NoOfItemsField . . . 287
10.65.6.5 SyngoDTField . . . 287
10.65.6.6 ValueMultiplicityField . . . 287
10.65.6.7 VRField . . . 288
10.66 gdcm::CSAHeader Class Reference . . . 288
10.66.1 Detailed Description . . . 289
10.66.2 Member Enumeration Documentation . . . 289
10.66.2.1 CSAHeaderType . . . 289
10.66.3 Constructor & Destructor Documentation . . . 290
10.66.3.1 CSAHeader() . . . 290
10.66.3.2 ~CSAHeader() . . . 290
10.66.4 Member Function Documentation . . . 290
10.66.4.1 FindCSAElementByName() . . . 290
10.66.4.2 GetCSADataInfo() . . . 290
10.66.4.3 GetCSAEEnd() . . . 291
10.66.4.4 GetCSAElementByName() . . . 291
10.66.4.5 GetCSAImageHeaderInfoTag() . . . 291
10.66.4.6 GetCSASeriesHeaderInfoTag() . . . 291
10.66.4.7 GetDataSet() . . . 291
10.66.4.8 GetFormat() . . . 292
10.66.4.9 GetInterfile() . . . 292
10.66.4.10 GetMrProtocol() . . . 292
10.66.4.11 LoadFromDataElement() . . . 292
10.66.4.12 Print() . . . 292

10.66.5 Friends And Related Symbol Documentation . . . 293
10.66.5.1 operator<< . . . 293
10.67 gdcm::CSAHeaderDict Class Reference . . . 293
10.67.1 Detailed Description . . . 294
10.67.2 Member Typedef Documentation . . . 294
10.67.2.1 ConstIterator . . . 294
10.67.2.2 Iterator . . . 294
10.67.2.3 MapCSAHeaderDictEntry . . . 294
10.67.3 Constructor & Destructor Documentation . . . 294
10.67.3.1 CSAHeaderDict() [1/2] . . . 294
10.67.3.2 CSAHeaderDict() [2/2] . . . 294
10.67.4 Member Function Documentation . . . 294
10.67.4.1 AddCSAHeaderDictEntry() . . . 294
10.67.4.2 Begin() . . . 295
10.67.4.3 End() . . . 295
10.67.4.4 GetCSAHeaderDictEntry() . . . 295
10.67.4.5 IsEmpty() . . . 295
10.67.4.6 LoadDefault() . . . 295
10.67.4.7 operator=() . . . 295
10.67.5 Friends And Related Symbol Documentation . . . 295
10.67.5.1 Dicts . . . 295
10.67.5.2 operator<< . . . 296
10.68 gdcm::CSAHeaderDictEntry Class Reference . . . 296
10.68.1 Detailed Description . . . 297
10.68.2 Constructor & Destructor Documentation . . . 297
10.68.2.1 CSAHeaderDictEntry() . . . 297
10.68.3 Member Function Documentation . . . 297
10.68.3.1 GetDescription() . . . 297
10.68.3.2 GetName() . . . 297
10.68.3.3 GetVM() . . . 298
10.68.3.4 GetVR() . . . 298
10.68.3.5 operator<() . . . 298
10.68.3.6 SetDescription() . . . 298
10.68.3.7 SetName() . . . 298
10.68.3.8 SetVM() . . . 298
10.68.3.9 SetVR() . . . 298
10.68.4 Friends And Related Symbol Documentation . . . 299
10.68.4.1 operator<< . . . 299
10.69 gdcm::CSAHeaderDictException Class Reference . . . 299

10.70 gdcm::network::CStoreRQ Class Reference . . . 300
10.70.1 Detailed Description . . . 301
10.70.2 Member Function Documentation . . . 301
10.70.2.1 ConstructPDV() . . . 301
10.71 gdcm::network::CStoreRSP Class Reference . . . 301
10.71.1 Detailed Description . . . 302
10.71.2 Member Function Documentation . . . 302
10.71.2.1 ConstructPDV() . . . 302
10.72 gdcm::Curve Class Reference . . . 303
10.72.1 Detailed Description . . . 304
10.72.2 Constructor & Destructor Documentation . . . 305
10.72.2.1 Curve() [1/2] . . . 305
10.72.2.2 ∼Curve() . . . 305
10.72.2.3 Curve() [2/2] . . . 305
10.72.3 Member Function Documentation . . . 305
10.72.3.1 Decode() . . . 305
10.72.3.2 GetAsPoints() . . . 305
10.72.3.3 GetCurveDataDescriptor() . . . 305
10.72.3.4 GetDataValueRepresentation() . . . 305
10.72.3.5 GetDimensions() . . . 305
10.72.3.6 GetGroup() . . . 306
10.72.3.7 GetNumberOfCurves() . . . 306
10.72.3.8 GetNumberOfPoints() . . . 306
10.72.3.9 GetTypeOfData() . . . 306
10.72.3.10 GetTypeOfDataDescription() . . . 306
10.72.3.11 IsEmpty() . . . 306
10.72.3.12 Print() . . . 306
10.72.3.13 SetCoordinateStartValue() . . . 306
10.72.3.14 SetCoordinateStepValue() . . . 306
10.72.3.15 SetCurve() . . . 307
10.72.3.16 SetCurveDataDescriptor() . . . 307
10.72.3.17 SetCurveDescription() . . . 307
10.72.3.18 SetDataValueRepresentation() . . . 307
10.72.3.19 SetDimensions() . . . 307
10.72.3.20 SetGroup() . . . 307
10.72.3.21 SetNumberOfPoints() . . . 307
10.72.3.22 SetTypeOfData() . . . 307
10.72.3.23 Update() . . . 308
10.73 gdcm::DataElement Class Reference . . . 308

10.73.1 Detailed Description . . . 311
10.73.2 Member Typedef Documentation . . . 311
10.73.2.1 ValuePtr . . . 311
10.73.3 Constructor & Destructor Documentation . . . 311
10.73.3.1 DataElement() [1/2] . . . 311
10.73.3.2 DataElement() [2/2] . . . 312
10.73.4 Member Function Documentation . . . 312
10.73.4.1 Clear() . . . 312
10.73.4.2 Empty() . . . 312
10.73.4.3 GetByteValue() . . . 312
10.73.4.4 GetLength() . . . 312
10.73.4.5 GetSequenceOfFragments() [1/2] . . . 313
10.73.4.6 GetSequenceOfFragments() [2/2] . . . 313
10.73.4.7 GetTag() [1/2] . . . 313
10.73.4.8 GetTag() [2/2] . . . 313
10.73.4.9 GetValue() [1/2] . . . 313
10.73.4.10 GetValue() [2/2] . . . 314
10.73.4.11 GetValueAsSQ() . . . 314
10.73.4.12 GetVL() [1/2] . . . 314
10.73.4.13 GetVL() [2/2] . . . 314
10.73.4.14 GetVR() . . . 315
10.73.4.15 IsEmpty() . . . 315
10.73.4.16 IsUndefinedLength() . . . 315
10.73.4.17 operator<() . . . 315
10.73.4.18 operator=() . . . 316
10.73.4.19 operator==() . . . 316
10.73.4.20 Read() . . . 316
10.73.4.21 ReadOrSkip() . . . 316
10.73.4.22 ReadPreValue() . . . 316
10.73.4.23 ReadValue() . . . 316
10.73.4.24 ReadValueWithLength() . . . 317
10.73.4.25 ReadWithLength() . . . 317
10.73.4.26 SetByteValue() . . . 317
10.73.4.27 SetTag() . . . 318
10.73.4.28 SetValue() . . . 318
10.73.4.29 SetValueFieldLength() . . . 318
10.73.4.30 SetVL() . . . 318
10.73.4.31 SetVLToUndefined() . . . 319
10.73.4.32 SetVR() . . . 319

10.73.4.33 Write() . . . 319
10.73.5 Friends And Related Symbol Documentation . . . 319
10.73.5.1 operator<< . . . 319
10.73.6 Member Data Documentation . . . 320
10.73.6.1 TagField . . . 320
10.73.6.2 ValueField . . . 320
10.73.6.3 ValueLengthField . . . 320
10.73.6.4 VRField . . . 320
10.74 gdcm::DataElementException Class Reference . . . 321
10.75 gdcm::DataEvent Class Reference . . . 321
10.75.1 Detailed Description . . . 323
10.75.2 Member Typedef Documentation . . . 323
10.75.2.1 Self . . . 323
10.75.2.2 Superclass . . . 323
10.75.3 Constructor & Destructor Documentation . . . 323
10.75.3.1 DataEvent() [1/2] . . . 323
10.75.3.2 ~DataEvent() . . . 324
10.75.3.3 DataEvent() [2/2] . . . 324
10.75.4 Member Function Documentation . . . 324
10.75.4.1 CheckEvent() . . . 324
10.75.4.2 GetData() . . . 324
10.75.4.3 GetDataLength() . . . 324
10.75.4.4 GetEventName() . . . 324
10.75.4.5 MakeObject() . . . 324
10.75.4.6 operator=() . . . 325
10.75.4.7 SetData() . . . 325
10.76 gdcm::DataSet Class Reference . . . 325
10.76.1 Detailed Description . . . 327
10.76.2 Member Typedef Documentation . . . 328
10.76.2.1 ConstIterator . . . 328
10.76.2.2 DataElementSet . . . 328
10.76.2.3 Iterator . . . 328
10.76.2.4 SizeType . . . 328
10.76.3 Member Function Documentation . . . 328
10.76.3.1 Begin() [1/2] . . . 328
10.76.3.2 Begin() [2/2] . . . 329
10.76.3.3 Clear() . . . 329
10.76.3.4 ComputeDataElement() . . . 329
10.76.3.5 ComputeGroupLength() . . . 329

10.76.3.6 End() [1/2] . . . 329
10.76.3.7 End() [2/2] . . . 329
10.76.3.8 FindDataElement() [1/2] . . . 330
10.76.3.9 FindDataElement() [2/2] . . . 330
10.76.3.10 FindNextDataElement() . . . 330
10.76.3.11 GetDataElement() [1/2] . . . 330
10.76.3.12 GetDataElement() [2/2] . . . 331
10.76.3.13 GetDEEnd() . . . 331
10.76.3.14 GetDES() [1/2] . . . 331
10.76.3.15 GetDES() [2/2] . . . 331
10.76.3.16 GetLength() . . . 331
10.76.3.17 GetMediaStorage() . . . 332
10.76.3.18 GetPrivateCreator() . . . 332
10.76.3.19 GetPrivateTag() . . . 332
10.76.3.20 Insert() . . . 332
10.76.3.21 InsertDataElement() . . . 333
10.76.3.22 IsEmpty() . . . 333
10.76.3.23 operator()() . . . 333
10.76.3.24 operator=() . . . 333
10.76.3.25 operator[]() . . . 333
10.76.3.26 Print() . . . 333
10.76.3.27 Read() . . . 333
10.76.3.28 ReadNested() . . . 334
10.76.3.29 ReadSelectedPrivateTags() . . . 334
10.76.3.30 ReadSelectedPrivateTagsWithLength() . . . 334
10.76.3.31 ReadSelectedTags() . . . 334
10.76.3.32 ReadSelectedTagsWithLength() . . . 334
10.76.3.33 ReadUpToTag() . . . 334
10.76.3.34 ReadUpToTagWithLength() . . . 335
10.76.3.35 ReadWithLength() . . . 335
10.76.3.36 Remove() . . . 335
10.76.3.37 Replace() . . . 335
10.76.3.38 ReplaceEmpty() . . . 336
10.76.3.39 Size() . . . 336
10.76.3.40 Write() . . . 336
10.76.4 Friends And Related Symbol Documentation . . . 336
10.76.4.1 CSAHeader . . . 336
10.76.4.2 operator<< . . . 336
10.77 gdcm::DataSetEvent Class Reference . . . 337

10.77.1 Detailed Description . . . 338
10.77.2 Member Typedef Documentation . . . 338
10.77.2.1 Self . . . 338
10.77.2.2 Superclass . . . 338
10.77.3 Constructor & Destructor Documentation . . . 339
10.77.3.1 DataSetEvent() [1/2] . . . 339
10.77.3.2 ~DataSetEvent() . . . 339
10.77.3.3 DataSetEvent() [2/2] . . . 339
10.77.4 Member Function Documentation . . . 339
10.77.4.1 CheckEvent() . . . 339
10.77.4.2 GetDataSet() . . . 339
10.77.4.3 GetEventName() . . . 339
10.77.4.4 MakeObject() . . . 339
10.77.4.5 operator=() . . . 340
10.77.5 Member Data Documentation . . . 340
10.77.5.1 m_DataSet . . . 340
10.78 gdcm::DataSetHelper Class Reference . . . 340
10.78.1 Detailed Description . . . 340
10.78.2 Member Function Documentation . . . 341
10.78.2.1 ComputeVR() . . . 341
10.79 gdcm::Decoder Class Reference . . . 341
10.79.1 Detailed Description . . . 342
10.79.2 Constructor & Destructor Documentation . . . 342
10.79.2.1 ~Decoder() . . . 342
10.79.3 Member Function Documentation . . . 342
10.79.3.1 CanDecode() . . . 342
10.79.3.2 Decode() . . . 342
10.79.3.3 DecodeByStreams() . . . 343
10.80 gdcm::DefinedTerms Class Reference . . . 343
10.80.1 Detailed Description . . . 343
10.80.2 Constructor & Destructor Documentation . . . 343
10.80.2.1 DefinedTerms() . . . 343
10.81 gdcm::Defs Class Reference . . . 344
10.81.1 Detailed Description . . . 344
10.81.2 Constructor & Destructor Documentation . . . 345
10.81.2.1 Defs() [1/2] . . . 345
10.81.2.2 ~Defs() . . . 345
10.81.2.3 Defs() [2/2] . . . 345
10.81.3 Member Function Documentation . . . 345

10.81.3.1 GetIODFromFile() . . . 345
10.81.3.2 GetIODNameFromMediaStorage() . . . 345
10.81.3.3 GetIODs() [1/2] . . . 345
10.81.3.4 GetIODs() [2/2] . . . 345
10.81.3.5 GetMacros() [1/2] . . . 346
10.81.3.6 GetMacros() [2/2] . . . 346
10.81.3.7 GetModules() [1/2] . . . 346
10.81.3.8 GetModules() [2/2] . . . 346
10.81.3.9 GetTypeFromTag() . . . 346
10.81.3.10 IsEmpty() . . . 346
10.81.3.11 LoadDefaults() . . . 346
10.81.3.12 LoadFromFile() . . . 347
10.81.3.13 operator=() . . . 347
10.81.3.14 Verify() [1/2] . . . 347
10.81.3.15 Verify() [2/2] . . . 347
10.81.4 Friends And Related Symbol Documentation . . . 347
10.81.4.1 Global . . . 347
10.82 gdcm::DeltaEncodingCodec Class Reference . . . 348
10.82.1 Detailed Description . . . 350
10.82.2 Constructor & Destructor Documentation . . . 351
10.82.2.1 DeltaEncodingCodec() . . . 351
10.82.2.2 ∼DeltaEncodingCodec() . . . 351
10.82.3 Member Function Documentation . . . 351
10.82.3.1 CanDecode() . . . 351
10.82.3.2 Decode() [1/2] . . . 351
10.82.3.3 Decode() [2/2] . . . 351
10.83 gdcm::DICOMDIR Class Reference . . . 351
10.83.1 Detailed Description . . . 352
10.83.2 Constructor & Destructor Documentation . . . 352
10.83.2.1 DICOMDIR() [1/2] . . . 352
10.83.2.2 DICOMDIR() [2/2] . . . 352
10.84 gdcm::DICOMDIRGenerator Class Reference . . . 352
10.84.1 Detailed Description . . . 353
10.84.2 Member Typedef Documentation . . . 354
10.84.2.1 FilenamesType . . . 354
10.84.2.2 FilenameType . . . 354
10.84.3 Constructor & Destructor Documentation . . . 354
10.84.3.1 DICOMDIRGenerator() . . . 354
10.84.3.2 ∼DICOMDIRGenerator() . . . 354

10.84.4 Member Function Documentation . . . 354
10.84.4.1 AddImageDirectoryRecord() . . . 354
10.84.4.2 AddPatientDirectoryRecord() . . . 354
10.84.4.3 AddSeriesDirectoryRecord() . . . 354
10.84.4.4 AddStudyDirectoryRecord() . . . 354
10.84.4.5 Generate() . . . 355
10.84.4.6 GetFile() . . . 355
10.84.4.7 GetScanner() . . . 355
10.84.4.8 SetDescriptor() . . . 355
10.84.4.9 SetFile() . . . 355
10.84.4.10 SetFilenames() . . . 356
10.84.4.11 SetRootDirectory() . . . 356
10.85 gdcm::Dict Class Reference . . . 356
10.85.1 Detailed Description . . . 357
10.85.2 Member Typedef Documentation . . . 357
10.85.2.1 ConstIterator . . . 357
10.85.2.2 Iterator . . . 357
10.85.2.3 MapDictEntry . . . 357
10.85.3 Constructor & Destructor Documentation . . . 357
10.85.3.1 Dict() [1/2] . . . 357
10.85.3.2 Dict() [2/2] . . . 358
10.85.4 Member Function Documentation . . . 358
10.85.4.1 AddDictEntry() . . . 358
10.85.4.2 Begin() . . . 358
10.85.4.3 End() . . . 358
10.85.4.4 GetDictEntry() . . . 358
10.85.4.5 GetDictEntryByKeyword() . . . 359
10.85.4.6 GetDictEntryByName() . . . 359
10.85.4.7 GetKeywordFromTag() . . . 359
10.85.4.8 IsEmpty() . . . 359
10.85.4.9 LoadDefault() . . . 359
10.85.4.10 operator=() . . . 359
10.85.5 Friends And Related Symbol Documentation . . . 360
10.85.5.1 Dicts . . . 360
10.85.5.2 operator<< . . . 360
10.86 gdcm::DictConverter Class Reference . . . 360
10.86.1 Detailed Description . . . 361
10.86.2 Member Enumeration Documentation . . . 361
10.86.2.1 OutputTypes . . . 361

10.86.3 Constructor & Destructor Documentation . . . 361
10.86.3.1 DictConverter() . . . 361
10.86.3.2 ∼DictConverter() . . . 362
10.86.4 Member Function Documentation . . . 362
10.86.4.1 AddGroupLength() . . . 362
10.86.4.2 Convert() . . . 362
10.86.4.3 ConvertToCXX() . . . 362
10.86.4.4 ConvertToXML() . . . 362
10.86.4.5 GetDictName() . . . 362
10.86.4.6 GetInputFilename() . . . 362
10.86.4.7 GetOutputFilename() . . . 362
10.86.4.8 GetOutputType() . . . 363
10.86.4.9 Readuint16() . . . 363
10.86.4.10 ReadVM() . . . 363
10.86.4.11 ReadVR() . . . 363
10.86.4.12 SetDictName() . . . 363
10.86.4.13 SetInputFileName() . . . 363
10.86.4.14 SetOutputFileName() . . . 363
10.86.4.15 SetOutputType() . . . 363
10.86.4.16 WriteFooter() . . . 364
10.86.4.17 WriteHeader() . . . 364
10.87 gdcm::DictEntry Class Reference . . . 364
10.87.1 Detailed Description . . . 365
10.87.2 Constructor & Destructor Documentation . . . 365
10.87.2.1 DictEntry() . . . 365
10.87.3 Member Function Documentation . . . 365
10.87.3.1 GetKeyword() . . . 365
10.87.3.2 GetName() . . . 366
10.87.3.3 GetRetired() . . . 366
10.87.3.4 GetVM() . . . 366
10.87.3.5 GetVR() . . . 366
10.87.3.6 IsUnique() . . . 366
10.87.3.7 SetElementXX() . . . 367
10.87.3.8 SetGroupXX() . . . 367
10.87.3.9 SetKeyword() . . . 367
10.87.3.10 SetName() . . . 367
10.87.3.11 SetRetired() . . . 367
10.87.3.12 SetVM() . . . 367
10.87.3.13 SetVR() . . . 367

10.87.4 Friends And Related Symbol Documentation . . . 368
10.87.4.1 Dict . . . 368
10.87.4.2 operator<< . . . 368
10.88 gdcm::DictPrinter Class Reference . . . 368
10.88.1 Detailed Description . . . 370
10.88.2 Constructor & Destructor Documentation . . . 370
10.88.2.1 DictPrinter() . . . 370
10.88.2.2 ~DictPrinter() . . . 370
10.88.3 Member Function Documentation . . . 371
10.88.3.1 Print() . . . 371
10.88.3.2 PrintDataElement2() . . . 371
10.88.3.3 PrintDataSet2() . . . 371
10.89 gdcm::Dicts Class Reference . . . 371
10.89.1 Detailed Description . . . 372
10.89.2 Member Enumeration Documentation . . . 372
10.89.2.1 ConstructorType . . . 372
10.89.3 Constructor & Destructor Documentation . . . 373
10.89.3.1 Dicts() [1/2] . . . 373
10.89.3.2 ~Dicts() . . . 373
10.89.3.3 Dicts() [2/2] . . . 373
10.89.4 Member Function Documentation . . . 373
10.89.4.1 GetConstructorString() . . . 373
10.89.4.2 GetCSAHeaderDict() . . . 373
10.89.4.3 GetDictEntry() [1/2] . . . 373
10.89.4.4 GetDictEntry() [2/2] . . . 374
10.89.4.5 GetPrivateDict() [1/2] . . . 374
10.89.4.6 GetPrivateDict() [2/2] . . . 374
10.89.4.7 GetPublicDict() . . . 374
10.89.4.8 IsEmpty() . . . 374
10.89.4.9 LoadDefaults() . . . 374
10.89.4.10 operator=() . . . 375
10.89.5 Friends And Related Symbol Documentation . . . 375
10.89.5.1 Global . . . 375
10.89.5.2 operator<< . . . 375
10.90 gdcm::network::DIMSE Class Reference . . . 375
10.90.1 Detailed Description . . . 376
10.90.2 Member Enumeration Documentation . . . 376
10.90.2.1 CommandTypes . . . 376
10.91 gdcm::DirectionCosines Class Reference . . . 376

10.91.1 Detailed Description . . . 377
10.91.2 Constructor & Destructor Documentation . . . 377
10.91.2.1 DirectionCosines() [1/2] . . . 377
10.91.2.2 DirectionCosines() [2/2] . . . 378
10.91.2.3 ∼DirectionCosines() . . . 378
10.91.3 Member Function Documentation . . . 378
10.91.3.1 ComputeDistAlongNormal() . . . 378
10.91.3.2 Cross() . . . 378
10.91.3.3 CrossDot() . . . 378
10.91.3.4 Dot() [1/2] . . . 378
10.91.3.5 Dot() [2/2] . . . 379
10.91.3.6 IsValid() . . . 379
10.91.3.7 Norm() . . . 379
10.91.3.8 Normalize() [1/2] . . . 379
10.91.3.9 Normalize() [2/2] . . . 379
10.91.3.10 operator const double ∗() . . . 379
10.91.3.11 Print() . . . 379
10.91.3.12 SetFromString() . . . 380
10.92 gdcm::Directory Class Reference . . . 380
10.92.1 Detailed Description . . . 381
10.92.2 Member Typedef Documentation . . . 381
10.92.2.1 FilenamesType . . . 381
10.92.2.2 FilenameType . . . 381
10.92.3 Constructor & Destructor Documentation . . . 381
10.92.3.1 Directory() . . . 381
10.92.3.2 ∼Directory() . . . 381
10.92.4 Member Function Documentation . . . 382
10.92.4.1 Explore() . . . 382
10.92.4.2 GetDirectories() . . . 382
10.92.4.3 GetFilenames() . . . 382
10.92.4.4 GetToplevel() . . . 382
10.92.4.5 Load() . . . 382
10.92.4.6 Print() . . . 383
10.92.5 Friends And Related Symbol Documentation . . . 383
10.92.5.1 operator<< . . . 383
10.93 gdcm::DirectoryHelper Class Reference . . . 383
10.93.1 Detailed Description . . . 384
10.93.2 Member Function Documentation . . . 384
10.93.2.1 GetCTImageSeriesUIDs() . . . 384

10.93.2.2 GetFilenamesFromSeriesUIDs() . . . 384
10.93.2.3 GetFrameOfReference() . . . 384
10.93.2.4 GetMRImageSeriesUIDs() . . . 384
10.93.2.5 GetRTStructSeriesUIDs() . . . 384
10.93.2.6 GetSeriesUIDsBySOPClassUID() . . . 384
10.93.2.7 GetSOPClassUID() . . . 385
10.93.2.8 GetStringValueFromTag() . . . 385
10.93.2.9 LoadImageFromFiles() . . . 385
10.93.2.10 RetrieveSOPInstanceUIDFromIndex() . . . 385
10.93.2.11 RetrieveSOPInstanceUIDFromZPosition() . . . 385
10.94 gdcm::DPath Class Reference . . . 385
10.94.1 Detailed Description . . . 386
10.94.2 Constructor & Destructor Documentation . . . 386
10.94.2.1 DPath() . . . 386
10.94.2.2 ∼DPath() . . . 386
10.94.3 Member Function Documentation . . . 387
10.94.3.1 ConstructFromString() . . . 387
10.94.3.2 IsValid() . . . 387
10.94.3.3 Match() . . . 387
10.94.3.4 operator<() . . . 387
10.94.3.5 Print() . . . 387
10.94.4 Friends And Related Symbol Documentation . . . 387
10.94.4.1 operator<< . . . 387
10.95 gdcm::DummyValueGenerator Class Reference . . . 388
10.95.1 Detailed Description . . . 388
10.95.2 Member Function Documentation . . . 388
10.95.2.1 Generate() . . . 388
10.96 gdcm::Dumper Class Reference . . . 389
10.96.1 Detailed Description . . . 390
10.96.2 Constructor & Destructor Documentation . . . 391
10.96.2.1 Dumper() . . . 391
10.96.2.2 ∼Dumper() . . . 391
10.97 gdcm::Element< TVR, TVM > Class Template Reference . . . 391
10.97.1 Detailed Description . . . 393
10.97.2 Member Typedef Documentation . . . 393
10.97.2.1 Type . . . 393
10.97.3 Member Function Documentation . . . 393
10.97.3.1 GetAsDataElement() . . . 393
10.97.3.2 GetLength() . . . 394

10.97.3.3 GetValue() [1/2] . . . 394
10.97.3.4 GetValue() [2/2] . . . 394
10.97.3.5 GetValues() . . . 394
10.97.3.6 GetVM() . . . 394
10.97.3.7 GetVR() . . . 394
10.97.3.8 operator[]() . . . 395
10.97.3.9 Print() . . . 395
10.97.3.10 Read() . . . 395
10.97.3.11 Set() . . . 395
10.97.3.12 SetFromDataElement() . . . 395
10.97.3.13 SetNoSwap() . . . 396
10.97.3.14 SetValue() . . . 396
10.97.3.15 Write() . . . 396
10.97.4 Member Data Documentation . . . 396
10.97.4.1 Internal . . . 396
10.98 gdcm::Element< TVR, VM::VM1_2 > Class Template Reference . . . 397
10.98.1 Member Typedef Documentation . . . 398
10.98.1.1 Parent . . . 398
10.98.2 Member Function Documentation . . . 399
10.98.2.1 SetLength() . . . 399
10.99 gdcm::Element< TVR, VM::VM1_n > Class Template Reference . . . 399
10.99.1 Member Typedef Documentation . . . 400
10.99.1.1 Type . . . 400
10.99.2 Constructor & Destructor Documentation . . . 400
10.99.2.1 Element() [1/2] . . . 400
10.99.2.2 ~Element() . . . 400
10.99.2.3 Element() [2/2] . . . 401
10.99.3 Member Function Documentation . . . 401
10.99.3.1 GetAsDataElement() . . . 401
10.99.3.2 GetLength() . . . 401
10.99.3.3 GetValue() [1/2] . . . 401
10.99.3.4 GetValue() [2/2] . . . 401
10.99.3.5 GetVM() . . . 401
10.99.3.6 GetVR() . . . 401
10.99.3.7 operator=() . . . 402
10.99.3.8 operator[]() . . . 402
10.99.3.9 Print() . . . 402
10.99.3.10 Read() . . . 402
10.99.3.11 Set() . . . 402

10.99.3.12 SetArray() . . . 402
10.99.3.13 SetFromDataElement() . . . 403
10.99.3.14 SetLength() . . . 403
10.99.3.15 SetNoSwap() . . . 403
10.99.3.16 SetValue() . . . 403
10.99.3.17 Write() . . . 403
10.99.3.18 WriteASCII() . . . 403
10.100 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference . . . 404
10.100.1 Member Typedef Documentation . . . 406
10.100.1.1 Parent . . . 406
10.100.2 Member Function Documentation . . . 406
10.100.2.1 SetLength() . . . 406
10.101 gdcm::Element< TVR, VM::VM2_n > Class Template Reference . . . 406
10.101.1 Member Typedef Documentation . . . 408
10.101.1.1 Parent . . . 408
10.101.2 Member Function Documentation . . . 408
10.101.2.1 SetLength() . . . 408
10.102 gdcm::Element< TVR, VM::VM3_3n > Class Template Reference . . . 408
10.102.1 Member Typedef Documentation . . . 411
10.102.1.1 Parent . . . 411
10.102.2 Member Function Documentation . . . 411
10.102.2.1 SetLength() . . . 411
10.103 gdcm::Element< TVR, VM::VM3_4 > Class Template Reference . . . 411
10.103.1 Member Typedef Documentation . . . 413
10.103.1.1 Parent . . . 413
10.103.2 Member Function Documentation . . . 413
10.103.2.1 SetLength() . . . 413
10.104 gdcm::Element< TVR, VM::VM3_n > Class Template Reference . . . 413
10.104.1 Member Typedef Documentation . . . 415
10.104.1.1 Parent . . . 415
10.104.2 Member Function Documentation . . . 416
10.104.2.1 SetLength() . . . 416
10.105 gdcm::Element< VR::AS, VM::VM5 > Class Reference . . . 416
10.105.1 Member Function Documentation . . . 416
10.105.1.1 GetLength() . . . 416
10.105.1.2 Print() . . . 416
10.105.2 Member Data Documentation . . . 417
10.105.2.1 Internal . . . 417
10.106 gdcm::Element< VR::OB, VM::VM1 > Class Reference . . . 417

10.107 gdcm::Element< VR::OW, VM::VM1 > Class Reference . . . 419
10.108 gdcm::ElementDisableCombinations< TVR, TVM > Class Template Reference . . . 421
10.108.1 Detailed Description . . . 421
10.109 gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Reference . . . 422
10.110 gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Reference . . . 422
10.111 gdcm::EmptyMaskGenerator Class Reference . . . 422
10.111.1 Detailed Description . . . 423
10.111.2 Member Enumeration Documentation . . . 423
10.111.2.1 SOPClassUIDMode . . . 423
10.111.3 Constructor & Destructor Documentation . . . 424
10.111.3.1 EmptyMaskGenerator() . . . 424
10.111.3.2 ~EmptyMaskGenerator() . . . 424
10.111.4 Member Function Documentation . . . 424
10.111.4.1 Execute() . . . 424
10.111.4.2 SetInputDirectory() . . . 424
10.111.4.3 SetOutputDirectory() . . . 424
10.111.4.4 SetSOPClassUIDMode() . . . 425
10.112 gdcm::EncapsulatedDocument Class Reference . . . 425
10.112.1 Detailed Description . . . 425
10.112.2 Constructor & Destructor Documentation . . . 425
10.112.2.1 EncapsulatedDocument() . . . 425
10.113 gdcm::EncodingImplementation< T > Class Template Reference . . . 425
10.113.1 Detailed Description . . . 426
10.114 gdcm::EncodingImplementation< VR::VRASCII > Class Reference . . . 426
10.114.1 Member Function Documentation . . . 426
10.114.1.1 Read() . . . 426
10.114.1.2 ReadComputeLength() . . . 427
10.114.1.3 ReadNoSwap() . . . 427
10.114.1.4 Write() [1/2] . . . 427
10.114.1.5 Write() [2/2] . . . 427
10.115 gdcm::EncodingImplementation< VR::VRBINARY > Class Reference . . . 427
10.115.1 Member Function Documentation . . . 428
10.115.1.1 Read() . . . 428
10.115.1.2 ReadComputeLength() . . . 428
10.115.1.3 ReadNoSwap() . . . 428
10.115.1.4 Write() . . . 428
10.116 gdcm::EndEvent Class Reference . . . 429
10.117 gdcm::EnumeratedValues Class Reference . . . 430
10.117.1 Detailed Description . . . 430

10.117.2 Constructor & Destructor Documentation . . . 430
10.117.2.1 EnumeratedValues() . . . 430
10.118 gdcm::EquipmentManufacturer Class Reference . . . 431
10.118.1 Detailed Description . . . 431
10.118.2 Member Enumeration Documentation . . . 431
10.118.2.1 Type . . . 431
10.118.3 Member Function Documentation . . . 432
10.118.3.1 Compute() . . . 432
10.118.3.2 TypeToString() . . . 432
10.119 gdcm::Event Class Reference . . . 432
10.119.1 Detailed Description . . . 434
10.119.2 Constructor & Destructor Documentation . . . 434
10.119.2.1 Event() [1/2] . . . 434
10.119.2.2 ~Event() . . . 434
10.119.2.3 Event() [2/2] . . . 434
10.119.3 Member Function Documentation . . . 434
10.119.3.1 CheckEvent() . . . 434
10.119.3.2 GetEventName() . . . 434
10.119.3.3 MakeObject() . . . 435
10.119.3.4 operator=() . . . 435
10.119.3.5 Print() . . . 435
10.120 gdcm::Exception Class Reference . . . 435
10.120.1 Detailed Description . . . 436
10.120.2 Constructor & Destructor Documentation . . . 436
10.120.2.1 Exception() . . . 436
10.120.2.2 ~Exception() . . . 437
10.120.3 Member Function Documentation . . . 437
10.120.3.1 GetDescription() . . . 437
10.120.3.2 what() . . . 437
10.121 gdcm::ExitEvent Class Reference . . . 438
10.122 gdcm::ExplicitDataElement Class Reference . . . 439
10.122.1 Detailed Description . . . 442
10.122.2 Member Function Documentation . . . 442
10.122.2.1 GetLength() . . . 442
10.122.2.2 Read() . . . 442
10.122.2.3 ReadPreValue() . . . 442
10.122.2.4 ReadValue() . . . 442
10.122.2.5 ReadWithLength() . . . 443
10.122.2.6 Write() . . . 443

10.123 gdcm::ExplicitImplicitDataElement Class Reference . . . 443
10.123.1 Detailed Description . . . 446
10.123.2 Member Function Documentation . . . 446
10.123.2.1 GetLength() . . . 446
10.123.2.2 Read() . . . 446
10.123.2.3 ReadPreValue() . . . 446
10.123.2.4 ReadValue() . . . 446
10.123.2.5 ReadWithLength() . . . 447
10.124 gdcm::Fiducials Class Reference . . . 447
10.124.1 Detailed Description . . . 447
10.124.2 Constructor & Destructor Documentation . . . 447
10.124.2.1 Fiducials() . . . 447
10.125 gdcm::File Class Reference . . . 448
10.125.1 Detailed Description . . . 449
10.125.2 Constructor & Destructor Documentation . . . 450
10.125.2.1 File() . . . 450
10.125.2.2 ∼File() . . . 450
10.125.3 Member Function Documentation . . . 450
10.125.3.1 GetDataSet() [1/2] . . . 450
10.125.3.2 GetDataSet() [2/2] . . . 451
10.125.3.3 GetHeader() [1/2] . . . 451
10.125.3.4 GetHeader() [2/2] . . . 451
10.125.3.5 Read() . . . 451
10.125.3.6 SetDataSet() . . . 452
10.125.3.7 SetHeader() . . . 452
10.125.3.8 Write() . . . 452
10.125.4 Friends And Related Symbol Documentation . . . 452
10.125.4.1 operator<< . . . 452
10.126 gdcm::FileAnonymizer Class Reference . . . 453
10.126.1 Detailed Description . . . 455
10.126.2 Constructor & Destructor Documentation . . . 455
10.126.2.1 FileAnonymizer() . . . 455
10.126.2.2 ∼FileAnonymizer() . . . 455
10.126.3 Member Function Documentation . . . 455
10.126.3.1 Empty() . . . 455
10.126.3.2 Remove() . . . 456
10.126.3.3 Replace() [1/2] . . . 456
10.126.3.4 Replace() [2/2] . . . 456
10.126.3.5 SetInputFileName() . . . 456

10.126.3.6 SetOutputFileName() . . . 457
10.126.3.7 Write() . . . 457
10.127 gdcm::FileChangeTransferSyntax Class Reference . . . 457
10.127.1 Detailed Description . . . 459
10.127.2 Constructor & Destructor Documentation . . . 459
10.127.2.1 FileChangeTransferSyntax() . . . 459
10.127.2.2 ~FileChangeTransferSyntax() . . . 460
10.127.3 Member Function Documentation . . . 460
10.127.3.1 Change() . . . 460
10.127.3.2 GetCodec() . . . 460
10.127.3.3 New() . . . 460
10.127.3.4 SetInputFileName() . . . 460
10.127.3.5 SetOutputFileName() . . . 461
10.127.3.6 SetTransferSyntax() . . . 461
10.128 gdcm::FileDecompressLookupTable Class Reference . . . 461
10.128.1 Detailed Description . . . 463
10.128.2 Constructor & Destructor Documentation . . . 463
10.128.2.1 FileDecompressLookupTable() . . . 463
10.128.2.2 ~FileDecompressLookupTable() . . . 463
10.128.3 Member Function Documentation . . . 463
10.128.3.1 Change() . . . 463
10.128.3.2 GetFile() . . . 464
10.128.3.3 GetPixmap() [1/2] . . . 464
10.128.3.4 GetPixmap() [2/2] . . . 464
10.128.3.5 SetFile() . . . 464
10.128.3.6 SetPixmap() . . . 464
10.129 gdcm::FileDerivation Class Reference . . . 464
10.129.1 Detailed Description . . . 465
10.129.2 Constructor & Destructor Documentation . . . 465
10.129.2.1 FileDerivation() . . . 465
10.129.2.2 ~FileDerivation() . . . 466
10.129.3 Member Function Documentation . . . 466
10.129.3.1 AddDerivationDescription() . . . 466
10.129.3.2 AddPurposeOfReferenceCodeSequence() . . . 466
10.129.3.3 AddReference() . . . 466
10.129.3.4 AddSourceImageSequence() . . . 466
10.129.3.5 Derive() . . . 466
10.129.3.6 GetFile() [1/2] . . . 467
10.129.3.7 GetFile() [2/2] . . . 467

10.129.3.8 SetAppendDerivationHistory() . . . 467
10.129.3.9 SetDerivationCodeSequenceCodeValue() . . . 467
10.129.3.10 SetDerivationDescription() . . . 467
10.129.3.11 SetFile() . . . 468
10.129.3.12 SetPurposeOfReferenceCodeSequenceCodeValue() . . . 468
10.130 gdcm::FileExplicitFilter Class Reference . . . 468
10.130.1 Detailed Description . . . 469
10.130.2 Constructor & Destructor Documentation . . . 469
10.130.2.1 FileExplicitFilter() . . . 469
10.130.2.2 ∼FileExplicitFilter() . . . 469
10.130.3 Member Function Documentation . . . 469
10.130.3.1 Change() . . . 469
10.130.3.2 ChangeFMI() . . . 470
10.130.3.3 GetFile() . . . 470
10.130.3.4 ProcessDataSet() . . . 470
10.130.3.5 SetChangePrivateTags() . . . 470
10.130.3.6 SetFile() . . . 470
10.130.3.7 SetRecomputeItemLength() . . . 470
10.130.3.8 SetRecomputeSequenceLength() . . . 470
10.130.3.9 SetUseVRUN() . . . 471
10.131 gdcm::FileMetaInformation Class Reference . . . 471
10.131.1 Detailed Description . . . 475
10.131.2 Constructor & Destructor Documentation . . . 475
10.131.2.1 FileMetaInformation() [1/2] . . . 475
10.131.2.2 ∼FileMetaInformation() . . . 475
10.131.2.3 FileMetaInformation() [2/2] . . . 475
10.131.3 Member Function Documentation . . . 475
10.131.3.1 AppendImplementationClassUID() . . . 475
10.131.3.2 ComputeDataSetMediaStorageSOPClass() . . . 476
10.131.3.3 ComputeDataSetTransferSyntax() . . . 476
10.131.3.4 Default() . . . 476
10.131.3.5 FillFromDataSet() . . . 476
10.131.3.6 GetDataSetTransferSyntax() . . . 476
10.131.3.7 GetFileMetaInformationVersion() . . . 476
10.131.3.8 GetFullLength() . . . 476
10.131.3.9 GetGDCMImplementationClassUID() . . . 476
10.131.3.10 GetGDCMImplementationVersionName() . . . 477
10.131.3.11 GetGDCMSourceApplicationEntityTitle() . . . 477
10.131.3.12 GetImplementationClassUID() . . . 477

10.131.3.13 GetImplementationVersionName() . . . 477
10.131.3.14 GetMediaStorage() . . . 477
10.131.3.15 GetMediaStorageAsString() . . . 477
10.131.3.16 GetMetaInformationTS() . . . 477
10.131.3.17 GetPreamble() [1/2] . . . 477
10.131.3.18 GetPreamble() [2/2] . . . 477
10.131.3.19 GetSourceApplicationEntityTitle() . . . 478
10.131.3.20 Insert() . . . 478
10.131.3.21 IsValid() . . . 478
10.131.3.22 operator=() . . . 478
10.131.3.23 Read() . . . 478
10.131.3.24 ReadCompat() . . . 478
10.131.3.25 ReadCompatInternal() . . . 478
10.131.3.26 Replace() . . . 479
10.131.3.27 SetDataSetTransferSyntax() . . . 479
10.131.3.28 SetImplementationClassUID() . . . 479
10.131.3.29 SetImplementationVersionName() . . . 479
10.131.3.30 SetPreamble() . . . 479
10.131.3.31 SetSourceApplicationEntityTitle() . . . 480
10.131.3.32 Write() . . . 480
10.131.4 Friends And Related Symbol Documentation . . . 480
10.131.4.1 operator<< . . . 480
10.131.5 Member Data Documentation . . . 480
10.131.5.1 DataSetMS . . . 480
10.131.5.2 DataSetTS . . . 480
10.131.5.3 MetaInformationTS . . . 480
10.132 gdcm::Filename Class Reference . . . 481
10.132.1 Detailed Description . . . 481
10.132.2 Constructor & Destructor Documentation . . . 482
10.132.2.1 Filename() . . . 482
10.132.3 Member Function Documentation . . . 482
10.132.3.1 EndWith() . . . 482
10.132.3.2 GetExtension() . . . 482
10.132.3.3 GetFileName() . . . 482
10.132.3.4 GetName() . . . 482
10.132.3.5 GetPath() . . . 482
10.132.3.6 IsEmpty() . . . 483
10.132.3.7 IsIdentical() . . . 483
10.132.3.8 Join() . . . 483

10.132.3.9 operator const char *() . . . 483
10.132.3.10 ToUnixSlashes() . . . 483
10.132.3.11 ToWindowsSlashes() . . . 483
10.133 gdcm::FileNameEvent Class Reference . . . 484
10.133.1 Detailed Description . . . 485
10.133.2 Member Typedef Documentation . . . 485
10.133.2.1 Self . . . 485
10.133.2.2 Superclass . . . 485
10.133.3 Constructor & Destructor Documentation . . . 486
10.133.3.1 FileNameEvent() [1/2] . . . 486
10.133.3.2 ~FileNameEvent() . . . 486
10.133.3.3 FileNameEvent() [2/2] . . . 486
10.133.4 Member Function Documentation . . . 486
10.133.4.1 CheckEvent() . . . 486
10.133.4.2 GetEventName() . . . 486
10.133.4.3 GetFileName() . . . 486
10.133.4.4 MakeObject() . . . 487
10.133.4.5 operator=() . . . 487
10.133.4.6 SetFileName() . . . 487
10.134 gdcm::FilenameGenerator Class Reference . . . 487
10.134.1 Detailed Description . . . 488
10.134.2 Member Typedef Documentation . . . 488
10.134.2.1 FilenamesType . . . 488
10.134.2.2 FilenameType . . . 488
10.134.2.3 SizeType . . . 489
10.134.3 Constructor & Destructor Documentation . . . 489
10.134.3.1 FilenameGenerator() . . . 489
10.134.3.2 ~FilenameGenerator() . . . 489
10.134.4 Member Function Documentation . . . 489
10.134.4.1 Generate() . . . 489
10.134.4.2 GetFilename() . . . 489
10.134.4.3 GetFilenames() . . . 489
10.134.4.4 GetNumberOfFilenames() . . . 490
10.134.4.5 GetPattern() . . . 490
10.134.4.6 GetPrefix() . . . 490
10.134.4.7 SetNumberOfFilenames() . . . 490
10.134.4.8 SetPattern() . . . 490
10.134.4.9 SetPrefix() . . . 491
10.135 gdcm::FileSet Class Reference . . . 491

10.135.1 Detailed Description . . . 491
10.135.2 Member Typedef Documentation . . . 491
10.135.2.1 FilesType . . . 491
10.135.2.2 FileType . . . 492
10.135.3 Constructor & Destructor Documentation . . . 492
10.135.3.1 FileSet() . . . 492
10.135.4 Member Function Documentation . . . 492
10.135.4.1 AddFile() [1/2] . . . 492
10.135.4.2 AddFile() [2/2] . . . 492
10.135.4.3 GetFiles() . . . 492
10.135.4.4 SetFiles() . . . 492
10.135.5 Friends And Related Symbol Documentation . . . 493
10.135.5.1 operator<< . . . 493
10.136 gdcm::FileStreamer Class Reference . . . 493
10.136.1 Detailed Description . . . 495
10.136.2 Constructor & Destructor Documentation . . . 496
10.136.2.1 FileStreamer() . . . 496
10.136.2.2 ~FileStreamer() . . . 496
10.136.3 Member Function Documentation . . . 496
10.136.3.1 AppendToDataElement() . . . 496
10.136.3.2 AppendToGroupDataElement() . . . 496
10.136.3.3 CheckDataElement() . . . 496
10.136.3.4 CheckTemplateFileName() . . . 497
10.136.3.5 New() . . . 497
10.136.3.6 ReserveDataElement() . . . 497
10.136.3.7 ReserveGroupDataElement() . . . 497
10.136.3.8 SetOutputFileName() . . . 497
10.136.3.9 SetTemplateFileName() . . . 498
10.136.3.10 StartDataElement() . . . 498
10.136.3.11 StartGroupDataElement() . . . 498
10.136.3.12 StopDataElement() . . . 498
10.136.3.13 StopGroupDataElement() . . . 499
10.137 gdcm::FileWithName Class Reference . . . 499
10.137.1 Detailed Description . . . 501
10.137.2 Constructor & Destructor Documentation . . . 501
10.137.2.1 FileWithName() . . . 501
10.137.3 Member Data Documentation . . . 501
10.137.3.1 filename . . . 501
10.138 gdcm::FindPatientRootQuery Class Reference . . . 502

10.138.1 Detailed Description . . . 504
10.138.2 Constructor & Destructor Documentation . . . 504
10.138.2.1 FindPatientRootQuery() . . . 504
10.138.3 Member Function Documentation . . . 504
10.138.3.1 GetAbstractSyntaxUID() . . . 504
10.138.3.2 GetTagListByLevel() . . . 505
10.138.3.3 InitializeDataSet() . . . 505
10.138.3.4 ValidateQuery() . . . 505
10.138.4 Friends And Related Symbol Documentation . . . 505
10.138.4.1 QueryFactory . . . 505
10.139 gdcm::FindStudyRootQuery Class Reference . . . 506
10.139.1 Detailed Description . . . 508
10.139.2 Constructor & Destructor Documentation . . . 508
10.139.2.1 FindStudyRootQuery() . . . 508
10.139.3 Member Function Documentation . . . 508
10.139.3.1 GetAbstractSyntaxUID() . . . 508
10.139.3.2 GetTagListByLevel() . . . 509
10.139.3.3 InitializeDataSet() . . . 509
10.139.3.4 ValidateQuery() . . . 509
10.139.4 Friends And Related Symbol Documentation . . . 509
10.139.4.1 QueryFactory . . . 509
10.140 gdcm::Fragment Class Reference . . . 510
10.140.1 Detailed Description . . . 512
10.140.2 Constructor & Destructor Documentation . . . 513
10.140.2.1 Fragment() . . . 513
10.140.3 Member Function Documentation . . . 513
10.140.3.1 ComputeLength() . . . 513
10.140.3.2 GetLength() . . . 513
10.140.3.3 Read() . . . 513
10.140.3.4 ReadBacktrack() . . . 513
10.140.3.5 ReadPreValue() . . . 513
10.140.3.6 ReadValue() . . . 514
10.140.3.7 Write() . . . 514
10.140.4 Friends And Related Symbol Documentation . . . 514
10.140.4.1 operator<< . . . 514
10.141 gdcm::Global Class Reference . . . 514
10.141.1 Detailed Description . . . 515
10.141.2 Constructor & Destructor Documentation . . . 515
10.141.2.1 Global() [1/2] . . . 515

10.141.2.2 ~Global() . . . 515
10.141.2.3 Global() [2/2] . . . 515
10.141.3 Member Function Documentation . . . 516
10.141.3.1 Append() . . . 516
10.141.3.2 GetDefs() . . . 516
10.141.3.3 GetDicts() [1/2] . . . 516
10.141.3.4 GetDicts() [2/2] . . . 516
10.141.3.5 GetInstance() . . . 516
10.141.3.6 LoadResourcesFiles() . . . 517
10.141.3.7 Locate() . . . 517
10.141.3.8 operator=() . . . 517
10.141.3.9 Prepend() . . . 517
10.141.4 Friends And Related Symbol Documentation . . . 517
10.141.4.1 operator<< . . . 517
10.142 gdcm::GroupDict Class Reference . . . 518
10.142.1 Detailed Description . . . 518
10.142.2 Member Typedef Documentation . . . 518
10.142.2.1 GroupStringVector . . . 518
10.142.3 Constructor & Destructor Documentation . . . 519
10.142.3.1 GroupDict() . . . 519
10.142.3.2 ~GroupDict() . . . 519
10.142.4 Member Function Documentation . . . 519
10.142.4.1 Add() . . . 519
10.142.4.2 GetAbbreviation() . . . 519
10.142.4.3 GetName() . . . 519
10.142.4.4 Insert() . . . 519
10.142.4.5 Size() . . . 519
10.142.5 Friends And Related Symbol Documentation . . . 520
10.142.5.1 operator<< . . . 520
10.143 gdcm::IconImageFilter Class Reference . . . 520
10.143.1 Detailed Description . . . 521
10.143.2 Constructor & Destructor Documentation . . . 521
10.143.2.1 IconImageFilter() . . . 521
10.143.2.2 ~IconImageFilter() . . . 521
10.143.3 Member Function Documentation . . . 522
10.143.3.1 Extract() . . . 522
10.143.3.2 ExtractIconImages() . . . 522
10.143.3.3 ExtractVeproIconImages() . . . 522
10.143.3.4 GetFile() [1/2] . . . 522

10.143.3.5 GetFile() [2/2] . . . 522
10.143.3.6 GetIconImage() . . . 522
10.143.3.7 GetNumberOfIconImages() . . . 523
10.143.3.8 SetFile() . . . 523
10.144 gdcm::IconImageGenerator Class Reference . . . 523
10.144.1 Detailed Description . . . 524
10.144.2 Constructor & Destructor Documentation . . . 524
10.144.2.1 IconImageGenerator() . . . 524
10.144.2.2 ~IconImageGenerator() . . . 524
10.144.3 Member Function Documentation . . . 524
10.144.3.1 AutoPixelMinMax() . . . 524
10.144.3.2 ConvertRGBToPaletteColor() . . . 525
10.144.3.3 Generate() . . . 525
10.144.3.4 GetIconImage() . . . 525
10.144.3.5 GetPixmap() [1/2] . . . 525
10.144.3.6 GetPixmap() [2/2] . . . 525
10.144.3.7 SetOutputDimensions() . . . 525
10.144.3.8 SetOutsideValuePixel() . . . 526
10.144.3.9 SetPixelMinMax() . . . 526
10.144.3.10 SetPixmap() . . . 526
10.145 gdcm::ignore_char Struct Reference . . . 526
10.145.1 Constructor & Destructor Documentation . . . 527
10.145.1.1 ignore_char() . . . 527
10.145.2 Member Data Documentation . . . 527
10.145.2.1 m_char . . . 527
10.146 gdcm::Image Class Reference . . . 527
10.146.1 Detailed Description . . . 532
10.146.2 Constructor & Destructor Documentation . . . 532
10.146.2.1 Image() . . . 532
10.146.2.2 ~Image() . . . 532
10.146.3 Member Function Documentation . . . 533
10.146.3.1 GetDirectionCosines() [1/2] . . . 533
10.146.3.2 GetDirectionCosines() [2/2] . . . 533
10.146.3.3 GetIntercept() . . . 533
10.146.3.4 GetOrigin() [1/2] . . . 533
10.146.3.5 GetOrigin() [2/2] . . . 533
10.146.3.6 GetSlope() . . . 533
10.146.3.7 GetSpacing() [1/2] . . . 533
10.146.3.8 GetSpacing() [2/2] . . . 534

10.146.3.9 Print() . . . 534
10.146.3.10 SetDirectionCosines() [1/3] . . . 534
10.146.3.11 SetDirectionCosines() [2/3] . . . 534
10.146.3.12 SetDirectionCosines() [3/3] . . . 534
10.146.3.13 SetIntercept() . . . 534
10.146.3.14 SetOrigin() [1/3] . . . 535
10.146.3.15 SetOrigin() [2/3] . . . 535
10.146.3.16 SetOrigin() [3/3] . . . 535
10.146.3.17 SetSlope() . . . 535
10.146.3.18 SetSpacing() [1/2] . . . 535
10.146.3.19 SetSpacing() [2/2] . . . 535
10.147 gdcm::ImageApplyLookupTable Class Reference . . . 536
10.147.1 Detailed Description . . . 538
10.147.2 Constructor & Destructor Documentation . . . 538
10.147.2.1 ImageApplyLookupTable() . . . 538
10.147.2.2 ∼ImageApplyLookupTable() . . . 539
10.147.3 Member Function Documentation . . . 539
10.147.3.1 Apply() . . . 539
10.147.3.2 SetRGB8() . . . 539
10.148 gdcm::ImageChangePhotometricInterpretation Class Reference . . . 539
10.148.1 Detailed Description . . . 542
10.148.2 Constructor & Destructor Documentation . . . 542
10.148.2.1 ImageChangePhotometricInterpretation() . . . 542
10.148.2.2 ∼ImageChangePhotometricInterpretation() . . . 542
10.148.3 Member Function Documentation . . . 542
10.148.3.1 Change() . . . 542
10.148.3.2 ChangeMonochrome() . . . 542
10.148.3.3 ChangeRGB2YBR() . . . 542
10.148.3.4 ChangeYBR2RGB() . . . 542
10.148.3.5 GetPhotometricInterpretation() . . . 542
10.148.3.6 RGB2YBR() . . . 543
10.148.3.7 SetPhotometricInterpretation() . . . 543
10.148.3.8 YBR2RGB() . . . 543
10.149 gdcm::ImageChangePlanarConfiguration Class Reference . . . 543
10.149.1 Detailed Description . . . 546
10.149.2 Constructor & Destructor Documentation . . . 547
10.149.2.1 ImageChangePlanarConfiguration() . . . 547
10.149.2.2 ∼ImageChangePlanarConfiguration() . . . 547
10.149.3 Member Function Documentation . . . 547

10.149.3.1 Change() . . . 547
10.149.3.2 GetPlanarConfiguration() . . . 547
10.149.3.3 RGBPixelsToRGBPlanes() . . . 547
10.149.3.4 RGBPlanesToRGBPixels() . . . 548
10.149.3.5 SetPlanarConfiguration() . . . 548
10.150 gdcm::ImageChangeTransferSyntax Class Reference . . . 548
10.150.1 Detailed Description . . . 551
10.150.2 Constructor & Destructor Documentation . . . 551
10.150.2.1 ImageChangeTransferSyntax() . . . 551
10.150.2.2 ∼ImageChangeTransferSyntax() . . . 551
10.150.3 Member Function Documentation . . . 551
10.150.3.1 Change() . . . 551
10.150.3.2 GetTransferSyntax() . . . 552
10.150.3.3 SetCompressIconImage() . . . 552
10.150.3.4 SetForce() . . . 552
10.150.3.5 SetTransferSyntax() . . . 552
10.150.3.6 SetUserCodec() . . . 553
10.150.3.7 TryJPEG2000Codec() . . . 553
10.150.3.8 TryJPEGCodec() . . . 553
10.150.3.9 TryJPEGLSCodec() . . . 553
10.150.3.10 TryRAWCodec() . . . 553
10.150.3.11 TryRLECodec() . . . 554
10.151 gdcm::ImageCodec Class Reference . . . 554
10.151.1 Detailed Description . . . 557
10.151.2 Member Typedef Documentation . . . 557
10.151.2.1 LUTPtr . . . 557
10.151.3 Constructor & Destructor Documentation . . . 557
10.151.3.1 ImageCodec() . . . 557
10.151.3.2 ∼ImageCodec() . . . 557
10.151.4 Member Function Documentation . . . 557
10.151.4.1 AppendFrameEncode() . . . 557
10.151.4.2 AppendRowEncode() . . . 558
10.151.4.3 CanCode() . . . 558
10.151.4.4 CanDecode() . . . 558
10.151.4.5 CleanupUnusedBits() . . . 558
10.151.4.6 Clone() . . . 558
10.151.4.7 Decode() . . . 559
10.151.4.8 DecodeByStreams() . . . 559
10.151.4.9 DoByteSwap() . . . 559

10.151.4.10 DoInvertMonochrome() . . . 559
10.151.4.11 DoOverlayCleanup() . . . 559
10.151.4.12 DoPaddedCompositePixelCode() . . . 559
10.151.4.13 DoPlanarConfiguration() . . . 560
10.151.4.14 DoSimpleCopy() . . . 560
10.151.4.15 DoYBR() . . . 560
10.151.4.16 DoYBRFull422() . . . 560
10.151.4.17 GetDimensions() . . . 560
10.151.4.18 GetHeaderInfo() . . . 560
10.151.4.19 GetLossyFlag() . . . 560
10.151.4.20 GetLUT() . . . 561
10.151.4.21 GetNeedByteSwap() . . . 561
10.151.4.22 GetNumberOfDimensions() . . . 561
10.151.4.23 GetPhotometricInterpretation() . . . 561
10.151.4.24 GetPixelFormat() [1/2] . . . 561
10.151.4.25 GetPixelFormat() [2/2] . . . 561
10.151.4.26 GetPlanarConfiguration() . . . 561
10.151.4.27 IsFrameEncoder() . . . 561
10.151.4.28 IsLossy() . . . 562
10.151.4.29 IsRowEncoder() . . . 562
10.151.4.30 IsValid() . . . 562
10.151.4.31 SetDimensions() [1/2] . . . 562
10.151.4.32 SetDimensions() [2/2] . . . 562
10.151.4.33 SetLossyFlag() . . . 562
10.151.4.34 SetLUT() . . . 562
10.151.4.35 SetNeedByteSwap() . . . 563
10.151.4.36 SetNeedOverlayCleanup() . . . 563
10.151.4.37 SetNumberOfDimensions() . . . 563
10.151.4.38 SetPhotometricInterpretation() . . . 563
10.151.4.39 SetPixelFormat() . . . 563
10.151.4.40 SetPlanarConfiguration() . . . 563
10.151.4.41 StartEncode() . . . 564
10.151.4.42 StopEncode() . . . 564
10.151.5 Friends And Related Symbol Documentation . . . 564
10.151.5.1 FileChangeTransferSyntax . . . 564
10.151.5.2 ImageChangePhotometricInterpretation . . . 564
10.151.6 Member Data Documentation . . . 564
10.151.6.1 Dimensions . . . 564
10.151.6.2 LossyFlag . . . 564

10.151.6.3 LUT . . . 565
10.151.6.4 NeedByteSwap . . . 565
10.151.6.5 NeedOverlayCleanup . . . 565
10.151.6.6 NumberOfDimensions . . . 565
10.151.6.7 PF . . . 565
10.151.6.8 PI . . . 565
10.151.6.9 PlanarConfiguration . . . 565
10.151.6.10 RequestPaddedCompositePixelCode . . . 565
10.151.6.11 RequestPlanarConfiguration . . . 565
10.152 gdcm::ImageConverter Class Reference . . . 566
10.152.1 Detailed Description . . . 566
10.152.2 Constructor & Destructor Documentation . . . 566
10.152.2.1 ImageConverter() . . . 566
10.152.2.2 ∼ImageConverter() . . . 566
10.152.3 Member Function Documentation . . . 566
10.152.3.1 Convert() . . . 566
10.152.3.2 GetOuput() . . . 567
10.152.3.3 SetInput() . . . 567
10.153 gdcm::ImageFragmentSplitter Class Reference . . . 567
10.153.1 Detailed Description . . . 569
10.153.2 Constructor & Destructor Documentation . . . 569
10.153.2.1 ImageFragmentSplitter() . . . 569
10.153.2.2 ∼ImageFragmentSplitter() . . . 570
10.153.3 Member Function Documentation . . . 570
10.153.3.1 GetFragmentSizeMax() . . . 570
10.153.3.2 SetForce() . . . 570
10.153.3.3 SetFragmentSizeMax() . . . 570
10.153.3.4 Split() . . . 570
10.154 gdcm::ImageHelper Class Reference . . . 570
10.154.1 Detailed Description . . . 572
10.154.2 Member Function Documentation . . . 572
10.154.2.1 ComputeMediaStorageFromModality() . . . 572
10.154.2.2 ComputeSpacingFromImagePositionPatient() . . . 572
10.154.2.3 GetDimensionsValue() . . . 572
10.154.2.4 GetDirectionCosinesFromDataSet() . . . 573
10.154.2.5 GetDirectionCosinesValue() . . . 573
10.154.2.6 GetForcePixelSpacing() . . . 573
10.154.2.7 GetForceRescaleInterceptSlope() . . . 573
10.154.2.8 GetLUT() . . . 573

10.154.2.9 GetOriginValue() . . . 573
10.154.2.10 GetPhotometricInterpretationValue() . . . 573
10.154.2.11 GetPixelFormatValue() . . . 574
10.154.2.12 GetPlanarConfigurationValue() . . . 574
10.154.2.13 GetPMSRescaleInterceptSlope() . . . 574
10.154.2.14 GetPointerFromElement() . . . 574
10.154.2.15 GetRealWorldValueMappingContent() . . . 574
10.154.2.16 GetRescaleInterceptSlopeValue() . . . 574
10.154.2.17 GetSecondaryCaptureImagePlaneModule() . . . 575
10.154.2.18 GetSpacingTagFromMediaStorage() . . . 575
10.154.2.19 GetSpacingValue() . . . 575
10.154.2.20 GetZSpacingTagFromMediaStorage() . . . 575
10.154.2.21 SetDimensionsValue() . . . 575
10.154.2.22 SetDirectionCosinesValue() . . . 575
10.154.2.23 SetForcePixelSpacing() . . . 575
10.154.2.24 SetForceRescaleInterceptSlope() . . . 576
10.154.2.25 SetOriginValue() . . . 576
10.154.2.26 SetPMSRescaleInterceptSlope() . . . 576
10.154.2.27 SetRescaleInterceptSlopeValue() . . . 576
10.154.2.28 SetSecondaryCaptureImagePlaneModule() . . . 576
10.154.2.29 SetSpacingValue() . . . 577
10.155 gdcm::ImageReader Class Reference . . . 577
10.155.1 Detailed Description . . . 580
10.155.2 Constructor & Destructor Documentation . . . 580
10.155.2.1 ImageReader() . . . 580
10.155.2.2 ~ImageReader() . . . 580
10.155.3 Member Function Documentation . . . 580
10.155.3.1 GetImage() [1/2] . . . 580
10.155.3.2 GetImage() [2/2] . . . 581
10.155.3.3 Read() . . . 581
10.155.3.4 ReadACRNEMAImage() . . . 581
10.155.3.5 ReadImage() . . . 581
10.156 gdcm::ImageRegionReader Class Reference . . . 582
10.156.1 Detailed Description . . . 585
10.156.2 Constructor & Destructor Documentation . . . 585
10.156.2.1 ImageRegionReader() . . . 585
10.156.2.2 ~ImageRegionReader() . . . 586
10.156.3 Member Function Documentation . . . 586
10.156.3.1 ComputeBufferLength() . . . 586

10.156.3.2 GetRegion() . . . 586
10.156.3.3 Read() . . . 586
10.156.3.4 ReadInformation() . . . 586
10.156.3.5 ReadIntoBuffer() . . . 587
10.156.3.6 SetRegion() . . . 587
10.157 gdcm::ImageToImageFilter Class Reference . . . 587
10.157.1 Detailed Description . . . 589
10.157.2 Constructor & Destructor Documentation . . . 589
10.157.2.1 ImageToImageFilter() . . . 589
10.157.2.2 ∼ImageToImageFilter() . . . 589
10.157.3 Member Function Documentation . . . 589
10.157.3.1 GetInput() . . . 589
10.157.3.2 GetOutput() . . . 590
10.158 gdcm::ImageWriter Class Reference . . . 590
10.158.1 Detailed Description . . . 593
10.158.2 Constructor & Destructor Documentation . . . 593
10.158.2.1 ImageWriter() . . . 593
10.158.2.2 ∼ImageWriter() . . . 593
10.158.3 Member Function Documentation . . . 593
10.158.3.1 ComputeTargetMediaStorage() . . . 593
10.158.3.2 GetImage() [1/2] . . . 594
10.158.3.3 GetImage() [2/2] . . . 594
10.158.3.4 Write() . . . 594
10.159 gdcm::network::ImplementationClassUIDSub Class Reference . . . 594
10.159.1 Detailed Description . . . 595
10.159.2 Constructor & Destructor Documentation . . . 595
10.159.2.1 ImplementationClassUIDSub() . . . 595
10.159.3 Member Function Documentation . . . 595
10.159.3.1 Print() . . . 595
10.159.3.2 Read() . . . 595
10.159.3.3 Size() . . . 595
10.159.3.4 Write() . . . 595
10.160 gdcm::network::ImplementationUIDSub Class Reference . . . 596
10.160.1 Detailed Description . . . 596
10.160.2 Constructor & Destructor Documentation . . . 596
10.160.2.1 ImplementationUIDSub() . . . 596
10.160.3 Member Function Documentation . . . 596
10.160.3.1 Write() . . . 596
10.161 gdcm::network::ImplementationVersionNameSub Class Reference . . . 596

10.161.1 Detailed Description . . . 597
10.161.2 Constructor & Destructor Documentation . . . 597
10.161.2.1 ImplementationVersionNameSub() . . . 597
10.161.3 Member Function Documentation . . . 597
10.161.3.1 Print() . . . 597
10.161.3.2 Read() . . . 597
10.161.3.3 Size() . . . 597
10.161.3.4 Write() . . . 597
10.162 gdcm::ImplicitDataElement Class Reference . . . 598
10.162.1 Detailed Description . . . 600
10.162.2 Member Function Documentation . . . 601
10.162.2.1 GetLength() . . . 601
10.162.2.2 Read() . . . 601
10.162.2.3 ReadPreValue() . . . 601
10.162.2.4 ReadValue() . . . 601
10.162.2.5 ReadValueWithLength() . . . 601
10.162.2.6 ReadWithLength() . . . 601
10.162.2.7 Write() . . . 602
10.163 gdcm::InitializeEvent Class Reference . . . 602
10.164 gdcm::IOD Class Reference . . . 603
10.164.1 Detailed Description . . . 604
10.164.2 Member Typedef Documentation . . . 604
10.164.2.1 MapIODEntry . . . 604
10.164.2.2 SizeType . . . 604
10.164.3 Constructor & Destructor Documentation . . . 604
10.164.3.1 IOD() . . . 604
10.164.4 Member Function Documentation . . . 605
10.164.4.1 AddIODEntry() . . . 605
10.164.4.2 Clear() . . . 605
10.164.4.3 GetIODEntry() . . . 605
10.164.4.4 GetNumberOfIODs() . . . 605
10.164.4.5 GetTypeFromTag() . . . 605
10.164.5 Friends And Related Symbol Documentation . . . 605
10.164.5.1 operator<< . . . 605
10.165 gdcm::IODEntry Class Reference . . . 606
10.165.1 Detailed Description . . . 606
10.165.2 Constructor & Destructor Documentation . . . 607
10.165.2.1 IODEntry() . . . 607
10.165.3 Member Function Documentation . . . 607

10.165.3.1 GetIE() . . . 607
10.165.3.2 GetName() . . . 607
10.165.3.3 GetRef() . . . 607
10.165.3.4 GetUsage() . . . 607
10.165.3.5 GetUsageType() . . . 607
10.165.3.6 SetIE() . . . 607
10.165.3.7 SetName() . . . 608
10.165.3.8 SetRef() . . . 608
10.165.3.9 SetUsage() . . . 608
10.165.4 Friends And Related Symbol Documentation . . . 608
10.165.4.1 operator<< . . . 608
10.166 gdcm::IODs Class Reference . . . 608
10.166.1 Detailed Description . . . 609
10.166.2 Member Typedef Documentation . . . 609
10.166.2.1 IODMapType . . . 609
10.166.2.2 IODMapTypeConstIterator . . . 609
10.166.2.3 IODName . . . 609
10.166.3 Constructor & Destructor Documentation . . . 610
10.166.3.1 IODs() . . . 610
10.166.4 Member Function Documentation . . . 610
10.166.4.1 AddIOD() . . . 610
10.166.4.2 Begin() . . . 610
10.166.4.3 Clear() . . . 610
10.166.4.4 End() . . . 610
10.166.4.5 GetIOD() . . . 610
10.166.5 Friends And Related Symbol Documentation . . . 611
10.166.5.1 operator<< . . . 611
10.167 gdcm::IPPSorter Class Reference . . . 611
10.167.1 Detailed Description . . . 613
10.167.2 Constructor & Destructor Documentation . . . 613
10.167.2.1 IPPSorter() . . . 613
10.167.3 Member Function Documentation . . . 613
10.167.3.1 GetDirectionCosinesTolerance() . . . 613
10.167.3.2 GetZSpacing() . . . 614
10.167.3.3 GetZSpacingTolerance() . . . 614
10.167.3.4 SetComputeZSpacing() . . . 614
10.167.3.5 SetDirectionCosinesTolerance() . . . 614
10.167.3.6 SetDropDuplicatePositions() . . . 615
10.167.3.7 SetZSpacingTolerance() . . . 615

10.167.3.8 Sort() . . . 615
10.167.4 Member Data Documentation . . . 615
10.167.4.1 ComputeZSpacing . . . 615
10.167.4.2 DirCosTolerance . . . 615
10.167.4.3 DropDuplicatePositions . . . 616
10.167.4.4 ZSpacing . . . 616
10.167.4.5 ZTolerance . . . 616
10.168 gdcm::Item Class Reference . . . 616
10.168.1 Detailed Description . . . 619
10.168.2 Constructor & Destructor Documentation . . . 619
10.168.2.1 Item() [1/2] . . . 619
10.168.2.2 Item() [2/2] . . . 620
10.168.3 Member Function Documentation . . . 620
10.168.3.1 Clear() . . . 620
10.168.3.2 FindDataElement() . . . 620
10.168.3.3 GetDataElement() . . . 620
10.168.3.4 GetLength() . . . 620
10.168.3.5 GetNestedDataSet() [1/2] . . . 620
10.168.3.6 GetNestedDataSet() [2/2] . . . 620
10.168.3.7 InsertDataElement() . . . 621
10.168.3.8 Read() . . . 621
10.168.3.9 SetNestedDataSet() . . . 621
10.168.3.10 Write() . . . 621
10.168.4 Friends And Related Symbol Documentation . . . 621
10.168.4.1 operator<< . . . 621
10.169 gdcm::IterationEvent Class Reference . . . 622
10.170 gdcm::JPEG12Codec Class Reference . . . 623
10.170.1 Detailed Description . . . 626
10.170.2 Constructor & Destructor Documentation . . . 627
10.170.2.1 JPEG12Codec() . . . 627
10.170.2.2 ~JPEG12Codec() . . . 627
10.170.3 Member Function Documentation . . . 627
10.170.3.1 DecodeByStreams() . . . 627
10.170.3.2 EncodeBuffer() . . . 627
10.170.3.3 GetHeaderInfo() . . . 627
10.170.3.4 InternalCode() . . . 627
10.170.3.5 IsStateSuspension() . . . 628
10.171 gdcm::JPEG16Codec Class Reference . . . 628
10.171.1 Detailed Description . . . 631

10.171.2 Constructor & Destructor Documentation . . . 632
10.171.2.1 JPEG16Codec() . . . 632
10.171.2.2 ∼JPEG16Codec() . . . 632
10.171.3 Member Function Documentation . . . 632
10.171.3.1 DecodeByStreams() . . . 632
10.171.3.2 EncodeBuffer() . . . 632
10.171.3.3 GetHeaderInfo() . . . 632
10.171.3.4 InternalCode() . . . 632
10.171.3.5 IsStateSuspension() . . . 633
10.172 gdcm::JPEG2000Codec Class Reference . . . 633
10.172.1 Detailed Description . . . 636
10.172.2 Constructor & Destructor Documentation . . . 636
10.172.2.1 JPEG2000Codec() . . . 636
10.172.2.2 ∼JPEG2000Codec() . . . 636
10.172.3 Member Function Documentation . . . 636
10.172.3.1 AppendFrameEncode() . . . 636
10.172.3.2 AppendRowEncode() . . . 637
10.172.3.3 CanCode() . . . 637
10.172.3.4 CanDecode() . . . 637
10.172.3.5 Clone() . . . 637
10.172.3.6 Code() . . . 637
10.172.3.7 Decode() . . . 638
10.172.3.8 DecodeByStreams() . . . 638
10.172.3.9 DecodeExtent() . . . 638
10.172.3.10 GetHeaderInfo() . . . 638
10.172.3.11 GetQuality() . . . 638
10.172.3.12 GetRate() . . . 638
10.172.3.13 IsFrameEncoder() . . . 639
10.172.3.14 IsRowEncoder() . . . 639
10.172.3.15 SetMCT() . . . 639
10.172.3.16 SetNumberOfResolutions() . . . 639
10.172.3.17 SetNumberOfThreadsForDecompression() . . . 639
10.172.3.18 SetQuality() . . . 639
10.172.3.19 SetRate() . . . 640
10.172.3.20 SetReversible() . . . 640
10.172.3.21 SetTileSize() . . . 640
10.172.3.22 StartEncode() . . . 640
10.172.3.23 StopEncode() . . . 640
10.172.4 Friends And Related Symbol Documentation . . . 640

10.172.4.1 Bitmap . . . 640
10.172.4.2 ImageRegionReader . . . 640
10.173 gdcm::JPEG8Codec Class Reference . . . 641
10.173.1 Detailed Description . . . 644
10.173.2 Constructor & Destructor Documentation . . . 644
10.173.2.1 JPEG8Codec() . . . 644
10.173.2.2 ∼JPEG8Codec() . . . 644
10.173.3 Member Function Documentation . . . 644
10.173.3.1 DecodeByStreams() . . . 644
10.173.3.2 EncodeBuffer() . . . 645
10.173.3.3 GetHeaderInfo() . . . 645
10.173.3.4 InternalCode() . . . 645
10.173.3.5 IsStateSuspension() . . . 645
10.174 gdcm::JPEGCodec Class Reference . . . 646
10.174.1 Detailed Description . . . 649
10.174.2 Constructor & Destructor Documentation . . . 649
10.174.2.1 JPEGCodec() . . . 649
10.174.2.2 ∼JPEGCodec() . . . 649
10.174.3 Member Function Documentation . . . 650
10.174.3.1 AppendFrameEncode() . . . 650
10.174.3.2 AppendRowEncode() . . . 650
10.174.3.3 CanCode() . . . 650
10.174.3.4 CanDecode() . . . 650
10.174.3.5 Clone() . . . 650
10.174.3.6 Code() . . . 651
10.174.3.7 ComputeOffsetTable() . . . 651
10.174.3.8 Decode() . . . 651
10.174.3.9 DecodeByStreams() . . . 651
10.174.3.10 DecodeExtent() . . . 651
10.174.3.11 EncodeBuffer() . . . 652
10.174.3.12 GetHeaderInfo() . . . 652
10.174.3.13 GetLossless() . . . 652
10.174.3.14 GetQuality() . . . 652
10.174.3.15 IsFrameEncoder() . . . 652
10.174.3.16 IsRowEncoder() . . . 652
10.174.3.17 IsStateSuspension() . . . 653
10.174.3.18 IsValid() . . . 653
10.174.3.19 SetBitSample() . . . 653
10.174.3.20 SetLossless() . . . 653

10.174.3.21 SetPixelFormat() . . . 653
10.174.3.22 SetQuality() . . . 653
10.174.3.23 StartEncode() . . . 654
10.174.3.24 StopEncode() . . . 654
10.174.4 Friends And Related Symbol Documentation . . . 654
10.174.4.1 ImageRegionReader . . . 654
10.174.5 Member Data Documentation . . . 654
10.174.5.1 BitSample . . . 654
10.174.5.2 Quality . . . 654
10.175 gdcm::JPEGLSCodec Class Reference . . . 655
10.175.1 Detailed Description . . . 658
10.175.2 Constructor & Destructor Documentation . . . 658
10.175.2.1 JPEGLSCodec() . . . 658
10.175.2.2 ∼JPEGLSCodec() . . . 658
10.175.3 Member Function Documentation . . . 658
10.175.3.1 AppendFrameEncode() . . . 658
10.175.3.2 AppendRowEncode() . . . 659
10.175.3.3 CanCode() . . . 659
10.175.3.4 CanDecode() . . . 659
10.175.3.5 Clone() . . . 659
10.175.3.6 Code() . . . 659
10.175.3.7 Decode() [1/2] . . . 660
10.175.3.8 Decode() [2/2] . . . 660
10.175.3.9 DecodeExtent() . . . 660
10.175.3.10 GetBufferLength() . . . 660
10.175.3.11 GetHeaderInfo() . . . 660
10.175.3.12 GetLossless() . . . 661
10.175.3.13 IsFrameEncoder() . . . 661
10.175.3.14 IsRowEncoder() . . . 661
10.175.3.15 SetBufferLength() . . . 661
10.175.3.16 SetLossless() . . . 661
10.175.3.17 SetLossyError() . . . 661
10.175.3.18 StartEncode() . . . 661
10.175.3.19 StopEncode() . . . 662
10.175.4 Friends And Related Symbol Documentation . . . 662
10.175.4.1 ImageRegionReader . . . 662
10.176 gdcm::JSON Class Reference . . . 662
10.176.1 Detailed Description . . . 662
10.176.2 Constructor & Destructor Documentation . . . 662

10.176.2.1 JSON() . . . 662
10.176.2.2 ~JSON() . . . 663
10.176.3 Member Function Documentation . . . 663
10.176.3.1 Code() . . . 663
10.176.3.2 Decode() . . . 663
10.176.3.3 GetPrettyPrint() . . . 663
10.176.3.4 PrettyPrintOff() . . . 663
10.176.3.5 PrettyPrintOn() . . . 663
10.176.3.6 SetPrettyPrint() . . . 664
10.177 gdcm::KAKADUCodec Class Reference . . . 664
10.177.1 Detailed Description . . . 666
10.177.2 Constructor & Destructor Documentation . . . 667
10.177.2.1 KAKADUCodec() . . . 667
10.177.2.2 ~KAKADUCodec() . . . 667
10.177.3 Member Function Documentation . . . 667
10.177.3.1 CanCode() . . . 667
10.177.3.2 CanDecode() . . . 667
10.177.3.3 Clone() . . . 667
10.177.3.4 Code() . . . 667
10.177.3.5 Decode() . . . 668
10.178 gdcm::LO Class Reference . . . 668
10.178.1 Detailed Description . . . 669
10.178.2 Member Typedef Documentation . . . 669
10.178.2.1 const_iterator . . . 669
10.178.2.2 const_reference . . . 669
10.178.2.3 const_reverse_iterator . . . 669
10.178.2.4 difference_type . . . 670
10.178.2.5 iterator . . . 670
10.178.2.6 pointer . . . 670
10.178.2.7 reference . . . 670
10.178.2.8 reverse_iterator . . . 670
10.178.2.9 size_type . . . 670
10.178.2.10 Superclass . . . 670
10.178.2.11 value_type . . . 670
10.178.3 Constructor & Destructor Documentation . . . 670
10.178.3.1 LO() [1/4] . . . 670
10.178.3.2 LO() [2/4] . . . 671
10.178.3.3 LO() [3/4] . . . 671
10.178.3.4 LO() [4/4] . . . 671

10.178.4 Member Function Documentation . . . 671
10.178.4.1 IsValid() . . . 671
10.179 gdcm::LookupTable Class Reference . . . 671
10.179.1 Detailed Description . . . 674
10.179.2 Member Enumeration Documentation . . . 674
10.179.2.1 LookupTableType . . . 674
10.179.3 Constructor & Destructor Documentation . . . 674
10.179.3.1 LookupTable() [1/2] . . . 674
10.179.3.2 ~LookupTable() . . . 675
10.179.3.3 LookupTable() [2/2] . . . 675
10.179.4 Member Function Documentation . . . 675
10.179.4.1 Allocate() . . . 675
10.179.4.2 Clear() . . . 675
10.179.4.3 Decode() [1/2] . . . 675
10.179.4.4 Decode() [2/2] . . . 675
10.179.4.5 Decode8() . . . 676
10.179.4.6 GetBitSample() . . . 676
10.179.4.7 GetBufferAsRGBA() . . . 676
10.179.4.8 GetLUT() . . . 676
10.179.4.9 GetLUTDescriptor() . . . 676
10.179.4.10 GetLUTLength() . . . 676
10.179.4.11 GetPointer() . . . 677
10.179.4.12 InitializeBlueLUT() . . . 677
10.179.4.13 Initialized() . . . 677
10.179.4.14 InitializeGreenLUT() . . . 677
10.179.4.15 InitializeLUT() . . . 677
10.179.4.16 InitializeRedLUT() . . . 677
10.179.4.17 IsRGB8() . . . 678
10.179.4.18 Print() . . . 678
10.179.4.19 SetBlueLUT() . . . 678
10.179.4.20 SetGreenLUT() . . . 678
10.179.4.21 SetLUT() . . . 678
10.179.4.22 SetRedLUT() . . . 678
10.179.4.23 WriteBufferAsRGBA() . . . 679
10.179.5 Member Data Documentation . . . 679
10.179.5.1 BitSample . . . 679
10.179.5.2 IncompleteLUT . . . 679
10.179.5.3 Internal . . . 679
10.180 gdcm::Scanner2::ltstr Struct Reference . . . 679

10.180.1 Member Function Documentation . . . 679
10.180.1.1 operator()() . . . 679
10.181 gdcm::Scanner::ltstr Struct Reference . . . 680
10.181.1 Member Function Documentation . . . 680
10.181.1.1 operator()() . . . 680
10.182 gdcm::StrictScanner2::ltstr Struct Reference . . . 680
10.182.1 Member Function Documentation . . . 680
10.182.1.1 operator()() . . . 680
10.183 gdcm::StrictScanner::ltstr Struct Reference . . . 681
10.183.1 Member Function Documentation . . . 681
10.183.1.1 operator()() . . . 681
10.184 gdcm::Macro Class Reference . . . 681
10.184.1 Detailed Description . . . 682
10.184.2 Member Typedef Documentation . . . 682
10.184.2.1 ArrayIncludeMacrosType . . . 682
10.184.2.2 MapModuleEntry . . . 682
10.184.3 Constructor & Destructor Documentation . . . 682
10.184.3.1 Macro() . . . 682
10.184.4 Member Function Documentation . . . 682
10.184.4.1 AddMacroEntry() . . . 682
10.184.4.2 Clear() . . . 683
10.184.4.3 FindMacroEntry() . . . 683
10.184.4.4 GetMacroEntry() . . . 683
10.184.4.5 GetName() . . . 683
10.184.4.6 SetName() . . . 683
10.184.4.7 Verify() . . . 683
10.184.5 Friends And Related Symbol Documentation . . . 683
10.184.5.1 operator<< . . . 683
10.185 gdcm::Macros Class Reference . . . 684
10.185.1 Detailed Description . . . 684
10.185.2 Member Typedef Documentation . . . 684
10.185.2.1 ModuleMapType . . . 684
10.185.3 Constructor & Destructor Documentation . . . 685
10.185.3.1 Macros() . . . 685
10.185.4 Member Function Documentation . . . 685
10.185.4.1 AddMacro() . . . 685
10.185.4.2 Clear() . . . 685
10.185.4.3 GetMacro() . . . 685
10.185.4.4 IsEmpty() . . . 685

10.185.5 Friends And Related Symbol Documentation . . . 685
10.185.5.1 operator<< . . . 685
10.186 gdcm::network::MaximumLengthSub Class Reference . . . 686
10.186.1 Detailed Description . . . 686
10.186.2 Constructor & Destructor Documentation . . . 686
10.186.2.1 MaximumLengthSub() . . . 686
10.186.3 Member Function Documentation . . . 686
10.186.3.1 GetMaximumLength() . . . 686
10.186.3.2 Print() . . . 686
10.186.3.3 Read() . . . 687
10.186.3.4 SetMaximumLength() . . . 687
10.186.3.5 Size() . . . 687
10.186.3.6 Write() . . . 687
10.187 gdcm::MD5 Class Reference . . . 687
10.187.1 Detailed Description . . . 687
10.187.2 Member Function Documentation . . . 688
10.187.2.1 Compute() . . . 688
10.187.2.2 ComputeFile() . . . 688
10.188 gdcm::MEC_MR3 Class Reference . . . 688
10.188.1 Detailed Description . . . 688
10.188.2 Member Function Documentation . . . 688
10.188.2.1 GetCanonMECMR3Tag() . . . 688
10.188.2.2 GetPMTFInformationDataTag() . . . 689
10.188.2.3 GetToshibaMECMR3Tag() . . . 689
10.188.2.4 Print() . . . 689
10.189 gdcm::MediaStorage Class Reference . . . 689
10.189.1 Detailed Description . . . 692
10.189.2 Member Enumeration Documentation . . . 692
10.189.2.1 MSType . . . 692
10.189.2.2 ObjectType . . . 695
10.189.3 Constructor & Destructor Documentation . . . 695
10.189.3.1 MediaStorage() . . . 695
10.189.4 Member Function Documentation . . . 696
10.189.4.1 GetModality() . . . 696
10.189.4.2 GetModalityDimension() . . . 696
10.189.4.3 GetMSString() . . . 696
10.189.4.4 GetMSType() . . . 696
10.189.4.5 GetNumberOfModality() . . . 696
10.189.4.6 GetNumberOfMSString() . . . 696

10.189.4.7 GetNumberOfMSType() . . . 696
10.189.4.8 GetString() . . . 697
10.189.4.9 GuessFromModality() . . . 697
10.189.4.10 IsImage() . . . 697
10.189.4.11 IsUndefined() . . . 697
10.189.4.12 operator MSType() . . . 698
10.189.4.13 SetFromDataSet() . . . 698
10.189.4.14 SetFromFile() . . . 698
10.189.4.15 SetFromHeader() . . . 698
10.189.4.16 SetFromModality() . . . 698
10.189.4.17 SetFromSourceImageSequence() . . . 698
10.189.5 Friends And Related Symbol Documentation . . . 699
10.189.5.1 operator<< . . . 699
10.190 gdcm::MemberCommand< T > Class Template Reference . . . 699
10.190.1 Detailed Description . . . 702
10.190.2 Member Typedef Documentation . . . 702
10.190.2.1 Self . . . 702
10.190.2.2 TConstMemberFunctionPointer . . . 702
10.190.2.3 TMemberFunctionPointer . . . 702
10.190.3 Constructor & Destructor Documentation . . . 702
10.190.3.1 MemberCommand() [1/2] . . . 702
10.190.3.2 MemberCommand() [2/2] . . . 702
10.190.3.3 ~MemberCommand() . . . 703
10.190.4 Member Function Documentation . . . 703
10.190.4.1 Execute() [1/2] . . . 703
10.190.4.2 Execute() [2/2] . . . 703
10.190.4.3 New() . . . 703
10.190.4.4 operator=() . . . 703
10.190.4.5 SetCallbackFunction() [1/2] . . . 704
10.190.4.6 SetCallbackFunction() [2/2] . . . 704
10.190.5 Member Data Documentation . . . 704
10.190.5.1 m_ConstMemberFunction . . . 704
10.190.5.2 m_MemberFunction . . . 704
10.190.5.3 m_This . . . 704
10.191 gdcm::MeshPrimitive Class Reference . . . 705
10.191.1 Detailed Description . . . 707
10.191.2 Member Typedef Documentation . . . 707
10.191.2.1 PrimitivesData . . . 707
10.191.3 Member Enumeration Documentation . . . 707

10.191.3.1 MPType . . . 707
10.191.4 Constructor & Destructor Documentation . . . 708
10.191.4.1 MeshPrimitive() . . . 708
10.191.4.2 ∼MeshPrimitive() . . . 708
10.191.5 Member Function Documentation . . . 708
10.191.5.1 AddPrimitiveData() . . . 708
10.191.5.2 GetMPType() . . . 708
10.191.5.3 GetMPTypeString() . . . 708
10.191.5.4 GetNumberOfPrimitivesData() . . . 708
10.191.5.5 GetPrimitiveData() [1/4] . . . 708
10.191.5.6 GetPrimitiveData() [2/4] . . . 708
10.191.5.7 GetPrimitiveData() [3/4] . . . 709
10.191.5.8 GetPrimitiveData() [4/4] . . . 709
10.191.5.9 GetPrimitivesData() [1/2] . . . 709
10.191.5.10 GetPrimitivesData() [2/2] . . . 709
10.191.5.11 GetPrimitiveType() . . . 709
10.191.5.12 SetPrimitiveData() [1/2] . . . 709
10.191.5.13 SetPrimitiveData() [2/2] . . . 709
10.191.5.14 SetPrimitivesData() . . . 709
10.191.5.15 SetPrimitiveType() . . . 710
10.191.6 Member Data Documentation . . . 710
10.191.6.1 PrimitiveData . . . 710
10.191.6.2 PrimitiveType . . . 710
10.192 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference . . . 710
10.192.1 Detailed Description . . . 712
10.192.2 Constructor & Destructor Documentation . . . 712
10.192.2.1 ModalityPerformedProcedureStepCreateQuery() . . . 712
10.192.3 Member Function Documentation . . . 713
10.192.3.1 GetAbstractSyntaxUID() . . . 713
10.192.3.2 GetRequiredDataSet() . . . 713
10.192.3.3 ValidateQuery() . . . 713
10.192.4 Friends And Related Symbol Documentation . . . 713
10.192.4.1 QueryFactory . . . 713
10.193 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference . . . 713
10.193.1 Detailed Description . . . 716
10.193.2 Constructor & Destructor Documentation . . . 716
10.193.2.1 ModalityPerformedProcedureStepSetQuery() . . . 716
10.193.3 Member Function Documentation . . . 716
10.193.3.1 GetAbstractSyntaxUID() . . . 716

10.193.3.2 GetRequiredDataSet() . . . 716
10.193.3.3 ValidateQuery() . . . 716
10.193.4 Friends And Related Symbol Documentation . . . 717
10.193.4.1 QueryFactory . . . 717
10.194 gdcm::ModifiedEvent Class Reference . . . 717
10.195 gdcm::Module Class Reference . . . 718
10.195.1 Detailed Description . . . 719
10.195.2 Member Typedef Documentation . . . 719
10.195.2.1 ArrayIncludeMacrosType . . . 719
10.195.2.2 MapModuleEntry . . . 719
10.195.3 Constructor & Destructor Documentation . . . 720
10.195.3.1 Module() . . . 720
10.195.4 Member Function Documentation . . . 720
10.195.4.1 AddMacro() . . . 720
10.195.4.2 AddModuleEntry() . . . 720
10.195.4.3 Clear() . . . 720
10.195.4.4 FindModuleEntryInMacros() . . . 720
10.195.4.5 GetModuleEntryInMacros() . . . 720
10.195.4.6 GetName() . . . 721
10.195.4.7 SetName() . . . 721
10.195.4.8 Verify() . . . 721
10.195.5 Friends And Related Symbol Documentation . . . 721
10.195.5.1 operator<< . . . 721
10.196 gdcm::ModuleEntry Class Reference . . . 721
10.196.1 Detailed Description . . . 723
10.196.2 Member Typedef Documentation . . . 723
10.196.2.1 Description . . . 723
10.196.3 Constructor & Destructor Documentation . . . 723
10.196.3.1 ModuleEntry() . . . 723
10.196.3.2 ~ModuleEntry() . . . 723
10.196.4 Member Function Documentation . . . 723
10.196.4.1 GetDescription() . . . 723
10.196.4.2 GetName() . . . 724
10.196.4.3 GetType() . . . 724
10.196.4.4 SetDescription() . . . 724
10.196.4.5 SetName() . . . 724
10.196.4.6 SetType() . . . 724
10.196.5 Friends And Related Symbol Documentation . . . 724
10.196.5.1 operator<< . . . 724

10.196.6 Member Data Documentation . . . 724
10.196.6.1 DataElementType . . . 724
10.196.6.2 DescriptionField . . . 725
10.196.6.3 Name . . . 725
10.197 gdcm::Modules Class Reference . . . 725
10.197.1 Detailed Description . . . 725
10.197.2 Member Typedef Documentation . . . 726
10.197.2.1 ModuleMapType . . . 726
10.197.3 Constructor & Destructor Documentation . . . 726
10.197.3.1 Modules() . . . 726
10.197.4 Member Function Documentation . . . 726
10.197.4.1 AddModule() . . . 726
10.197.4.2 Clear() . . . 726
10.197.4.3 GetModule() . . . 726
10.197.4.4 IsEmpty() . . . 726
10.197.5 Friends And Related Symbol Documentation . . . 726
10.197.5.1 operator<< . . . 726
10.198 gdcm::MovePatientRootQuery Class Reference . . . 727
10.198.1 Detailed Description . . . 729
10.198.2 Constructor & Destructor Documentation . . . 729
10.198.2.1 MovePatientRootQuery() . . . 729
10.198.3 Member Function Documentation . . . 729
10.198.3.1 GetAbstractSyntaxUID() . . . 729
10.198.3.2 GetTagListByLevel() . . . 730
10.198.3.3 InitializeDataSet() . . . 730
10.198.3.4 ValidateQuery() . . . 730
10.198.4 Friends And Related Symbol Documentation . . . 730
10.198.4.1 QueryFactory . . . 730
10.199 gdcm::MoveStudyRootQuery Class Reference . . . 731
10.199.1 Detailed Description . . . 733
10.199.2 Constructor & Destructor Documentation . . . 733
10.199.2.1 MoveStudyRootQuery() . . . 733
10.199.3 Member Function Documentation . . . 733
10.199.3.1 GetAbstractSyntaxUID() . . . 733
10.199.3.2 GetTagListByLevel() . . . 734
10.199.3.3 InitializeDataSet() . . . 734
10.199.3.4 ValidateQuery() . . . 734
10.199.4 Friends And Related Symbol Documentation . . . 734
10.199.4.1 QueryFactory . . . 734

10.200 gdcm::MrProtocol Class Reference . . . 735
10.200.1 Detailed Description . . . 735
10.200.2 Constructor & Destructor Documentation . . . 735
10.200.2.1 MrProtocol() . . . 735
10.200.2.2 ∼MrProtocol() . . . 735
10.200.3 Member Function Documentation . . . 736
10.200.3.1 FindMrProtocolByName() . . . 736
10.200.3.2 GetMrProtocolByName() . . . 736
10.200.3.3 GetSliceArray() . . . 736
10.200.3.4 GetVersion() . . . 736
10.200.3.5 Load() . . . 736
10.200.3.6 Print() . . . 736
10.200.4 Friends And Related Symbol Documentation . . . 736
10.200.4.1 operator<< . . . 736
10.201 gdcm::network::NActionRQ Class Reference . . . 737
10.201.1 Detailed Description . . . 738
10.201.2 Member Function Documentation . . . 738
10.201.2.1 ConstructPDV() . . . 738
10.202 gdcm::network::NActionRSP Class Reference . . . 738
10.202.1 Detailed Description . . . 739
10.202.2 Member Function Documentation . . . 739
10.202.2.1 ConstructPDVByDataSet() . . . 739
10.203 gdcm::network::NCreateRQ Class Reference . . . 740
10.203.1 Detailed Description . . . 741
10.203.2 Member Function Documentation . . . 741
10.203.2.1 ConstructPDV() . . . 741
10.204 gdcm::network::NCreateRSP Class Reference . . . 741
10.204.1 Detailed Description . . . 742
10.204.2 Member Function Documentation . . . 742
10.204.2.1 ConstructPDVByDataSet() . . . 742
10.205 gdcm::network::NDeleteRQ Class Reference . . . 743
10.205.1 Detailed Description . . . 744
10.205.2 Member Function Documentation . . . 744
10.205.2.1 ConstructPDV() . . . 744
10.206 gdcm::network::NDeleteRSP Class Reference . . . 744
10.206.1 Detailed Description . . . 745
10.206.2 Member Function Documentation . . . 745
10.206.2.1 ConstructPDVByDataSet() . . . 745
10.207 gdcm::NestedModuleEntries Class Reference . . . 746

10.207.1 Detailed Description . . . 748
10.207.2 Member Typedef Documentation . . . 748
10.207.2.1 SizeType . . . 748
10.207.3 Constructor & Destructor Documentation . . . 748
10.207.3.1 NestedModuleEntries() . . . 748
10.207.4 Member Function Documentation . . . 748
10.207.4.1 AddModuleEntry() . . . 748
10.207.4.2 GetModuleEntry() [1/2] . . . 748
10.207.4.3 GetModuleEntry() [2/2] . . . 748
10.207.4.4 GetNumberOfModuleEntries() . . . 749
10.207.5 Friends And Related Symbol Documentation . . . 749
10.207.5.1 operator<< . . . 749
10.208 gdcm::network::NEventReportRQ Class Reference . . . 749
10.208.1 Detailed Description . . . 750
10.208.2 Member Function Documentation . . . 750
10.208.2.1 ConstructPDV() . . . 750
10.209 gdcm::network::NEventReportRSP Class Reference . . . 751
10.209.1 Detailed Description . . . 752
10.209.2 Member Function Documentation . . . 752
10.209.2.1 ConstructPDVByDataSet() . . . 752
10.210 gdcm::network::NGetRQ Class Reference . . . 752
10.210.1 Detailed Description . . . 753
10.210.2 Member Function Documentation . . . 753
10.210.2.1 ConstructPDV() . . . 753
10.211 gdcm::network::NGetRSP Class Reference . . . 754
10.211.1 Detailed Description . . . 755
10.211.2 Member Function Documentation . . . 755
10.211.2.1 ConstructPDVByDataSet() . . . 755
10.212 gdcm::NoEvent Class Reference . . . 755
10.212.1 Detailed Description . . . 756
10.213 gdcm::network::NormalizedMessageFactory Class Reference . . . 756
10.213.1 Member Function Documentation . . . 756
10.213.1.1 ConstructNAction() . . . 756
10.213.1.2 ConstructNCreate() . . . 757
10.213.1.3 ConstructNDelete() . . . 757
10.213.1.4 ConstructNEventReport() . . . 757
10.213.1.5 ConstructNGet() . . . 757
10.213.1.6 ConstructNSet() . . . 757
10.214 gdcm::NormalizedNetworkFunctions Class Reference . . . 757

10.214.1 Detailed Description . . . 758
10.214.2 Member Function Documentation . . . 758
10.214.2.1 ConstructQuery() . . . 758
10.214.2.2 NAction() . . . 759
10.214.2.3 NCreate() . . . 759
10.214.2.4 NDelete() . . . 759
10.214.2.5 NEventReport() . . . 759
10.214.2.6 NGet() . . . 759
10.214.2.7 NSet() . . . 760
10.215 gdcm::network::NSetRQ Class Reference . . . 760
10.215.1 Detailed Description . . . 761
10.215.2 Member Function Documentation . . . 761
10.215.2.1 ConstructPDV() . . . 761
10.216 gdcm::network::NSetRSP Class Reference . . . 761
10.216.1 Detailed Description . . . 762
10.216.2 Member Function Documentation . . . 762
10.216.2.1 ConstructPDVByDataSet() . . . 762
10.217 gdcm::Object Class Reference . . . 763
10.217.1 Detailed Description . . . 764
10.217.2 Constructor & Destructor Documentation . . . 764
10.217.2.1 Object() [1/2] . . . 764
10.217.2.2 ∼Object() . . . 764
10.217.2.3 Object() [2/2] . . . 764
10.217.3 Member Function Documentation . . . 765
10.217.3.1 operator=() . . . 765
10.217.3.2 Print() . . . 765
10.217.3.3 Register() . . . 765
10.217.3.4 UnRegister() . . . 765
10.217.4 Friends And Related Symbol Documentation . . . 765
10.217.4.1 operator<< . . . 765
10.217.4.2 SmartPointer . . . 765
10.218 gdcm::OpenSSLCryptoFactory Class Reference . . . 766
10.218.1 Constructor & Destructor Documentation . . . 767
10.218.1.1 OpenSSLCryptoFactory() . . . 767
10.218.2 Member Function Documentation . . . 767
10.218.2.1 CreateCMSProvider() . . . 767
10.218.2.2 InitOpenSSL() . . . 767
10.219 gdcm::OpenSSLCryptographicMessageSyntax Class Reference . . . 768
10.219.1 Constructor & Destructor Documentation . . . 769

10.219.1.1 OpenSSLCryptographicMessageSyntax() . . . 769
10.219.1.2 ~OpenSSLCryptographicMessageSyntax() . . . 769
10.219.2 Member Function Documentation . . . 769
10.219.2.1 Decrypt() . . . 769
10.219.2.2 Encrypt() . . . 770
10.219.2.3 GetCipherType() . . . 770
10.219.2.4 ParseCertificateFile() . . . 770
10.219.2.5 ParseKeyFile() . . . 770
10.219.2.6 SetCipherType() . . . 770
10.219.2.7 SetPassword() . . . 771
10.220 gdcm::OpenSSLP7CryptoFactory Class Reference . . . 771
10.220.1 Constructor & Destructor Documentation . . . 772
10.220.1.1 OpenSSLP7CryptoFactory() . . . 772
10.220.2 Member Function Documentation . . . 772
10.220.2.1 CreateCMSProvider() . . . 772
10.221 gdcm::OpenSSLP7CryptographicMessageSyntax Class Reference . . . 773
10.221.1 Detailed Description . . . 774
10.221.2 Constructor & Destructor Documentation . . . 774
10.221.2.1 OpenSSLP7CryptographicMessageSyntax() . . . 774
10.221.2.2 ~OpenSSLP7CryptographicMessageSyntax() . . . 774
10.221.3 Member Function Documentation . . . 774
10.221.3.1 Decrypt() . . . 774
10.221.3.2 Encrypt() . . . 775
10.221.3.3 GetCipherType() . . . 775
10.221.3.4 ParseCertificateFile() . . . 775
10.221.3.5 ParseKeyFile() . . . 775
10.221.3.6 SetCipherType() . . . 775
10.221.3.7 SetPassword() . . . 776
10.222 gdcm::Orientation Class Reference . . . 776
10.222.1 Detailed Description . . . 777
10.222.2 Member Enumeration Documentation . . . 777
10.222.2.1 OrientationType . . . 777
10.222.3 Constructor & Destructor Documentation . . . 777
10.222.3.1 Orientation() . . . 777
10.222.3.2 ~Orientation() . . . 777
10.222.4 Member Function Documentation . . . 778
10.222.4.1 GetLabel() . . . 778
10.222.4.2 GetMajorAxisFromPatientRelativeDirectionCosine() . . . 778
10.222.4.3 GetObliquityThresholdCosineValue() . . . 778

10.222.4.4 GetType() . . . 778
10.222.4.5 Print() . . . 778
10.222.4.6 SetObliquityThresholdCosineValue() . . . 779
10.222.5 Friends And Related Symbol Documentation . . . 779
10.222.5.1 operator<< . . . 779
10.223 gdcm::Overlay Class Reference . . . 779
10.223.1 Detailed Description . . . 782
10.223.2 Member Enumeration Documentation . . . 782
10.223.2.1 OverlayType . . . 782
10.223.3 Constructor & Destructor Documentation . . . 782
10.223.3.1 Overlay() [1/2] . . . 782
10.223.3.2 ~Overlay() . . . 783
10.223.3.3 Overlay() [2/2] . . . 783
10.223.4 Member Function Documentation . . . 783
10.223.4.1 Decompress() . . . 783
10.223.4.2 GetBitPosition() . . . 783
10.223.4.3 GetBitsAllocated() . . . 783
10.223.4.4 GetColumns() . . . 783
10.223.4.5 GetDescription() . . . 783
10.223.4.6 GetGroup() . . . 784
10.223.4.7 GetOrigin() . . . 784
10.223.4.8 GetOverlayData() . . . 784
10.223.4.9 GetOverlayTypeAsString() . . . 784
10.223.4.10 GetOverlayTypeFromString() . . . 784
10.223.4.11 GetRows() . . . 784
10.223.4.12 GetType() . . . 784
10.223.4.13 GetTypeAsEnum() . . . 785
10.223.4.14 GetUnpackBuffer() . . . 785
10.223.4.15 GetUnpackBufferLength() . . . 785
10.223.4.16 GrabOverlayFromPixelData() . . . 785
10.223.4.17 IsEmpty() . . . 785
10.223.4.18 IsInPixelData() [1/2] . . . 785
10.223.4.19 IsInPixelData() [2/2] . . . 785
10.223.4.20 IsZero() . . . 786
10.223.4.21 operator=() . . . 786
10.223.4.22 Print() . . . 786
10.223.4.23 SetBitPosition() . . . 786
10.223.4.24 SetBitsAllocated() . . . 786
10.223.4.25 SetColumns() . . . 786

10.223.4.26 SetDescription() . . . 787
10.223.4.27 SetFrameOrigin() . . . 787
10.223.4.28 SetGroup() . . . 787
10.223.4.29 SetNumberOfFrames() . . . 787
10.223.4.30 SetOrigin() . . . 787
10.223.4.31 SetOverlay() . . . 787
10.223.4.32 SetRows() . . . 788
10.223.4.33 SetType() . . . 788
10.223.4.34 Update() . . . 788
10.224 gdcm::ParseException Class Reference . . . 788
10.224.1 Detailed Description . . . 789
10.224.2 Constructor & Destructor Documentation . . . 789
10.224.2.1 ParseException() [1/2] . . . 789
10.224.2.2 ∼ParseException() . . . 790
10.224.2.3 ParseException() [2/2] . . . 790
10.224.3 Member Function Documentation . . . 790
10.224.3.1 GetLastElement() . . . 790
10.224.3.2 operator=() . . . 790
10.224.3.3 SetLastElement() . . . 790
10.225 gdcm::Parser Class Reference . . . 790
10.225.1 Detailed Description . . . 791
10.225.2 Member Typedef Documentation . . . 792
10.225.2.1 EndElementHandler . . . 792
10.225.2.2 StartElementHandler . . . 792
10.225.3 Member Enumeration Documentation . . . 792
10.225.3.1 ErrorType . . . 792
10.225.4 Constructor & Destructor Documentation . . . 792
10.225.4.1 Parser() . . . 792
10.225.4.2 ∼Parser() . . . 792
10.225.5 Member Function Documentation . . . 793
10.225.5.1 GetBuffer() . . . 793
10.225.5.2 GetCurrentByteIndex() . . . 793
10.225.5.3 GetErrorCode() . . . 793
10.225.5.4 GetErrorString() . . . 793
10.225.5.5 GetUserData() . . . 793
10.225.5.6 Parse() . . . 793
10.225.5.7 ParseBuffer() . . . 793
10.225.5.8 Process() . . . 793
10.225.5.9 SetElementHandler() . . . 794

10.225.5.10 SetUserData() . . . 794
10.226 gdcm::Patient Class Reference . . . 794
10.226.1 Detailed Description . . . 794
10.226.2 Constructor & Destructor Documentation . . . 794
10.226.2.1 Patient() . . . 794
10.227 gdcm::network::PDataTFPDU Class Reference . . . 795
10.227.1 Detailed Description . . . 796
10.227.2 Member Typedef Documentation . . . 796
10.227.2.1 SizeType . . . 796
10.227.3 Constructor & Destructor Documentation . . . 796
10.227.3.1 PDataTFPDU() . . . 796
10.227.4 Member Function Documentation . . . 796
10.227.4.1 AddPresentationDataValue() . . . 796
10.227.4.2 GetNumberOfPresentationDataValues() . . . 796
10.227.4.3 GetPresentationDataValue() . . . 796
10.227.4.4 IsLastFragment() . . . 797
10.227.4.5 Print() . . . 797
10.227.4.6 Read() . . . 797
10.227.4.7 ReadInto() . . . 797
10.227.4.8 Size() . . . 797
10.227.4.9 Write() . . . 797
10.228 gdcm::PDBElement Class Reference . . . 798
10.228.1 Detailed Description . . . 799
10.228.2 Constructor & Destructor Documentation . . . 799
10.228.2.1 PDBElement() . . . 799
10.228.3 Member Function Documentation . . . 799
10.228.3.1 GetName() . . . 799
10.228.3.2 GetValue() . . . 799
10.228.3.3 operator==() . . . 799
10.228.3.4 SetName() . . . 799
10.228.3.5 SetValue() . . . 800
10.228.4 Friends And Related Symbol Documentation . . . 800
10.228.4.1 operator<< . . . 800
10.228.5 Member Data Documentation . . . 800
10.228.5.1 NameField . . . 800
10.228.5.2 ValueField . . . 800
10.229 gdcm::PDBHeader Class Reference . . . 800
10.229.1 Detailed Description . . . 801
10.229.2 Constructor & Destructor Documentation . . . 802

10.229.2.1 PDBHeader() . . . 802
10.229.2.2 ∼PDBHeader() . . . 802
10.229.3 Member Function Documentation . . . 802
10.229.3.1 FindPDBElementByName() . . . 802
10.229.3.2 GetPDBEEnd() . . . 802
10.229.3.3 GetPDBElementByName() . . . 802
10.229.3.4 GetPDBInfoTag() . . . 802
10.229.3.5 LoadFromDataElement() . . . 803
10.229.3.6 Print() . . . 803
10.229.4 Friends And Related Symbol Documentation . . . 803
10.229.4.1 operator<< . . . 803
10.230 gdcm::PDFCodec Class Reference . . . 803
10.230.1 Detailed Description . . . 805
10.230.2 Constructor & Destructor Documentation . . . 805
10.230.2.1 PDFCodec() . . . 805
10.230.2.2 ∼PDFCodec() . . . 805
10.230.3 Member Function Documentation . . . 805
10.230.3.1 CanCode() . . . 805
10.230.3.2 CanDecode() . . . 805
10.230.3.3 Decode() . . . 806
10.231 gdcm::network::PDUFactory Class Reference . . . 806
10.231.1 Detailed Description . . . 807
10.231.2 Member Function Documentation . . . 807
10.231.2.1 ConstructAbortPDU() . . . 807
10.231.2.2 ConstructPDU() . . . 807
10.231.2.3 ConstructReleasePDU() . . . 807
10.231.2.4 CreateCEchoPDU() . . . 807
10.231.2.5 CreateCFindPDU() . . . 807
10.231.2.6 CreateCMovePDU() . . . 807
10.231.2.7 CreateCStoreRQPDU() . . . 808
10.231.2.8 CreateCStoreRSPPDU() . . . 808
10.231.2.9 CreateNActionPDU() . . . 808
10.231.2.10 CreateNCreatePDU() . . . 808
10.231.2.11 CreateNDeletePDU() . . . 808
10.231.2.12 CreateNEventReportPDU() . . . 808
10.231.2.13 CreateNGetPDU() . . . 808
10.231.2.14 CreateNSetPDU() . . . 809
10.231.2.15 DetermineEventByPDU() . . . 809
10.231.2.16 GetPDVs() . . . 809

10.232 gdcm::PersonName Class Reference . . . 809
10.232.1 Detailed Description . . . 810
10.232.2 Member Function Documentation . . . 810
10.232.2.1 GetMaxLength() . . . 810
10.232.2.2 GetNumberOfComponents() . . . 810
10.232.2.3 Print() . . . 810
10.232.2.4 SetBlob() . . . 810
10.232.2.5 SetComponents() [1/2] . . . 810
10.232.2.6 SetComponents() [2/2] . . . 811
10.232.3 Member Data Documentation . . . 811
10.232.3.1 Component . . . 811
10.232.3.2 MaxLength . . . 811
10.232.3.3 MaxNumberOfComponents . . . 811
10.232.3.4 Padding . . . 811
10.232.3.5 Separator . . . 811
10.233 gdcm::PGXCodec Class Reference . . . 812
10.233.1 Detailed Description . . . 814
10.233.2 Constructor & Destructor Documentation . . . 815
10.233.2.1 PGXCodec() . . . 815
10.233.2.2 ∼PGXCodec() . . . 815
10.233.3 Member Function Documentation . . . 815
10.233.3.1 CanCode() . . . 815
10.233.3.2 CanDecode() . . . 815
10.233.3.3 Clone() . . . 815
10.233.3.4 GetHeaderInfo() . . . 815
10.233.3.5 Read() . . . 816
10.233.3.6 Write() . . . 816
10.234 gdcm::PhotometricInterpretation Class Reference . . . 816
10.234.1 Detailed Description . . . 817
10.234.2 Member Enumeration Documentation . . . 817
10.234.2.1 PIType . . . 817
10.234.3 Constructor & Destructor Documentation . . . 818
10.234.3.1 PhotometricInterpretation() . . . 818
10.234.4 Member Function Documentation . . . 818
10.234.4.1 GetPIString() . . . 818
10.234.4.2 GetPIType() . . . 818
10.234.4.3 GetSamplesPerPixel() . . . 818
10.234.4.4 GetString() . . . 819
10.234.4.5 GetType() . . . 819

10.234.4.6 IsLossless() . . . 819
10.234.4.7 IsLossy() . . . 819
10.234.4.8 IsRetired() . . . 819
10.234.4.9 IsSameColorSpace() . . . 819
10.234.4.10 operator PIType() . . . 819
10.234.5 Friends And Related Symbol Documentation . . . 819
10.234.5.1 operator<< . . . 819
10.235 gdcm::PixelFormat Class Reference . . . 820
10.235.1 Detailed Description . . . 821
10.235.2 Member Enumeration Documentation . . . 822
10.235.2.1 ScalarType . . . 822
10.235.3 Constructor & Destructor Documentation . . . 822
10.235.3.1 PixelFormat() [1/3] . . . 822
10.235.3.2 PixelFormat() [2/3] . . . 822
10.235.3.3 PixelFormat() [3/3] . . . 822
10.235.4 Member Function Documentation . . . 823
10.235.4.1 GetBitsAllocated() . . . 823
10.235.4.2 GetBitsStored() . . . 823
10.235.4.3 GetHighBit() . . . 823
10.235.4.4 GetMax() . . . 823
10.235.4.5 GetMin() . . . 823
10.235.4.6 GetPixelRepresentation() . . . 824
10.235.4.7 GetPixelSize() . . . 824
10.235.4.8 GetSamplesPerPixel() . . . 824
10.235.4.9 GetScalarType() . . . 824
10.235.4.10 GetScalarTypeAsString() . . . 825
10.235.4.11 IsCompatible() . . . 825
10.235.4.12 IsValid() . . . 825
10.235.4.13 operator ScalarType() . . . 825
10.235.4.14 operator"!=() [1/2] . . . 825
10.235.4.15 operator"!=() [2/2] . . . 825
10.235.4.16 operator==() [1/2] . . . 825
10.235.4.17 operator==() [2/2] . . . 825
10.235.4.18 Print() . . . 826
10.235.4.19 SetBitsAllocated() . . . 826
10.235.4.20 SetBitsStored() . . . 826
10.235.4.21 SetHighBit() . . . 826
10.235.4.22 SetPixelRepresentation() . . . 826
10.235.4.23 SetSamplesPerPixel() . . . 826

10.235.4.24 SetScalarType() . . . 827
10.235.4.25 Validate() . . . 827
10.235.5 Friends And Related Symbol Documentation . . . 827
10.235.5.1 Bitmap . . . 827
10.235.5.2 operator<< . . . 827
10.236 gdcm::Pixmap Class Reference . . . 828
10.236.1 Detailed Description . . . 831
10.236.2 Constructor & Destructor Documentation . . . 832
10.236.2.1 Pixmap() . . . 832
10.236.2.2 ~Pixmap() . . . 832
10.236.3 Member Function Documentation . . . 832
10.236.3.1 AreOverlaysInPixelData() . . . 832
10.236.3.2 GetCurve() [1/2] . . . 832
10.236.3.3 GetCurve() [2/2] . . . 832
10.236.3.4 GetIconImage() [1/2] . . . 832
10.236.3.5 GetIconImage() [2/2] . . . 832
10.236.3.6 GetNumberOfCurves() . . . 833
10.236.3.7 GetNumberOfOverlays() . . . 833
10.236.3.8 GetOverlay() [1/2] . . . 833
10.236.3.9 GetOverlay() [2/2] . . . 833
10.236.3.10 Print() . . . 833
10.236.3.11 RemoveOverlay() . . . 833
10.236.3.12 SetIconImage() . . . 833
10.236.3.13 SetNumberOfCurves() . . . 833
10.236.3.14 SetNumberOfOverlays() . . . 834
10.236.3.15 UnusedBitsPresentInPixelData() . . . 834
10.236.4 Member Data Documentation . . . 834
10.236.4.1 Curves . . . 834
10.236.4.2 Icon . . . 834
10.236.4.3 Overlays . . . 834
10.237 gdcm::PixmapReader Class Reference . . . 835
10.237.1 Detailed Description . . . 837
10.237.2 Constructor & Destructor Documentation . . . 838
10.237.2.1 PixmapReader() . . . 838
10.237.2.2 ~PixmapReader() . . . 838
10.237.3 Member Function Documentation . . . 838
10.237.3.1 GetPixmap() [1/2] . . . 838
10.237.3.2 GetPixmap() [2/2] . . . 838
10.237.3.3 Read() . . . 838

10.237.3.4 ReadACRNEMAImage() . . . 839
10.237.3.5 ReadImage() . . . 839
10.237.3.6 ReadImageInternal() . . . 839
10.237.4 Member Data Documentation . . . 839
10.237.4.1 PixelData . . . 839
10.238 gdcm::PixmapToPixmapFilter Class Reference . . . 839
10.238.1 Detailed Description . . . 841
10.238.2 Constructor & Destructor Documentation . . . 841
10.238.2.1 PixmapToPixmapFilter() . . . 841
10.238.2.2 ~PixmapToPixmapFilter() . . . 841
10.238.3 Member Function Documentation . . . 841
10.238.3.1 GetInput() . . . 841
10.238.3.2 GetOutput() . . . 841
10.238.3.3 GetOutputAsPixmap() . . . 842
10.239 gdcm::PixmapWriter Class Reference . . . 842
10.239.1 Detailed Description . . . 844
10.239.2 Constructor & Destructor Documentation . . . 845
10.239.2.1 PixmapWriter() . . . 845
10.239.2.2 ~PixmapWriter() . . . 845
10.239.3 Member Function Documentation . . . 845
10.239.3.1 DoIconImage() . . . 845
10.239.3.2 GetImage() [1/2] . . . 845
10.239.3.3 GetImage() [2/2] . . . 845
10.239.3.4 GetPixmap() [1/2] . . . 845
10.239.3.5 GetPixmap() [2/2] . . . 845
10.239.3.6 PrepareWrite() . . . 846
10.239.3.7 SetImage() . . . 846
10.239.3.8 SetPixmap() . . . 846
10.239.3.9 Write() . . . 846
10.239.4 Member Data Documentation . . . 846
10.239.4.1 PixelData . . . 846
10.240 gdcm::PNMCodec Class Reference . . . 847
10.240.1 Detailed Description . . . 850
10.240.2 Constructor & Destructor Documentation . . . 850
10.240.2.1 PNMCodec() . . . 850
10.240.2.2 ~PNMCodec() . . . 850
10.240.3 Member Function Documentation . . . 850
10.240.3.1 CanCode() . . . 850
10.240.3.2 CanDecode() . . . 850

10.240.3.3 Clone() . . . 851
10.240.3.4 GetBufferLength() . . . 851
10.240.3.5 GetHeaderInfo() . . . 851
10.240.3.6 Read() . . . 851
10.240.3.7 SetBufferLength() . . . 851
10.240.3.8 Write() . . . 851
10.241 gdcm::Preamble Class Reference . . . 852
10.241.1 Detailed Description . . . 852
10.241.2 Constructor & Destructor Documentation . . . 853
10.241.2.1 Preamble() [1/2] . . . 853
10.241.2.2 ∼Preamble() . . . 853
10.241.2.3 Preamble() [2/2] . . . 853
10.241.3 Member Function Documentation . . . 853
10.241.3.1 Clear() . . . 853
10.241.3.2 Create() . . . 853
10.241.3.3 GetInternal() . . . 853
10.241.3.4 GetLength() . . . 853
10.241.3.5 IsEmpty() . . . 854
10.241.3.6 IsValid() . . . 854
10.241.3.7 operator=() . . . 854
10.241.3.8 Print() . . . 854
10.241.3.9 Read() . . . 854
10.241.3.10 Remove() . . . 854
10.241.3.11 Valid() . . . 854
10.241.3.12 Write() . . . 855
10.241.4 Friends And Related Symbol Documentation . . . 855
10.241.4.1 operator<< . . . 855
10.242 gdcm::PresentationContext Class Reference . . . 855
10.242.1 Detailed Description . . . 856
10.242.2 Member Typedef Documentation . . . 856
10.242.2.1 SizeType . . . 856
10.242.2.2 TransferSyntaxArrayType . . . 856
10.242.3 Constructor & Destructor Documentation . . . 857
10.242.3.1 PresentationContext() [1/2] . . . 857
10.242.3.2 PresentationContext() [2/2] . . . 857
10.242.4 Member Function Documentation . . . 857
10.242.4.1 AddTransferSyntax() . . . 857
10.242.4.2 GetAbstractSyntax() . . . 857
10.242.4.3 GetNumberOfTransferSyntaxes() . . . 857

10.242.4.4 GetPresentationContextID() . . . 857
10.242.4.5 GetTransferSyntax() . . . 857
10.242.4.6 operator==() . . . 858
10.242.4.7 Print() . . . 858
10.242.4.8 SetAbstractSyntax() . . . 858
10.242.4.9 SetPresentationContextID() . . . 858
10.242.5 Member Data Documentation . . . 858
10.242.5.1 AbstractSyntax . . . 858
10.242.5.2 ID . . . 858
10.242.5.3 TransferSyntaxes . . . 858
10.243 gdcm::network::PresentationContextAC Class Reference . . . 859
10.243.1 Detailed Description . . . 859
10.243.2 Constructor & Destructor Documentation . . . 859
10.243.2.1 PresentationContextAC() . . . 859
10.243.3 Member Function Documentation . . . 859
10.243.3.1 GetPresentationContextID() . . . 859
10.243.3.2 GetReason() . . . 860
10.243.3.3 GetTransferSyntax() . . . 860
10.243.3.4 Print() . . . 860
10.243.3.5 Read() . . . 860
10.243.3.6 SetPresentationContextID() . . . 860
10.243.3.7 SetReason() . . . 860
10.243.3.8 SetTransferSyntax() . . . 860
10.243.3.9 Size() . . . 860
10.243.3.10 Write() . . . 861
10.244 gdcm::PresentationContextGenerator Class Reference . . . 861
10.244.1 Detailed Description . . . 862
10.244.2 Member Typedef Documentation . . . 862
10.244.2.1 PresentationContextArrayType . . . 862
10.244.2.2 SizeType . . . 862
10.244.3 Constructor & Destructor Documentation . . . 862
10.244.3.1 PresentationContextGenerator() . . . 862
10.244.4 Member Function Documentation . . . 863
10.244.4.1 AddFromFile() . . . 863
10.244.4.2 AddPresentationContext() . . . 863
10.244.4.3 GenerateFromFilenames() . . . 863
10.244.4.4 GenerateFromUID() . . . 863
10.244.4.5 GetDefaultTransferSyntax() . . . 863
10.244.4.6 GetPresentationContexts() . . . 863

10.244.4.7 SetDefaultTransferSyntax() . . . 864
10.244.4.8 SetMergeModeToAbstractSyntax() . . . 864
10.244.4.9 SetMergeModeToTransferSyntax() . . . 864
10.245 gdcm::network::PresentationContextRQ Class Reference . . . 864
10.245.1 Detailed Description . . . 865
10.245.2 Member Typedef Documentation . . . 865
10.245.2.1 SizeType . . . 865
10.245.3 Constructor & Destructor Documentation . . . 865
10.245.3.1 PresentationContextRQ() [1/3] . . . 865
10.245.3.2 PresentationContextRQ() [2/3] . . . 865
10.245.3.3 PresentationContextRQ() [3/3] . . . 865
10.245.4 Member Function Documentation . . . 865
10.245.4.1 AddTransferSyntax() . . . 865
10.245.4.2 GetAbstractSyntax() [1/2] . . . 866
10.245.4.3 GetAbstractSyntax() [2/2] . . . 866
10.245.4.4 GetNumberOfTransferSyntaxes() . . . 866
10.245.4.5 GetPresentationContextID() . . . 866
10.245.4.6 GetTransferSyntax() [1/2] . . . 866
10.245.4.7 GetTransferSyntax() [2/2] . . . 866
10.245.4.8 GetTransferSyntaxes() . . . 866
10.245.4.9 operator==() . . . 866
10.245.4.10 Print() . . . 866
10.245.4.11 Read() . . . 867
10.245.4.12 SetAbstractSyntax() . . . 867
10.245.4.13 SetPresentationContextID() . . . 867
10.245.4.14 Size() . . . 867
10.245.4.15 Write() . . . 867
10.246 gdcm::network::PresentationDataValue Class Reference . . . 867
10.246.1 Detailed Description . . . 868
10.246.2 Constructor & Destructor Documentation . . . 868
10.246.2.1 PresentationDataValue() . . . 868
10.246.3 Member Function Documentation . . . 868
10.246.3.1 ConcatenatePDVBlobs() . . . 868
10.246.3.2 ConcatenatePDVBlobsAsExplicit() . . . 869
10.246.3.3 GetBlob() . . . 869
10.246.3.4 GetIsCommand() . . . 869
10.246.3.5 GetIsLastFragment() . . . 869
10.246.3.6 GetMessageHeader() . . . 869
10.246.3.7 GetPresentationContextID() . . . 869

10.246.3.8 Print() . . . 869
10.246.3.9 Read() . . . 869
10.246.3.10 ReadInto() . . . 869
10.246.3.11 SetBlob() . . . 870
10.246.3.12 SetCommand() . . . 870
10.246.3.13 SetDataSet() . . . 870
10.246.3.14 SetLastFragment() . . . 870
10.246.3.15 SetMessageHeader() . . . 870
10.246.3.16 SetPresentationContextID() . . . 870
10.246.3.17 Size() . . . 870
10.246.3.18 Write() . . . 871
10.247 gdcm::Printer Class Reference . . . 871
10.247.1 Detailed Description . . . 872
10.247.2 Member Enumeration Documentation . . . 872
10.247.2.1 PrintStyles . . . 872
10.247.3 Constructor & Destructor Documentation . . . 873
10.247.3.1 Printer() . . . 873
10.247.3.2 ∼Printer() . . . 873
10.247.4 Member Function Documentation . . . 873
10.247.4.1 GetPrintStyle() . . . 873
10.247.4.2 Print() . . . 873
10.247.4.3 PrintDataElement() . . . 873
10.247.4.4 PrintDataSet() . . . 874
10.247.4.5 PrintSQ() . . . 874
10.247.4.6 SetColor() . . . 874
10.247.4.7 SetFile() . . . 874
10.247.4.8 SetStyle() . . . 874
10.247.5 Member Data Documentation . . . 874
10.247.5.1 F . . . 874
10.247.5.2 MaxPrintLength . . . 875
10.247.5.3 PrintStyle . . . 875
10.248 gdcm::PrivateDict Class Reference . . . 875
10.248.1 Detailed Description . . . 875
10.248.2 Constructor & Destructor Documentation . . . 876
10.248.2.1 PrivateDict() . . . 876
10.248.2.2 ∼PrivateDict() . . . 876
10.248.3 Member Function Documentation . . . 876
10.248.3.1 AddDictEntry() . . . 876
10.248.3.2 FindDictEntry() . . . 876

10.248.3.3 GetDictEntry() . . . 876
10.248.3.4 IsEmpty() . . . 876
10.248.3.5 LoadDefault() . . . 876
10.248.3.6 PrintXML() . . . 877
10.248.3.7 RemoveDictEntry() . . . 877
10.248.4 Friends And Related Symbol Documentation . . . 877
10.248.4.1 Dicts . . . 877
10.248.4.2 operator<< . . . 877
10.249 gdcm::PrivateTag Class Reference . . . 877
10.249.1 Detailed Description . . . 880
10.249.2 Constructor & Destructor Documentation . . . 880
10.249.2.1 PrivateTag() [1/2] . . . 880
10.249.2.2 PrivateTag() [2/2] . . . 880
10.249.3 Member Function Documentation . . . 881
10.249.3.1 GetAsDataElement() . . . 881
10.249.3.2 GetOwner() . . . 881
10.249.3.3 operator"!=() [1/2] . . . 881
10.249.3.4 operator"!=() [2/2] . . . 881
10.249.3.5 operator<() . . . 881
10.249.3.6 operator=() . . . 881
10.249.3.7 operator==() [1/2] . . . 882
10.249.3.8 operator==() [2/2] . . . 882
10.249.3.9 ReadFromCommaSeparatedString() . . . 882
10.249.3.10 SetOwner() . . . 882
10.249.4 Friends And Related Symbol Documentation . . . 882
10.249.4.1 operator<< . . . 882
10.250 gdcm::ProgressEvent Class Reference . . . 883
10.250.1 Detailed Description . . . 884
10.250.2 Member Typedef Documentation . . . 884
10.250.2.1 Self . . . 884
10.250.2.2 Superclass . . . 884
10.250.3 Constructor & Destructor Documentation . . . 885
10.250.3.1 ProgressEvent() [1/2] . . . 885
10.250.3.2 ~ProgressEvent() . . . 885
10.250.3.3 ProgressEvent() [2/2] . . . 885
10.250.4 Member Function Documentation . . . 885
10.250.4.1 CheckEvent() . . . 885
10.250.4.2 GetEventName() . . . 885
10.250.4.3 GetProgress() . . . 885

10.250.4.4 MakeObject() . . . 886
10.250.4.5 operator=() . . . 886
10.250.4.6 SetProgress() . . . 886
10.251 gdcm::PVRGCodec Class Reference . . . 886
10.251.1 Detailed Description . . . 889
10.251.2 Constructor & Destructor Documentation . . . 889
10.251.2.1 PVRGCodec() . . . 889
10.251.2.2 ~PVRGCodec() . . . 889
10.251.3 Member Function Documentation . . . 889
10.251.3.1 CanCode() . . . 889
10.251.3.2 CanDecode() . . . 889
10.251.3.3 Clone() . . . 890
10.251.3.4 Code() . . . 890
10.251.3.5 Decode() . . . 890
10.251.3.6 SetLossyFlag() . . . 890
10.252 gdcm::PythonFilter Class Reference . . . 890
10.252.1 Detailed Description . . . 891
10.252.2 Constructor & Destructor Documentation . . . 891
10.252.2.1 PythonFilter() . . . 891
10.252.2.2 ~PythonFilter() . . . 891
10.252.3 Member Function Documentation . . . 891
10.252.3.1 GetFile() [1/2] . . . 891
10.252.3.2 GetFile() [2/2] . . . 891
10.252.3.3 SetDicts() . . . 891
10.252.3.4 SetFile() . . . 892
10.252.3.5 ToPyObject() . . . 892
10.252.3.6 UseDictAlways() . . . 892
10.253 gdcm::QueryBase Class Reference . . . 892
10.253.1 Detailed Description . . . 893
10.253.2 Constructor & Destructor Documentation . . . 893
10.253.2.1 ~QueryBase() . . . 893
10.253.3 Member Function Documentation . . . 893
10.253.3.1 GetAllRequiredTags() . . . 893
10.253.3.2 GetAllTags() . . . 893
10.253.3.3 GetHierachicalSearchTags() . . . 894
10.253.3.4 GetName() . . . 894
10.253.3.5 GetOptionalTags() . . . 894
10.253.3.6 GetQueryLevel() . . . 894
10.253.3.7 GetRequiredTags() . . . 894

10.253.3.8 GetUniqueTags() . . . 894
10.254 gdcm::QueryFactory Class Reference . . . 895
10.254.1 Detailed Description . . . 895
10.254.2 Member Function Documentation . . . 895
10.254.2.1 GetCharacterFromCurrentLocale() . . . 895
10.254.2.2 ListCharSets() . . . 895
10.254.2.3 ProduceCharacterSetDataElement() . . . 896
10.254.2.4 ProduceQuery() [1/2] . . . 896
10.254.2.5 ProduceQuery() [2/2] . . . 896
10.255 gdcm::QueryImage Class Reference . . . 896
10.255.1 Detailed Description . . . 897
10.255.2 Member Function Documentation . . . 897
10.255.2.1 GetHierachicalSearchTags() . . . 897
10.255.2.2 GetName() . . . 898
10.255.2.3 GetOptionalTags() . . . 898
10.255.2.4 GetQueryLevel() . . . 898
10.255.2.5 GetRequiredTags() . . . 898
10.255.2.6 GetUniqueTags() . . . 898
10.256 gdcm::QueryPatient Class Reference . . . 899
10.256.1 Detailed Description . . . 900
10.256.2 Member Function Documentation . . . 900
10.256.2.1 GetHierachicalSearchTags() . . . 900
10.256.2.2 GetName() . . . 900
10.256.2.3 GetOptionalTags() . . . 900
10.256.2.4 GetQueryLevel() . . . 900
10.256.2.5 GetRequiredTags() . . . 901
10.256.2.6 GetUniqueTags() . . . 901
10.257 gdcm::QuerySeries Class Reference . . . 901
10.257.1 Detailed Description . . . 902
10.257.2 Member Function Documentation . . . 902
10.257.2.1 GetHierachicalSearchTags() . . . 902
10.257.2.2 GetName() . . . 903
10.257.2.3 GetOptionalTags() . . . 903
10.257.2.4 GetQueryLevel() . . . 903
10.257.2.5 GetRequiredTags() . . . 903
10.257.2.6 GetUniqueTags() . . . 903
10.258 gdcm::QueryStudy Class Reference . . . 904
10.258.1 Detailed Description . . . 905
10.258.2 Member Function Documentation . . . 905

10.258.2.1 GetHierachicalSearchTags() . . . 905
10.258.2.2 GetName() . . . 905
10.258.2.3 GetOptionalTags() . . . 905
10.258.2.4 GetQueryLevel() . . . 905
10.258.2.5 GetRequiredTags() . . . 906
10.258.2.6 GetUniqueTags() . . . 906
10.259 gdcm::RAWCodec Class Reference . . . 906
10.259.1 Detailed Description . . . 909
10.259.2 Constructor & Destructor Documentation . . . 909
10.259.2.1 RAWCodec() . . . 909
10.259.2.2 ∼RAWCodec() . . . 909
10.259.3 Member Function Documentation . . . 909
10.259.3.1 CanCode() . . . 909
10.259.3.2 CanDecode() . . . 909
10.259.3.3 Clone() . . . 910
10.259.3.4 Code() . . . 910
10.259.3.5 Decode() . . . 910
10.259.3.6 DecodeByStreams() . . . 910
10.259.3.7 DecodeBytes() . . . 910
10.259.3.8 GetHeaderInfo() . . . 911
10.260 gdcm::Reader Class Reference . . . 911
10.260.1 Detailed Description . . . 913
10.260.2 Constructor & Destructor Documentation . . . 914
10.260.2.1 Reader() . . . 914
10.260.2.2 ∼Reader() . . . 914
10.260.3 Member Function Documentation . . . 914
10.260.3.1 CanRead() . . . 914
10.260.3.2 GetFile() [1/2] . . . 914
10.260.3.3 GetFile() [2/2] . . . 914
10.260.3.4 GetStreamCurrentPosition() . . . 915
10.260.3.5 GetStreamPtr() . . . 915
10.260.3.6 Read() . . . 915
10.260.3.7 ReadDataSet() . . . 915
10.260.3.8 ReadMetaInformation() . . . 915
10.260.3.9 ReadPreamble() . . . 916
10.260.3.10 ReadSelectedPrivateTags() . . . 916
10.260.3.11 ReadSelectedTags() . . . 916
10.260.3.12 ReadUpToTag() . . . 916
10.260.3.13 SetFile() . . . 916

10.260.3.14 SetFileName() . . . 917
10.260.3.15 SetStream() . . . 917
10.260.4 Friends And Related Symbol Documentation . . . 917
10.260.4.1 StreamImageReader . . . 917
10.260.5 Member Data Documentation . . . 917
10.260.5.1 F . . . 917
10.261 gdcm::RealWorldValueMappingContent Struct Reference . . . 918
10.261.1 Member Data Documentation . . . 918
10.261.1.1 CodeMeaning . . . 918
10.261.1.2 CodeValue . . . 918
10.261.1.3 RealWorldValueIntercept . . . 919
10.261.1.4 RealWorldValueSlope . . . 919
10.262 gdcm::Region Class Reference . . . 919
10.262.1 Detailed Description . . . 920
10.262.2 Constructor & Destructor Documentation . . . 920
10.262.2.1 Region() . . . 920
10.262.2.2 ∼Region() . . . 920
10.262.3 Member Function Documentation . . . 920
10.262.3.1 Area() . . . 920
10.262.3.2 Clone() . . . 920
10.262.3.3 ComputeBoundingBox() . . . 920
10.262.3.4 Empty() . . . 921
10.262.3.5 IsValid() . . . 921
10.262.3.6 Print() . . . 921
10.263 gdcm::Rescaler Class Reference . . . 921
10.263.1 Detailed Description . . . 922
10.263.2 Constructor & Destructor Documentation . . . 923
10.263.2.1 Rescaler() . . . 923
10.263.2.2 ∼Rescaler() . . . 923
10.263.3 Member Function Documentation . . . 923
10.263.3.1 ComputeInterceptSlopePixelType() . . . 923
10.263.3.2 ComputePixelTypeFromMinMax() . . . 924
10.263.3.3 GetIntercept() . . . 924
10.263.3.4 GetSlope() . . . 924
10.263.3.5 InverseRescale() . . . 924
10.263.3.6 InverseRescaleFunctionIntoBestFit() . . . 924
10.263.3.7 Rescale() . . . 924
10.263.3.8 RescaleFunctionIntoBestFit() . . . 925
10.263.3.9 SetIntercept() . . . 925

10.263.3.10 SetMinMaxForPixelType() . . . 925
10.263.3.11 SetPixelFormat() . . . 925
10.263.3.12 SetSlope() . . . 925
10.263.3.13 SetTargetPixelType() . . . 926
10.263.3.14 SetUseTargetPixelType() . . . 926
10.264 gdcm::RLECodec Class Reference . . . 926
10.264.1 Detailed Description . . . 929
10.264.2 Constructor & Destructor Documentation . . . 929
10.264.2.1 RLECodec() . . . 929
10.264.2.2 ∼RLECodec() . . . 929
10.264.3 Member Function Documentation . . . 930
10.264.3.1 AppendFrameEncode() . . . 930
10.264.3.2 AppendRowEncode() . . . 930
10.264.3.3 CanCode() . . . 930
10.264.3.4 CanDecode() . . . 930
10.264.3.5 Clone() . . . 930
10.264.3.6 Code() . . . 931
10.264.3.7 Decode() . . . 931
10.264.3.8 DecodeByStreams() . . . 931
10.264.3.9 DecodeExtent() . . . 931
10.264.3.10 GetBufferLength() . . . 931
10.264.3.11 GetHeaderInfo() . . . 932
10.264.3.12 IsFrameEncoder() . . . 932
10.264.3.13 IsRowEncoder() . . . 932
10.264.3.14 SetBufferLength() . . . 932
10.264.3.15 SetLength() . . . 932
10.264.3.16 StartEncode() . . . 932
10.264.3.17 StopEncode() . . . 932
10.264.4 Friends And Related Symbol Documentation . . . 933
10.264.4.1 ImageRegionReader . . . 933
10.265 gdcm::network::RoleSelectionSub Class Reference . . . 933
10.265.1 Detailed Description . . . 933
10.265.2 Constructor & Destructor Documentation . . . 933
10.265.2.1 RoleSelectionSub() . . . 933
10.265.3 Member Function Documentation . . . 933
10.265.3.1 Print() . . . 933
10.265.3.2 Read() . . . 934
10.265.3.3 SetTuple() . . . 934
10.265.3.4 Size() . . . 934

10.265.3.5 Write() . . . 934
10.266 gdcm::Scanner Class Reference . . . 934
10.266.1 Detailed Description . . . 937
10.266.2 Member Typedef Documentation . . . 938
10.266.2.1 ConstIterator . . . 938
10.266.2.2 MappingType . . . 938
10.266.2.3 TagToValue . . . 938
10.266.2.4 TagToValueValueType . . . 938
10.266.2.5 ValuesType . . . 938
10.266.3 Constructor & Destructor Documentation . . . 938
10.266.3.1 Scanner() . . . 938
10.266.3.2 ∼Scanner() . . . 938
10.266.4 Member Function Documentation . . . 938
10.266.4.1 AddPrivateTag() . . . 938
10.266.4.2 AddSkipTag() . . . 939
10.266.4.3 AddTag() . . . 939
10.266.4.4 Begin() . . . 939
10.266.4.5 ClearSkipTags() . . . 939
10.266.4.6 ClearTags() . . . 939
10.266.4.7 End() . . . 939
10.266.4.8 GetAllFilenamesFromTagToValue() . . . 939
10.266.4.9 GetFilenameFromTagToValue() . . . 940
10.266.4.10 GetFilenames() . . . 940
10.266.4.11 GetKeys() . . . 940
10.266.4.12 GetMapping() . . . 940
10.266.4.13 GetMappingFromTagToValue() . . . 940
10.266.4.14 GetMappings() . . . 941
10.266.4.15 GetOrderedValues() . . . 941
10.266.4.16 GetValue() . . . 941
10.266.4.17 GetValues() [1/2] . . . 941
10.266.4.18 GetValues() [2/2] . . . 941
10.266.4.19 IsKey() . . . 942
10.266.4.20 New() . . . 942
10.266.4.21 Print() . . . 942
10.266.4.22 PrintTable() . . . 942
10.266.4.23 ProcessPublicTag() . . . 942
10.266.4.24 Scan() . . . 942
10.266.5 Friends And Related Symbol Documentation . . . 943
10.266.5.1 operator<< . . . 943

10.267 gdcm::Scanner2 Class Reference . . . 943
10.267.1 Detailed Description . . . 946
10.267.2 Member Typedef Documentation . . . 947
10.267.2.1 PrivateConstIterator . . . 947
10.267.2.2 PrivateMappingType . . . 947
10.267.2.3 PrivateTagToValue . . . 947
10.267.2.4 PrivateTagToValueValueType . . . 947
10.267.2.5 PublicConstIterator . . . 947
10.267.2.6 PublicMappingType . . . 947
10.267.2.7 PublicTagToValue . . . 947
10.267.2.8 PublicTagToValueValueType . . . 947
10.267.2.9 ValuesType . . . 948
10.267.3 Constructor & Destructor Documentation . . . 948
10.267.3.1 Scanner2() . . . 948
10.267.3.2 ∼Scanner2() . . . 948
10.267.4 Member Function Documentation . . . 948
10.267.4.1 AddPrivateTag() . . . 948
10.267.4.2 AddPublicTag() . . . 948
10.267.4.3 AddSkipTag() . . . 948
10.267.4.4 Begin() . . . 948
10.267.4.5 ClearPrivateTags() . . . 949
10.267.4.6 ClearPublicTags() . . . 949
10.267.4.7 ClearSkipTags() . . . 949
10.267.4.8 End() . . . 949
10.267.4.9 GetAllFilenamesFromPrivateTagToValue() . . . 949
10.267.4.10 GetAllFilenamesFromPublicTagToValue() . . . 949
10.267.4.11 GetFilenameFromPrivateTagToValue() . . . 949
10.267.4.12 GetFilenameFromPublicTagToValue() . . . 949
10.267.4.13 GetFilenames() . . . 950
10.267.4.14 GetKeys() . . . 950
10.267.4.15 GetMappingFromPrivateTagToValue() . . . 950
10.267.4.16 GetMappingFromPublicTagToValue() . . . 950
10.267.4.17 GetPrivateMapping() . . . 950
10.267.4.18 GetPrivateMappings() . . . 950
10.267.4.19 GetPrivateOrderedValues() . . . 950
10.267.4.20 GetPrivateValue() . . . 951
10.267.4.21 GetPrivateValues() . . . 951
10.267.4.22 GetPublicMapping() . . . 951
10.267.4.23 GetPublicMappings() . . . 951

10.267.4.24 GetPublicOrderedValues() . . . 951
10.267.4.25 GetPublicValue() . . . 951
10.267.4.26 GetPublicValues() . . . 952
10.267.4.27 GetValues() . . . 952
10.267.4.28 IsKey() . . . 952
10.267.4.29 New() . . . 952
10.267.4.30 Print() . . . 952
10.267.4.31 PrintTable() . . . 952
10.267.4.32 PrivateBegin() . . . 953
10.267.4.33 PrivateEnd() . . . 953
10.267.4.34 ProcessPrivateTag() . . . 953
10.267.4.35 ProcessPublicTag() . . . 953
10.267.4.36 Scan() . . . 953
10.267.5 Friends And Related Symbol Documentation . . . 953
10.267.5.1 operator<< . . . 953
10.268 gdcm::Segment Class Reference . . . 954
10.268.1 Detailed Description . . . 956
10.268.2 Member Typedef Documentation . . . 956
10.268.2.1 BasicCodedEntryVector . . . 956
10.268.2.2 SurfaceVector . . . 956
10.268.3 Member Enumeration Documentation . . . 956
10.268.3.1 ALGOType . . . 956
10.268.4 Constructor & Destructor Documentation . . . 957
10.268.4.1 Segment() . . . 957
10.268.4.2 ~Segment() . . . 957
10.268.5 Member Function Documentation . . . 957
10.268.5.1 AddSurface() . . . 957
10.268.5.2 GetALGOType() . . . 957
10.268.5.3 GetALGOTypeString() . . . 957
10.268.5.4 GetAnatomicRegion() [1/2] . . . 957
10.268.5.5 GetAnatomicRegion() [2/2] . . . 958
10.268.5.6 GetAnatomicRegionModifiers() [1/2] . . . 958
10.268.5.7 GetAnatomicRegionModifiers() [2/2] . . . 958
10.268.5.8 GetPropertyCategory() [1/2] . . . 958
10.268.5.9 GetPropertyCategory() [2/2] . . . 958
10.268.5.10 GetPropertyType() [1/2] . . . 958
10.268.5.11 GetPropertyType() [2/2] . . . 958
10.268.5.12 GetPropertyTypeModifiers() [1/2] . . . 958
10.268.5.13 GetPropertyTypeModifiers() [2/2] . . . 958

10.268.5.14 GetSegmentAlgorithmName() . . . 958
10.268.5.15 GetSegmentAlgorithmType() . . . 959
10.268.5.16 GetSegmentDescription() . . . 959
10.268.5.17 GetSegmentLabel() . . . 959
10.268.5.18 GetSegmentNumber() . . . 959
10.268.5.19 GetSurface() . . . 959
10.268.5.20 GetSurfaceCount() . . . 959
10.268.5.21 GetSurfaces() [1/2] . . . 959
10.268.5.22 GetSurfaces() [2/2] . . . 959
10.268.5.23 SetAnatomicRegion() . . . 959
10.268.5.24 SetAnatomicRegionModifiers() . . . 960
10.268.5.25 SetPropertyCategory() . . . 960
10.268.5.26 SetPropertyType() . . . 960
10.268.5.27 SetPropertyTypeModifiers() . . . 960
10.268.5.28 SetSegmentAlgorithmName() . . . 960
10.268.5.29 SetSegmentAlgorithmType() [1/2] . . . 960
10.268.5.30 SetSegmentAlgorithmType() [2/2] . . . 960
10.268.5.31 SetSegmentDescription() . . . 960
10.268.5.32 SetSegmentLabel() . . . 961
10.268.5.33 SetSegmentNumber() . . . 961
10.268.5.34 SetSurfaceCount() . . . 961
10.268.6 Member Data Documentation . . . 961
10.268.6.1 AnatomicRegion . . . 961
10.268.6.2 AnatomicRegionModifiers . . . 961
10.268.6.3 PropertyCategory . . . 961
10.268.6.4 PropertyType . . . 961
10.268.6.5 PropertyTypeModifiers . . . 961
10.268.6.6 SegmentAlgorithmName . . . 961
10.268.6.7 SegmentAlgorithmType . . . 962
10.268.6.8 SegmentDescription . . . 962
10.268.6.9 SegmentLabel . . . 962
10.268.6.10 SegmentNumber . . . 962
10.268.6.11 SurfaceCount . . . 962
10.268.6.12 Surfaces . . . 962
10.269 gdcm::SegmentedPaletteColorLookupTable Class Reference . . . 963
10.269.1 Detailed Description . . . 965
10.269.2 Constructor & Destructor Documentation . . . 965
10.269.2.1 SegmentedPaletteColorLookupTable() . . . 965
10.269.2.2 ~SegmentedPaletteColorLookupTable() . . . 965

10.269.3 Member Function Documentation . . . 966
10.269.3.1 Print() . . . 966
10.269.3.2 SetLUT() . . . 966
10.270 gdcm::SegmentReader Class Reference . . . 966
10.270.1 Detailed Description . . . 968
10.270.2 Member Typedef Documentation . . . 969
10.270.2.1 SegmentMap . . . 969
10.270.2.2 SegmentVector . . . 969
10.270.3 Constructor & Destructor Documentation . . . 969
10.270.3.1 SegmentReader() . . . 969
10.270.3.2 ∼SegmentReader() . . . 969
10.270.4 Member Function Documentation . . . 969
10.270.4.1 GetSegments() [1/2] . . . 969
10.270.4.2 GetSegments() [2/2] . . . 969
10.270.4.3 Read() . . . 969
10.270.4.4 ReadSegment() . . . 970
10.270.4.5 ReadSegments() . . . 970
10.270.5 Member Data Documentation . . . 970
10.270.5.1 Segments . . . 970
10.271 gdcm::SegmentWriter Class Reference . . . 970
10.271.1 Detailed Description . . . 972
10.271.2 Member Typedef Documentation . . . 972
10.271.2.1 SegmentVector . . . 972
10.271.3 Constructor & Destructor Documentation . . . 972
10.271.3.1 SegmentWriter() . . . 972
10.271.3.2 ∼SegmentWriter() . . . 972
10.271.4 Member Function Documentation . . . 973
10.271.4.1 AddSegment() . . . 973
10.271.4.2 GetNumberOfSegments() . . . 973
10.271.4.3 GetSegment() . . . 973
10.271.4.4 GetSegments() [1/2] . . . 973
10.271.4.5 GetSegments() [2/2] . . . 973
10.271.4.6 PrepareWrite() . . . 973
10.271.4.7 SetNumberOfSegments() . . . 973
10.271.4.8 SetSegments() . . . 973
10.271.4.9 Write() . . . 974
10.271.5 Member Data Documentation . . . 974
10.271.5.1 Segments . . . 974
10.272 gdcm::SequenceOfFragments Class Reference . . . 974

10.272.1 Detailed Description . . . 977
10.272.2 Member Typedef Documentation . . . 977
10.272.2.1 ConstIterator . . . 977
10.272.2.2 FragmentVector . . . 977
10.272.2.3 Iterator . . . 977
10.272.2.4 SizeType . . . 977
10.272.3 Constructor & Destructor Documentation . . . 977
10.272.3.1 SequenceOfFragments() . . . 977
10.272.4 Member Function Documentation . . . 978
10.272.4.1 AddFragment() . . . 978
10.272.4.2 Begin() [1/2] . . . 978
10.272.4.3 Begin() [2/2] . . . 978
10.272.4.4 Clear() . . . 978
10.272.4.5 ComputeByteLength() . . . 978
10.272.4.6 ComputeLength() . . . 978
10.272.4.7 End() [1/2] . . . 978
10.272.4.8 End() [2/2] . . . 978
10.272.4.9 GetBuffer() . . . 979
10.272.4.10 GetFragBuffer() . . . 979
10.272.4.11 GetFragment() . . . 979
10.272.4.12 GetLength() . . . 979
10.272.4.13 GetNumberOfFragments() . . . 979
10.272.4.14 GetTable() [1/2] . . . 979
10.272.4.15 GetTable() [2/2] . . . 980
10.272.4.16 New() . . . 980
10.272.4.17 operator==() . . . 980
10.272.4.18 Print() . . . 980
10.272.4.19 Read() . . . 980
10.272.4.20 ReadPreValue() . . . 980
10.272.4.21 ReadValue() . . . 981
10.272.4.22 SetLength() . . . 981
10.272.4.23 Write() . . . 981
10.272.4.24 WriteBuffer() . . . 981
10.273 gdcm::SequenceOfItems Class Reference . . . 982
10.273.1 Detailed Description . . . 984
10.273.2 Member Typedef Documentation . . . 985
10.273.2.1 ConstIterator . . . 985
10.273.2.2 ItemVector . . . 985
10.273.2.3 Iterator . . . 985

10.273.2.4 SizeType . . . 985
10.273.3 Constructor & Destructor Documentation . . . 985
10.273.3.1 SequenceOfItems() . . . 985
10.273.4 Member Function Documentation . . . 985
10.273.4.1 AddItem() . . . 985
10.273.4.2 AddNewUndefinedLengthItem() . . . 986
10.273.4.3 Begin() [1/2] . . . 986
10.273.4.4 Begin() [2/2] . . . 986
10.273.4.5 Clear() . . . 986
10.273.4.6 ComputeLength() . . . 986
10.273.4.7 End() [1/2] . . . 986
10.273.4.8 End() [2/2] . . . 986
10.273.4.9 FindDataElement() . . . 986
10.273.4.10 GetItem() [1/2] . . . 987
10.273.4.11 GetItem() [2/2] . . . 987
10.273.4.12 GetLength() . . . 987
10.273.4.13 GetNumberOfItems() . . . 987
10.273.4.14 IsEmpty() . . . 987
10.273.4.15 IsUndefinedLength() . . . 987
10.273.4.16 New() . . . 988
10.273.4.17 operator=() . . . 988
10.273.4.18 operator==() . . . 988
10.273.4.19 Print() . . . 988
10.273.4.20 Read() . . . 988
10.273.4.21 RemoveItemByIndex() . . . 989
10.273.4.22 SetLength() . . . 989
10.273.4.23 SetLengthToUndefined() . . . 989
10.273.4.24 SetNumberOfItems() . . . 989
10.273.4.25 Write() . . . 989
10.273.5 Member Data Documentation . . . 989
10.273.5.1 Items . . . 989
10.273.5.2 SequenceLengthField . . . 990
10.274 gdcm::SerieHelper Class Reference . . . 990
10.274.1 Detailed Description . . . 991
10.274.2 Member Typedef Documentation . . . 992
10.274.2.1 Rule . . . 992
10.274.2.2 SerieRestrictions . . . 992
10.274.2.3 SingleSerieUIDFileSetmap . . . 992
10.274.3 Constructor & Destructor Documentation . . . 992

10.274.3.1 SerieHelper() . . . 992
10.274.3.2 ~SerieHelper() . . . 992
10.274.4 Member Function Documentation . . . 992
10.274.4.1 AddFile() . . . 992
10.274.4.2 AddFileName() . . . 992
10.274.4.3 AddRestriction() [1/3] . . . 992
10.274.4.4 AddRestriction() [2/3] . . . 993
10.274.4.5 AddRestriction() [3/3] . . . 993
10.274.4.6 Clear() . . . 993
10.274.4.7 CreateDefaultUniqueSeriesIdentifier() . . . 993
10.274.4.8 CreateUniqueSeriesIdentifier() . . . 993
10.274.4.9 FileNameOrdering() . . . 993
10.274.4.10 GetFirstSingleSerieUIDFileSet() . . . 993
10.274.4.11 GetNextSingleSerieUIDFileSet() . . . 993
10.274.4.12 ImageNumberOrdering() . . . 994
10.274.4.13 ImagePositionPatientOrdering() . . . 994
10.274.4.14 OrderFileList() . . . 994
10.274.4.15 SetDirectory() . . . 994
10.274.4.16 SetLoadMode() . . . 994
10.274.4.17 SetUseSeriesDetails() . . . 994
10.274.4.18 UserOrdering() . . . 994
10.274.5 Member Data Documentation . . . 994
10.274.5.1 elem . . . 994
10.274.5.2 ItFileSetHt . . . 995
10.274.5.3 op . . . 995
10.274.5.4 SingleSerieUIDFileSetHT . . . 995
10.274.5.5 value . . . 995
10.275 gdcm::Series Class Reference . . . 995
10.275.1 Detailed Description . . . 995
10.275.2 Constructor & Destructor Documentation . . . 995
10.275.2.1 Series() . . . 995
10.276 gdcm::network::ServiceClassApplicationInformation Class Reference . . . 996
10.276.1 Detailed Description . . . 996
10.276.2 Constructor & Destructor Documentation . . . 996
10.276.2.1 ServiceClassApplicationInformation() . . . 996
10.276.3 Member Function Documentation . . . 996
10.276.3.1 Print() . . . 996
10.276.3.2 Read() . . . 996
10.276.3.3 SetTuple() . . . 996

10.276.3.4 Size() . . . 997
10.276.3.5 Write() . . . 997
10.277 gdcm::ServiceClassUser Class Reference . . . 997
10.277.1 Detailed Description . . . 1000
10.277.2 Constructor & Destructor Documentation . . . 1000
10.277.2.1 ServiceClassUser() [1/2] . . . 1000
10.277.2.2 ~ServiceClassUser() . . . 1000
10.277.2.3 ServiceClassUser() [2/2] . . . 1000
10.277.3 Member Function Documentation . . . 1000
10.277.3.1 GetAETitle() . . . 1000
10.277.3.2 GetCalledAETitle() . . . 1001
10.277.3.3 GetTimeout() . . . 1001
10.277.3.4 InitializeConnection() . . . 1001
10.277.3.5 IsPresentationContextAccepted() . . . 1001
10.277.3.6 New() . . . 1001
10.277.3.7 operator=() . . . 1001
10.277.3.8 SendEcho() . . . 1001
10.277.3.9 SendFind() . . . 1002
10.277.3.10 SendMove() [1/3] . . . 1002
10.277.3.11 SendMove() [2/3] . . . 1002
10.277.3.12 SendMove() [3/3] . . . 1002
10.277.3.13 SendStore() [1/3] . . . 1002
10.277.3.14 SendStore() [2/3] . . . 1003
10.277.3.15 SendStore() [3/3] . . . 1003
10.277.3.16 SetAETitle() . . . 1003
10.277.3.17 SetCalledAETitle() . . . 1003
10.277.3.18 SetHostname() . . . 1003
10.277.3.19 SetPort() . . . 1004
10.277.3.20 SetPortSCP() . . . 1004
10.277.3.21 SetPresentationContexts() . . . 1004
10.277.3.22 SetTimeout() . . . 1004
10.277.3.23 StartAssociation() . . . 1005
10.277.3.24 StopAssociation() . . . 1005
10.278 gdcm::SHA1 Class Reference . . . 1005
10.278.1 Detailed Description . . . 1006
10.278.2 Constructor & Destructor Documentation . . . 1006
10.278.2.1 SHA1() [1/2] . . . 1006
10.278.2.2 ~SHA1() . . . 1006
10.278.2.3 SHA1() [2/2] . . . 1006

10.278.3 Member Function Documentation . . . 1006
10.278.3.1 Compute() . . . 1006
10.278.3.2 ComputeFile() . . . 1006
10.278.3.3 operator=() . . . 1007
10.279 gdcm::SimpleMemberCommand< T > Class Template Reference . . . 1007
10.279.1 Detailed Description . . . 1010
10.279.2 Member Typedef Documentation . . . 1010
10.279.2.1 Self . . . 1010
10.279.2.2 TMemberFunctionPointer . . . 1010
10.279.3 Constructor & Destructor Documentation . . . 1010
10.279.3.1 SimpleMemberCommand() [1/2] . . . 1010
10.279.3.2 SimpleMemberCommand() [2/2] . . . 1010
10.279.3.3 ~SimpleMemberCommand() . . . 1010
10.279.4 Member Function Documentation . . . 1011
10.279.4.1 Execute() [1/2] . . . 1011
10.279.4.2 Execute() [2/2] . . . 1011
10.279.4.3 New() . . . 1011
10.279.4.4 operator=() . . . 1011
10.279.4.5 SetCallbackFunction() . . . 1012
10.279.5 Member Data Documentation . . . 1012
10.279.5.1 m_MemberFunction . . . 1012
10.279.5.2 m_This . . . 1012
10.280 gdcm::SimpleSubjectWatcher Class Reference . . . 1012
10.280.1 Detailed Description . . . 1013
10.280.2 Constructor & Destructor Documentation . . . 1013
10.280.2.1 SimpleSubjectWatcher() [1/2] . . . 1013
10.280.2.2 ~SimpleSubjectWatcher() . . . 1013
10.280.2.3 SimpleSubjectWatcher() [2/2] . . . 1013
10.280.3 Member Function Documentation . . . 1014
10.280.3.1 EndFilter() . . . 1014
10.280.3.2 operator=() . . . 1014
10.280.3.3 ShowAbort() . . . 1014
10.280.3.4 ShowAnonymization() . . . 1014
10.280.3.5 ShowData() . . . 1014
10.280.3.6 ShowDataSet() . . . 1014
10.280.3.7 ShowFileName() . . . 1014
10.280.3.8 ShowIteration() . . . 1015
10.280.3.9 ShowProgress() . . . 1015
10.280.3.10 StartFilter() . . . 1015

10.280.3.11 TestAbortOff() . . . 1015
10.280.3.12 TestAbortOn() . . . 1015
10.281 gdcm::MrProtocol::Slice Struct Reference . . . 1015
10.281.1 Member Data Documentation . . . 1016
10.281.1.1 Normal . . . 1016
10.281.1.2 Position . . . 1016
10.282 gdcm::MrProtocol::SliceArray Struct Reference . . . 1016
10.282.1 Member Data Documentation . . . 1017
10.282.1.1 Slices . . . 1017
10.283 gdcm::SmartPointer< ObjectType > Class Template Reference . . . 1017
10.283.1 Detailed Description . . . 1018
10.283.2 Constructor & Destructor Documentation . . . 1019
10.283.2.1 SmartPointer() [1/4] . . . 1019
10.283.2.2 SmartPointer() [2/4] . . . 1019
10.283.2.3 SmartPointer() [3/4] . . . 1019
10.283.2.4 SmartPointer() [4/4] . . . 1019
10.283.2.5 ~SmartPointer() . . . 1019
10.283.3 Member Function Documentation . . . 1019
10.283.3.1 GetPointer() . . . 1019
10.283.3.2 operator ObjectType *() . . . 1020
10.283.3.3 operator*() . . . 1020
10.283.3.4 operator->() . . . 1020
10.283.3.5 operator=() [1/3] . . . 1020
10.283.3.6 operator=() [2/3] . . . 1020
10.283.3.7 operator=() [3/3] . . . 1020
10.284 gdcm::network::SOPClassExtendedNegociationSub Class Reference . . . 1021
10.284.1 Detailed Description . . . 1021
10.284.2 Constructor & Destructor Documentation . . . 1021
10.284.2.1 SOPClassExtendedNegociationSub() . . . 1021
10.284.3 Member Function Documentation . . . 1021
10.284.3.1 Print() . . . 1021
10.284.3.2 Read() . . . 1021
10.284.3.3 SetTuple() . . . 1022
10.284.3.4 Size() . . . 1022
10.284.3.5 Write() . . . 1022
10.285 gdcm::SOPClassUIDToIOD Class Reference . . . 1022
10.285.1 Detailed Description . . . 1023
10.285.2 Member Typedef Documentation . . . 1023
10.285.2.1 const . . . 1023

10.285.3 Member Function Documentation . . . 1023
10.285.3.1 GetIOD() . . . 1023
10.285.3.2 GetIODFromSOPClassUID() . . . 1023
10.285.3.3 GetNumberOfSOPClassToIOD() . . . 1023
10.285.3.4 GetSOPClassUIDFromIOD() . . . 1023
10.285.3.5 GetSOPClassUIDToIOD() . . . 1024
10.285.3.6 GetSOPClassUIDToIODs() . . . 1024
10.286 gdcm::Sorter Class Reference . . . 1024
10.286.1 Detailed Description . . . 1025
10.286.2 Member Typedef Documentation . . . 1026
10.286.2.1 SelectionMap . . . 1026
10.286.2.2 SortFunction . . . 1026
10.286.3 Constructor & Destructor Documentation . . . 1026
10.286.3.1 Sorter() . . . 1026
10.286.3.2 ∼Sorter() . . . 1026
10.286.4 Member Function Documentation . . . 1026
10.286.4.1 AddSelect() . . . 1026
10.286.4.2 GetFilenames() . . . 1026
10.286.4.3 Print() . . . 1027
10.286.4.4 SetSortFunction() . . . 1027
10.286.4.5 SetTagsToRead() . . . 1027
10.286.4.6 Sort() . . . 1027
10.286.4.7 StableSort() . . . 1028
10.286.5 Friends And Related Symbol Documentation . . . 1028
10.286.5.1 operator<< . . . 1028
10.286.6 Member Data Documentation . . . 1028
10.286.6.1 Filenames . . . 1028
10.286.6.2 Selection . . . 1028
10.286.6.3 SortFunc . . . 1028
10.286.6.4 TagsToRead . . . 1028
10.287 gdcm::Spacing Class Reference . . . 1029
10.287.1 Detailed Description . . . 1029
10.287.2 Member Enumeration Documentation . . . 1030
10.287.2.1 SpacingType . . . 1030
10.287.3 Constructor & Destructor Documentation . . . 1030
10.287.3.1 Spacing() . . . 1030
10.287.3.2 ∼Spacing() . . . 1031
10.287.4 Member Function Documentation . . . 1031
10.287.4.1 ComputePixelAspectRatioFromPixelSpacing() . . . 1031

10.288 gdcm::Spectroscopy Class Reference . . . 1031
10.288.1 Detailed Description . . . 1031
10.288.2 Constructor & Destructor Documentation . . . 1031
10.288.2.1 Spectroscopy() . . . 1031
10.289 gdcm::SplitMosaicFilter Class Reference . . . 1032
10.289.1 Detailed Description . . . 1032
10.289.2 Constructor & Destructor Documentation . . . 1033
10.289.2.1 SplitMosaicFilter() . . . 1033
10.289.2.2 ∼SplitMosaicFilter() . . . 1033
10.289.3 Member Function Documentation . . . 1033
10.289.3.1 ComputeMOSAICDimensions() . . . 1033
10.289.3.2 ComputeMOSAICImagePositionPatient() . . . 1033
10.289.3.3 ComputeMOSAICSliceNormal() . . . 1033
10.289.3.4 ComputeMOSAICSlicePosition() . . . 1033
10.289.3.5 GetAcquisitionSize() . . . 1034
10.289.3.6 GetFile() [1/2] . . . 1034
10.289.3.7 GetFile() [2/2] . . . 1034
10.289.3.8 GetImage() [1/2] . . . 1034
10.289.3.9 GetImage() [2/2] . . . 1034
10.289.3.10 GetNumberOfImagesInMosaic() . . . 1034
10.289.3.11 SetFile() . . . 1034
10.289.3.12 SetImage() . . . 1034
10.289.3.13 Split() . . . 1035
10.290 gdcm::StartEvent Class Reference . . . 1035
10.291 gdcm::static_assert_test< x > Struct Template Reference . . . 1036
10.292 gdcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference . . . 1037
10.293 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Reference . . . 1037
10.293.1 Member Enumeration Documentation . . . 1037
10.293.1.1 anonymous enum . . . 1037
10.294 gdcm::StreamImageReader Class Reference . . . 1037
10.294.1 Detailed Description . . . 1038
10.294.2 Constructor & Destructor Documentation . . . 1038
10.294.2.1 StreamImageReader() . . . 1038
10.294.2.2 ∼StreamImageReader() . . . 1038
10.294.3 Member Function Documentation . . . 1039
10.294.3.1 CanReadImage() . . . 1039
10.294.3.2 DefinePixelExtent() . . . 1039
10.294.3.3 DefineProperBufferLength() . . . 1039
10.294.3.4 GetDimensionsValueForResolution() . . . 1040

10.294.3.5 GetFile() . . . 1040
10.294.3.6 Read() . . . 1040
10.294.3.7 ReadImageInformation() . . . 1040
10.294.3.8 SetFileName() . . . 1041
10.294.3.9 SetStream() . . . 1041
10.295 gdcm::StreamImageWriter Class Reference . . . 1041
10.295.1 Detailed Description . . . 1043
10.295.2 Constructor & Destructor Documentation . . . 1043
10.295.2.1 StreamImageWriter() . . . 1043
10.295.2.2 ∼StreamImageWriter() . . . 1043
10.295.3 Member Function Documentation . . . 1044
10.295.3.1 CanWriteFile() . . . 1044
10.295.3.2 DefinePixelExtent() . . . 1044
10.295.3.3 DefineProperBufferLength() . . . 1044
10.295.3.4 SetFile() . . . 1045
10.295.3.5 SetFileName() . . . 1045
10.295.3.6 SetStream() . . . 1045
10.295.3.7 Write() . . . 1045
10.295.3.8 WriteImageInformation() . . . 1046
10.295.3.9 WriteImageSubregionRAW() . . . 1046
10.295.3.10 WriteRawHeader() . . . 1046
10.295.4 Member Data Documentation . . . 1046
10.295.4.1 mElementOffsets . . . 1046
10.295.4.2 mElementOffsets1 . . . 1046
10.295.4.3 mspFile . . . 1047
10.295.4.4 mWriter . . . 1047
10.295.4.5 mXMax . . . 1047
10.295.4.6 mXMin . . . 1047
10.295.4.7 mYMax . . . 1047
10.295.4.8 mYMin . . . 1047
10.295.4.9 mZMax . . . 1047
10.295.4.10 mZMin . . . 1047
10.296 gdcm::StrictScanner Class Reference . . . 1048
10.296.1 Detailed Description . . . 1051
10.296.2 Member Typedef Documentation . . . 1051
10.296.2.1 ConstIterator . . . 1051
10.296.2.2 MappingType . . . 1051
10.296.2.3 TagToValue . . . 1051
10.296.2.4 TagToValueValueType . . . 1052

10.296.2.5 ValuesType . . . 1052
10.296.3 Constructor & Destructor Documentation . . . 1052
10.296.3.1 StrictScanner() . . . 1052
10.296.3.2 ∼StrictScanner() . . . 1052
10.296.4 Member Function Documentation . . . 1052
10.296.4.1 AddPrivateTag() . . . 1052
10.296.4.2 AddSkipTag() . . . 1052
10.296.4.3 AddTag() . . . 1052
10.296.4.4 Begin() . . . 1053
10.296.4.5 ClearSkipTags() . . . 1053
10.296.4.6 ClearTags() . . . 1053
10.296.4.7 End() . . . 1053
10.296.4.8 GetAllFilenamesFromTagToValue() . . . 1053
10.296.4.9 GetFilenameFromTagToValue() . . . 1053
10.296.4.10 GetFilenames() . . . 1053
10.296.4.11 GetKeys() . . . 1053
10.296.4.12 GetMapping() . . . 1054
10.296.4.13 GetMappingFromTagToValue() . . . 1054
10.296.4.14 GetMappings() . . . 1054
10.296.4.15 GetOrderedValues() . . . 1054
10.296.4.16 GetValue() . . . 1054
10.296.4.17 GetValues() [1/2] . . . 1055
10.296.4.18 GetValues() [2/2] . . . 1055
10.296.4.19 IsKey() . . . 1055
10.296.4.20 New() . . . 1055
10.296.4.21 Print() . . . 1055
10.296.4.22 PrintTable() . . . 1056
10.296.4.23 ProcessPublicTag() . . . 1056
10.296.4.24 Scan() . . . 1056
10.296.5 Friends And Related Symbol Documentation . . . 1056
10.296.5.1 operator<< . . . 1056
10.297 gdcm::StrictScanner2 Class Reference . . . 1057
10.297.1 Detailed Description . . . 1060
10.297.2 Member Typedef Documentation . . . 1060
10.297.2.1 PrivateConstIterator . . . 1060
10.297.2.2 PrivateMappingType . . . 1060
10.297.2.3 PrivateTagToValue . . . 1060
10.297.2.4 PrivateTagToValueValueType . . . 1061
10.297.2.5 PublicConstIterator . . . 1061

10.297.2.6 PublicMappingType . . . 1061
10.297.2.7 PublicTagToValue . . . 1061
10.297.2.8 PublicTagToValueValueType . . . 1061
10.297.2.9 ValuesType . . . 1061
10.297.3 Constructor & Destructor Documentation . . . 1061
10.297.3.1 StrictScanner2() . . . 1061
10.297.3.2 ~StrictScanner2() . . . 1061
10.297.4 Member Function Documentation . . . 1062
10.297.4.1 AddPrivateTag() . . . 1062
10.297.4.2 AddPublicTag() . . . 1062
10.297.4.3 AddSkipTag() . . . 1062
10.297.4.4 Begin() . . . 1062
10.297.4.5 ClearPrivateTags() . . . 1062
10.297.4.6 ClearPublicTags() . . . 1062
10.297.4.7 ClearSkipTags() . . . 1062
10.297.4.8 End() . . . 1062
10.297.4.9 GetAllFilenamesFromPrivateTagToValue() . . . 1063
10.297.4.10 GetAllFilenamesFromPublicTagToValue() . . . 1063
10.297.4.11 GetFilenameFromPrivateTagToValue() . . . 1063
10.297.4.12 GetFilenameFromPublicTagToValue() . . . 1063
10.297.4.13 GetFilenames() . . . 1063
10.297.4.14 GetKeys() . . . 1063
10.297.4.15 GetMappingFromPrivateTagToValue() . . . 1063
10.297.4.16 GetMappingFromPublicTagToValue() . . . 1064
10.297.4.17 GetPrivateMapping() . . . 1064
10.297.4.18 GetPrivateMappings() . . . 1064
10.297.4.19 GetPrivateOrderedValues() . . . 1064
10.297.4.20 GetPrivateValue() . . . 1064
10.297.4.21 GetPrivateValues() . . . 1064
10.297.4.22 GetPublicMapping() . . . 1064
10.297.4.23 GetPublicMappings() . . . 1065
10.297.4.24 GetPublicOrderedValues() . . . 1065
10.297.4.25 GetPublicValue() . . . 1065
10.297.4.26 GetPublicValues() . . . 1065
10.297.4.27 GetValues() . . . 1065
10.297.4.28 IsKey() . . . 1065
10.297.4.29 New() . . . 1066
10.297.4.30 Print() . . . 1066
10.297.4.31 PrintTable() . . . 1066

10.297.4.32 PrivateBegin() . . . 1066
10.297.4.33 PrivateEnd() . . . 1066
10.297.4.34 ProcessPrivateTag() . . . 1066
10.297.4.35 ProcessPublicTag() . . . 1066
10.297.4.36 Scan() . . . 1067
10.297.5 Friends And Related Symbol Documentation . . . 1067
10.297.5.1 operator<< . . . 1067
10.298 gdcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference . . . 1067
10.298.1 Detailed Description . . . 1069
10.298.2 Member Typedef Documentation . . . 1069
10.298.2.1 const_iterator . . . 1069
10.298.2.2 const_reference . . . 1069
10.298.2.3 const_reverse_iterator . . . 1069
10.298.2.4 difference_type . . . 1069
10.298.2.5 iterator . . . 1070
10.298.2.6 pointer . . . 1070
10.298.2.7 reference . . . 1070
10.298.2.8 reverse_iterator . . . 1070
10.298.2.9 size_type . . . 1070
10.298.2.10 value_type . . . 1070
10.298.3 Constructor & Destructor Documentation . . . 1070
10.298.3.1 String() [1/4] . . . 1070
10.298.3.2 String() [2/4] . . . 1071
10.298.3.3 String() [3/4] . . . 1071
10.298.3.4 String() [4/4] . . . 1071
10.298.4 Member Function Documentation . . . 1071
10.298.4.1 IsValid() . . . 1071
10.298.4.2 operator const char *() . . . 1071
10.298.4.3 Trim() [1/2] . . . 1072
10.298.4.4 Trim() [2/2] . . . 1072
10.298.4.5 Truncate() . . . 1072
10.299 gdcm::StringFilter Class Reference . . . 1072
10.299.1 Detailed Description . . . 1073
10.299.2 Constructor & Destructor Documentation . . . 1073
10.299.2.1 StringFilter() . . . 1073
10.299.2.2 ~StringFilter() . . . 1074
10.299.3 Member Function Documentation . . . 1074
10.299.3.1 ExecuteQuery() [1/2] . . . 1074
10.299.3.2 ExecuteQuery() [2/2] . . . 1074

10.299.3.3 FromString() . . . 1074
10.299.3.4 GetFile() [1/2] . . . 1074
10.299.3.5 GetFile() [2/2] . . . 1074
10.299.3.6 SetDicts() . . . 1074
10.299.3.7 SetFile() . . . 1075
10.299.3.8 ToString() [1/3] . . . 1075
10.299.3.9 ToString() [2/3] . . . 1075
10.299.3.10 ToString() [3/3] . . . 1075
10.299.3.11 ToStringPair() [1/3] . . . 1075
10.299.3.12 ToStringPair() [2/3] . . . 1076
10.299.3.13 ToStringPair() [3/3] . . . 1076
10.299.3.14 UseDictAlways() . . . 1076
10.300 gdcm::Study Class Reference . . . 1076
10.300.1 Detailed Description . . . 1076
10.300.2 Constructor & Destructor Documentation . . . 1076
10.300.2.1 Study() . . . 1076
10.301 gdcm::Subject Class Reference . . . 1077
10.301.1 Detailed Description . . . 1078
10.301.2 Constructor & Destructor Documentation . . . 1078
10.301.2.1 Subject() . . . 1078
10.301.2.2 ~Subject() . . . 1079
10.301.3 Member Function Documentation . . . 1079
10.301.3.1 AddObserver() [1/2] . . . 1079
10.301.3.2 AddObserver() [2/2] . . . 1079
10.301.3.3 GetCommand() . . . 1079
10.301.3.4 HasObserver() . . . 1079
10.301.3.5 InvokeEvent() [1/2] . . . 1080
10.301.3.6 InvokeEvent() [2/2] . . . 1080
10.301.3.7 RemoveAllObservers() . . . 1080
10.301.3.8 RemoveObserver() . . . 1080
10.302 gdcm::Surface Class Reference . . . 1081
10.302.1 Detailed Description . . . 1083
10.302.2 Member Enumeration Documentation . . . 1084
10.302.2.1 STATES . . . 1084
10.302.2.2 VIEWType . . . 1084
10.302.3 Constructor & Destructor Documentation . . . 1084
10.302.3.1 Surface() . . . 1084
10.302.3.2 ~Surface() . . . 1084
10.302.4 Member Function Documentation . . . 1085

10.302.4.1 GetAlgorithmFamily() [1/2] 1085
10.302.4.2 GetAlgorithmFamily() [2/2] 1085
10.302.4.3 GetAlgorithmName() 1085
10.302.4.4 GetAlgorithmVersion() 1085
10.302.4.5 GetAxisOfRotation() 1085
10.302.4.6 GetCenterOfRotation() 1085
10.302.4.7 GetFiniteVolume() 1085
10.302.4.8 GetManifold() 1086
10.302.4.9 GetMaximumPointDistance() 1086
10.302.4.10 GetMeanPointDistance() 1086
10.302.4.11 GetMeshPrimitive() [1/2] 1086
10.302.4.12 GetMeshPrimitive() [2/2] 1086
10.302.4.13 GetNumberOfSurfacePoints() 1086
10.302.4.14 GetNumberOfVectors() 1086
10.302.4.15 GetPointCoordinatesData() [1/2] 1086
10.302.4.16 GetPointCoordinatesData() [2/2] 1086
10.302.4.17 GetPointPositionAccuracy() 1087
10.302.4.18 GetPointsBoundingBoxCoordinates() 1087
10.302.4.19 GetProcessingAlgorithm() [1/2] 1087
10.302.4.20 GetProcessingAlgorithm() [2/2] 1087
10.302.4.21 GetRecommendedDisplayCIELabValue() [1/2] 1087
10.302.4.22 GetRecommendedDisplayCIELabValue() [2/2] 1087
10.302.4.23 GetRecommendedDisplayGrayscaleValue() 1087
10.302.4.24 GetRecommendedPresentationOpacity() 1087
10.302.4.25 GetRecommendedPresentationType() 1088
10.302.4.26 GetSTATES() 1088
10.302.4.27 GetSTATESString() 1088
10.302.4.28 GetSurfaceComments() 1088
10.302.4.29 GetSurfaceNumber() 1088
10.302.4.30 GetSurfaceProcessing() 1088
10.302.4.31 GetSurfaceProcessingDescription() 1088
10.302.4.32 GetSurfaceProcessingRatio() 1088
10.302.4.33 GetVectorAccuracy() 1088
10.302.4.34 GetVectorCoordinateData() [1/2] 1089
10.302.4.35 GetVectorCoordinateData() [2/2] 1089
10.302.4.36 GetVectorDimensionality() 1089
10.302.4.37 GetVIEWType() 1089
10.302.4.38 GetVIEWTypeString() 1089
10.302.4.39 SetAlgorithmFamily() 1089

10.302.4.40 SetAlgorithmName() . . . 1089
10.302.4.41 SetAlgorithmVersion() . . . 1089
10.302.4.42 SetAxisOfRotation() . . . 1089
10.302.4.43 SetCenterOfRotation() . . . 1090
10.302.4.44 SetFiniteVolume() . . . 1090
10.302.4.45 SetManifold() . . . 1090
10.302.4.46 SetMaximumPointDistance() . . . 1090
10.302.4.47 SetMeanPointDistance() . . . 1090
10.302.4.48 SetMeshPrimitive() . . . 1090
10.302.4.49 SetNumberOfSurfacePoints() . . . 1090
10.302.4.50 SetNumberOfVectors() . . . 1090
10.302.4.51 SetPointCoordinatesData() . . . 1091
10.302.4.52 SetPointPositionAccuracy() . . . 1091
10.302.4.53 SetPointsBoundingBoxCoordinates() . . . 1091
10.302.4.54 SetProcessingAlgorithm() . . . 1091
10.302.4.55 SetRecommendedDisplayCIELabValue() [1/3] . . . 1091
10.302.4.56 SetRecommendedDisplayCIELabValue() [2/3] . . . 1091
10.302.4.57 SetRecommendedDisplayCIELabValue() [3/3] . . . 1091
10.302.4.58 SetRecommendedDisplayGrayscaleValue() . . . 1091
10.302.4.59 SetRecommendedPresentationOpacity() . . . 1092
10.302.4.60 SetRecommendedPresentationType() . . . 1092
10.302.4.61 SetSurfaceComments() . . . 1092
10.302.4.62 SetSurfaceNumber() . . . 1092
10.302.4.63 SetSurfaceProcessing() . . . 1092
10.302.4.64 SetSurfaceProcessingDescription() . . . 1092
10.302.4.65 SetSurfaceProcessingRatio() . . . 1092
10.302.4.66 SetVectorAccuracy() . . . 1092
10.302.4.67 SetVectorCoordinateData() . . . 1093
10.302.4.68 SetVectorDimensionality() . . . 1093
10.303 gdcm::SurfaceHelper Class Reference . . . 1093
10.303.1 Detailed Description . . . 1094
10.303.2 Member Typedef Documentation . . . 1094
10.303.2.1 ColorArray . . . 1094
10.303.3 Member Function Documentation . . . 1094
10.303.3.1 RecommendedDisplayCIELabToRGB() [1/2] . . . 1094
10.303.3.2 RecommendedDisplayCIELabToRGB() [2/2] . . . 1094
10.303.3.3 RGBToRecommendedDisplayCIELab() . . . 1095
10.303.3.4 RGBToRecommendedDisplayGrayscale() . . . 1095
10.304 gdcm::SurfaceReader Class Reference . . . 1096

10.304.1 Detailed Description . . . 1099
10.304.2 Constructor & Destructor Documentation . . . 1099
10.304.2.1 SurfaceReader() . . . 1099
10.304.2.2 ∼SurfaceReader() . . . 1099
10.304.3 Member Function Documentation . . . 1099
10.304.3.1 GetNumberOfSurfaces() . . . 1099
10.304.3.2 Read() . . . 1099
10.304.3.3 ReadPointMacro() . . . 1100
10.304.3.4 ReadSurface() . . . 1100
10.304.3.5 ReadSurfaces() . . . 1100
10.305 gdcm::SurfaceWriter Class Reference . . . 1100
10.305.1 Detailed Description . . . 1102
10.305.2 Constructor & Destructor Documentation . . . 1103
10.305.2.1 SurfaceWriter() . . . 1103
10.305.2.2 ∼SurfaceWriter() . . . 1103
10.305.3 Member Function Documentation . . . 1103
10.305.3.1 ComputeNumberOfSurfaces() . . . 1103
10.305.3.2 GetNumberOfSurfaces() . . . 1103
10.305.3.3 PrepareWrite() . . . 1103
10.305.3.4 PrepareWritePointMacro() . . . 1103
10.305.3.5 SetNumberOfSurfaces() . . . 1103
10.305.3.6 Write() . . . 1103
10.305.4 Member Data Documentation . . . 1104
10.305.4.1 NumberOfSurfaces . . . 1104
10.306 gdcm::SwapCode Class Reference . . . 1104
10.306.1 Detailed Description . . . 1105
10.306.2 Member Enumeration Documentation . . . 1105
10.306.2.1 SwapCodeType . . . 1105
10.306.3 Constructor & Destructor Documentation . . . 1105
10.306.3.1 SwapCode() . . . 1105
10.306.4 Member Function Documentation . . . 1105
10.306.4.1 GetIndex() . . . 1105
10.306.4.2 GetSwapCodeString() . . . 1105
10.306.4.3 operator SwapCode::SwapCodeType() . . . 1106
10.306.5 Friends And Related Symbol Documentation . . . 1106
10.306.5.1 operator<< . . . 1106
10.307 gdcm::SwapperDoOp Class Reference . . . 1106
10.307.1 Member Function Documentation . . . 1106
10.307.1.1 Swap() . . . 1106

10.307.1.2 SwapArray() . . . 1106
10.308 gdcm::SwapperNoOp Class Reference . . . 1107
10.308.1 Detailed Description . . . 1107
10.308.2 Member Function Documentation . . . 1107
10.308.2.1 Swap() . . . 1107
10.308.2.2 SwapArray() . . . 1107
10.309 gdcm::System Class Reference . . . 1107
10.309.1 Detailed Description . . . 1109
10.309.2 Member Function Documentation . . . 1109
10.309.2.1 ConvertToUNC() . . . 1109
10.309.2.2 DeleteDirectory() . . . 1109
10.309.2.3 EncodeBytes() . . . 1109
10.309.2.4 FileExists() . . . 1109
10.309.2.5 FileIsDirectory() . . . 1110
10.309.2.6 FileIsSymlink() . . . 1110
10.309.2.7 FileSize() . . . 1110
10.309.2.8 FileTime() . . . 1110
10.309.2.9 FormatDateTime() . . . 1111
10.309.2.10 GetCurrentDateTime() . . . 1111
10.309.2.11 GetCurrentModuleFileName() . . . 1111
10.309.2.12 GetCurrentProcessFileName() . . . 1111
10.309.2.13 GetCurrentResourcesDirectory() . . . 1111
10.309.2.14 GetCWD() . . . 1111
10.309.2.15 GetHostName() . . . 1112
10.309.2.16 GetLastSystemError() . . . 1112
10.309.2.17 GetLocaleCharset() . . . 1112
10.309.2.18 GetPermissions() . . . 1112
10.309.2.19 GetTimezoneOffsetFromUTC() . . . 1112
10.309.2.20 MakeDirectory() . . . 1112
10.309.2.21 ParseDateTime() [1/2] . . . 1113
10.309.2.22 ParseDateTime() [2/2] . . . 1113
10.309.2.23 RemoveFile() . . . 1113
10.309.2.24 SetPermissions() . . . 1113
10.309.2.25 StrCaseCmp() . . . 1113
10.309.2.26 StrNCaseCmp() . . . 1114
10.309.2.27 StrSep() . . . 1114
10.309.2.28 StrTokR() . . . 1114
10.310 gdcm::Table Class Reference . . . 1114
10.310.1 Detailed Description . . . 1116

10.310.2 Member Typedef Documentation . . . 1116
10.310.2.1 MapTableEntry . . . 1116
10.310.3 Constructor & Destructor Documentation . . . 1116
10.310.3.1 Table() [1/2] . . . 1116
10.310.3.2 ∼Table() . . . 1116
10.310.3.3 Table() [2/2] . . . 1116
10.310.4 Member Function Documentation . . . 1116
10.310.4.1 GetTableEntry() . . . 1116
10.310.4.2 InsertEntry() . . . 1116
10.310.4.3 operator=() . . . 1117
10.310.5 Friends And Related Symbol Documentation . . . 1117
10.310.5.1 operator<< . . . 1117
10.310.6 Member Data Documentation . . . 1117
10.310.6.1 TableInternal . . . 1117
10.311 gdcm::TableEntry Class Reference . . . 1117
10.311.1 Detailed Description . . . 1117
10.311.2 Constructor & Destructor Documentation . . . 1118
10.311.2.1 TableEntry() . . . 1118
10.311.2.2 ∼TableEntry() . . . 1118
10.312 gdcm::TableReader Class Reference . . . 1118
10.312.1 Detailed Description . . . 1119
10.312.2 Constructor & Destructor Documentation . . . 1119
10.312.2.1 TableReader() . . . 1119
10.312.2.2 ∼TableReader() . . . 1119
10.312.3 Member Function Documentation . . . 1119
10.312.3.1 CharacterDataHandler() . . . 1119
10.312.3.2 EndElement() . . . 1120
10.312.3.3 GetDefs() . . . 1120
10.312.3.4 GetFilename() . . . 1120
10.312.3.5 HandleIOD() . . . 1120
10.312.3.6 HandleIODEntry() . . . 1120
10.312.3.7 HandleMacro() . . . 1120
10.312.3.8 HandleMacroEntry() . . . 1120
10.312.3.9 HandleMacroEntryDescription() . . . 1120
10.312.3.10 HandleModule() . . . 1121
10.312.3.11 HandleModuleEntry() . . . 1121
10.312.3.12 HandleModuleEntryDescription() . . . 1121
10.312.3.13 HandleModuleInclude() . . . 1121
10.312.3.14 Read() . . . 1121

10.312.3.15 SetFilename() . . . 1121
10.312.3.16 StartElement() . . . 1121
10.313 gdcm::network::TableRow Class Reference . . . 1122
10.313.1 Constructor & Destructor Documentation . . . 1122
10.313.1.1 TableRow() . . . 1122
10.313.1.2 ∼TableRow() . . . 1122
10.313.2 Member Data Documentation . . . 1123
10.313.2.1 transitions . . . 1123
10.314 gdcm::Tag Class Reference . . . 1123
10.314.1 Detailed Description . . . 1125
10.314.2 Constructor & Destructor Documentation . . . 1125
10.314.2.1 Tag() [1/3] . . . 1125
10.314.2.2 Tag() [2/3] . . . 1125
10.314.2.3 Tag() [3/3] . . . 1126
10.314.3 Member Function Documentation . . . 1126
10.314.3.1 GetElement() . . . 1126
10.314.3.2 GetElementTag() . . . 1126
10.314.3.3 GetGroup() . . . 1126
10.314.3.4 GetLength() . . . 1127
10.314.3.5 GetPrivateCreator() . . . 1127
10.314.3.6 IsGroupLength() . . . 1127
10.314.3.7 IsGroupXX() . . . 1127
10.314.3.8 IsIllegal() . . . 1127
10.314.3.9 IsPrivate() . . . 1127
10.314.3.10 IsPrivateCreator() . . . 1128
10.314.3.11 IsPublic() . . . 1128
10.314.3.12 operator"!=() . . . 1128
10.314.3.13 operator<() . . . 1128
10.314.3.14 operator<=() . . . 1128
10.314.3.15 operator=() . . . 1128
10.314.3.16 operator==() . . . 1129
10.314.3.17 operator[]() [1/2] . . . 1129
10.314.3.18 operator[]() [2/2] . . . 1129
10.314.3.19 PrintAsContinuousString() . . . 1129
10.314.3.20 PrintAsContinuousUpperCaseString() . . . 1129
10.314.3.21 PrintAsPipeSeparatedString() . . . 1129
10.314.3.22 Read() . . . 1130
10.314.3.23 ReadFromCommaSeparatedString() . . . 1130
10.314.3.24 ReadFromContinuousString() . . . 1130

10.314.3.25 ReadFromPipeSeparatedString() . . . 1130
10.314.3.26 SetElement() . . . 1130
10.314.3.27 SetElementTag() [1/2] . . . 1131
10.314.3.28 SetElementTag() [2/2] . . . 1131
10.314.3.29 SetGroup() . . . 1131
10.314.3.30 SetPrivateCreator() . . . 1131
10.314.3.31 Write() . . . 1131
10.314.4 Friends And Related Symbol Documentation . . . 1132
10.314.4.1 operator<< . . . 1132
10.314.4.2 operator>> . . . 1132
10.314.5 Member Data Documentation . . . 1132
10.314.5.1 bytes . . . 1132
10.314.5.2 tag . . . 1132
10.314.5.3 tags . . . 1132
10.315 gdcm::TagPath Class Reference . . . 1132
10.315.1 Detailed Description . . . 1133
10.315.2 Constructor & Destructor Documentation . . . 1133
10.315.2.1 TagPath() . . . 1133
10.315.2.2 ~TagPath() . . . 1133
10.315.3 Member Function Documentation . . . 1133
10.315.3.1 ConstructFromString() . . . 1133
10.315.3.2 ConstructFromTagList() . . . 1134
10.315.3.3 IsValid() . . . 1134
10.315.3.4 Print() . . . 1134
10.315.3.5 Push() [1/2] . . . 1134
10.315.3.6 Push() [2/2] . . . 1134
10.316 gdcm::Testing Class Reference . . . 1134
10.316.1 Detailed Description . . . 1136
10.316.2 Member Typedef Documentation . . . 1136
10.316.2.1 MD5DataImagesType . . . 1136
10.316.2.2 MediaStorageDataFilesType . . . 1136
10.316.3 Constructor & Destructor Documentation . . . 1136
10.316.3.1 Testing() . . . 1136
10.316.3.2 ~Testing() . . . 1136
10.316.4 Member Function Documentation . . . 1136
10.316.4.1 ComputeFileMD5() . . . 1136
10.316.4.2 ComputeMD5() . . . 1137
10.316.4.3 GetDataExtraRoot() . . . 1137
10.316.4.4 GetDataRoot() . . . 1137

10.316.4.5 GetFileName() . . . 1137
10.316.4.6 GetFileNames() . . . 1138
10.316.4.7 GetLossyFlagFromFile() . . . 1138
10.316.4.8 GetMD5DataImage() . . . 1138
10.316.4.9 GetMD5DataImages() . . . 1138
10.316.4.10 GetMD5FromBrokenFile() . . . 1138
10.316.4.11 GetMD5FromFile() . . . 1138
10.316.4.12 GetMediaStorageDataFile() . . . 1138
10.316.4.13 GetMediaStorageDataFiles() . . . 1139
10.316.4.14 GetMediaStorageFromFile() . . . 1139
10.316.4.15 GetNumberOfFileNames() . . . 1139
10.316.4.16 GetNumberOfMD5DataImages() . . . 1139
10.316.4.17 GetNumberOfMediaStorageDataFiles() . . . 1139
10.316.4.18 GetPixelSpacingDataRoot() . . . 1139
10.316.4.19 GetSelectedPrivateGroupOffsetFromFile() . . . 1139
10.316.4.20 GetSelectedTagsOffsetFromFile() . . . 1140
10.316.4.21 GetSourceDirectory() . . . 1140
10.316.4.22 GetStreamOffsetFromFile() . . . 1140
10.316.4.23 GetTempDirectory() . . . 1140
10.316.4.24 GetTempDirectoryW() . . . 1140
10.316.4.25 GetTempFilename() . . . 1141
10.316.4.26 GetTempFilenameW() . . . 1141
10.316.4.27 Print() . . . 1141
10.317 gdcm::Trace Class Reference . . . 1141
10.317.1 Detailed Description . . . 1142
10.317.2 Constructor & Destructor Documentation . . . 1143
10.317.2.1 Trace() . . . 1143
10.317.2.2 ∼Trace() . . . 1143
10.317.3 Member Function Documentation . . . 1143
10.317.3.1 DebugOff() . . . 1143
10.317.3.2 DebugOn() . . . 1143
10.317.3.3 ErrorOff() . . . 1143
10.317.3.4 ErrorOn() . . . 1143
10.317.3.5 GetDebugFlag() . . . 1144
10.317.3.6 GetDebugStream() . . . 1144
10.317.3.7 GetErrorFlag() . . . 1144
10.317.3.8 GetErrorStream() . . . 1144
10.317.3.9 GetStream() . . . 1144
10.317.3.10 GetWarningFlag() . . . 1144

10.317.3.11 GetWarningStream() . . . 1144
10.317.3.12 SetDebug() . . . 1144
10.317.3.13 SetDebugStream() . . . 1145
10.317.3.14 SetError() . . . 1145
10.317.3.15 SetErrorStream() . . . 1145
10.317.3.16 SetStream() . . . 1145
10.317.3.17 SetStreamToFile() . . . 1145
10.317.3.18 SetWarning() . . . 1146
10.317.3.19 SetWarningStream() . . . 1146
10.317.3.20 WarningOff() . . . 1146
10.317.3.21 WarningOn() . . . 1146
10.318 gdcm::TransferSyntax Class Reference . . . 1146
10.318.1 Detailed Description . . . 1148
10.318.2 Member Enumeration Documentation . . . 1148
10.318.2.1 NegociatedType . . . 1148
10.318.2.2 TSType . . . 1149
10.318.3 Constructor & Destructor Documentation . . . 1149
10.318.3.1 TransferSyntax() . . . 1149
10.318.4 Member Function Documentation . . . 1150
10.318.4.1 CanStoreLossy() . . . 1150
10.318.4.2 GetNegociatedType() . . . 1150
10.318.4.3 GetString() . . . 1150
10.318.4.4 GetSwapCode() . . . 1150
10.318.4.5 GetTSString() . . . 1150
10.318.4.6 GetTSType() . . . 1150
10.318.4.7 IsEncapsulated() . . . 1151
10.318.4.8 IsEncoded() . . . 1151
10.318.4.9 IsExplicit() . . . 1151
10.318.4.10 IsImplicit() . . . 1151
10.318.4.11 IsLossless() . . . 1151
10.318.4.12 IsLossy() . . . 1151
10.318.4.13 IsValid() . . . 1151
10.318.4.14 operator TSType() . . . 1151
10.318.5 Friends And Related Symbol Documentation . . . 1152
10.318.5.1 operator<< . . . 1152
10.319 gdcm::network::TransferSyntaxSub Class Reference . . . 1152
10.319.1 Detailed Description . . . 1152
10.319.2 Constructor & Destructor Documentation . . . 1152
10.319.2.1 TransferSyntaxSub() . . . 1152

10.319.3 Member Function Documentation . . . 1153
10.319.3.1 GetName() . . . 1153
10.319.3.2 operator==() . . . 1153
10.319.3.3 Print() . . . 1153
10.319.3.4 Read() . . . 1153
10.319.3.5 SetName() . . . 1153
10.319.3.6 SetNameFromUID() . . . 1153
10.319.3.7 Size() . . . 1153
10.319.3.8 Write() . . . 1153
10.320 gdcm::network::Transition Struct Reference . . . 1154
10.320.1 Constructor & Destructor Documentation . . . 1154
10.320.1.1 Transition() [1/2] . . . 1154
10.320.1.2 ~Transition() . . . 1155
10.320.1.3 Transition() [2/2] . . . 1155
10.320.2 Member Function Documentation . . . 1155
10.320.2.1 MakeNew() . . . 1155
10.320.3 Member Data Documentation . . . 1155
10.320.3.1 mAction . . . 1155
10.320.3.2 mEnd . . . 1155
10.321 gdcm::Type Class Reference . . . 1156
10.321.1 Detailed Description . . . 1156
10.321.2 Member Enumeration Documentation . . . 1156
10.321.2.1 TypeType . . . 1156
10.321.3 Constructor & Destructor Documentation . . . 1157
10.321.3.1 Type() . . . 1157
10.321.4 Member Function Documentation . . . 1157
10.321.4.1 GetTypeString() . . . 1157
10.321.4.2 GetTypeType() . . . 1157
10.321.4.3 operator TypeType() . . . 1157
10.321.5 Friends And Related Symbol Documentation . . . 1157
10.321.5.1 operator<< . . . 1157
10.322 gdcm::UI Struct Reference . . . 1158
10.322.1 Friends And Related Symbol Documentation . . . 1158
10.322.1.1 operator<< . . . 1158
10.322.2 Member Data Documentation . . . 1158
10.322.2.1 Internal . . . 1158
10.323 gdcm::UIDGenerator Class Reference . . . 1158
10.323.1 Detailed Description . . . 1159
10.323.2 Constructor & Destructor Documentation . . . 1159

10.323.2.1 UIDGenerator() . . . 1159
10.323.3 Member Function Documentation . . . 1159
10.323.3.1 Generate() . . . 1159
10.323.3.2 GenerateUUID() . . . 1160
10.323.3.3 GetGDCMUID() . . . 1160
10.323.3.4 GetRoot() . . . 1160
10.323.3.5 IsValid() . . . 1160
10.323.3.6 SetRoot() . . . 1160
10.324 gdcm::UIDs Class Reference . . . 1161
10.324.1 Detailed Description . . . 1176
10.324.2 Member Typedef Documentation . . . 1177
10.324.2.1 TransferSyntaxStringsType . . . 1177
10.324.3 Member Enumeration Documentation . . . 1177
10.324.3.1 TSName . . . 1177
10.324.3.2 TSType . . . 1186
10.324.4 Member Function Documentation . . . 1196
10.324.4.1 GetName() . . . 1196
10.324.4.2 GetNumberOfTransferSyntaxStrings() . . . 1196
10.324.4.3 GetString() . . . 1196
10.324.4.4 GetTransferSyntaxString() . . . 1196
10.324.4.5 GetTransferSyntaxStrings() . . . 1196
10.324.4.6 GetUIDName() . . . 1196
10.324.4.7 GetUIDString() . . . 1197
10.324.4.8 operator TSType() . . . 1197
10.324.4.9 SetFromUID() . . . 1197
10.325 gdcm::network::ULAction Class Reference . . . 1197
10.325.1 Detailed Description . . . 1199
10.325.2 Constructor & Destructor Documentation . . . 1199
10.325.2.1 ULAction() [1/2] . . . 1199
10.325.2.2 ~ULAction() . . . 1199
10.325.2.3 ULAction() [2/2] . . . 1200
10.325.3 Member Function Documentation . . . 1200
10.325.3.1 operator=() . . . 1200
10.325.3.2 PerformAction() . . . 1200
10.326 gdcm::network::ULActionAA1 Class Reference . . . 1200
10.326.1 Member Function Documentation . . . 1201
10.326.1.1 PerformAction() . . . 1201
10.327 gdcm::network::ULActionAA2 Class Reference . . . 1202
10.327.1 Member Function Documentation . . . 1203

10.327.1.1 PerformAction() . . . 1203
10.328 gdcm::network::ULActionAA3 Class Reference . . . 1203
10.328.1 Member Function Documentation . . . 1204
10.328.1.1 PerformAction() . . . 1204
10.329 gdcm::network::ULActionAA4 Class Reference . . . 1204
10.329.1 Member Function Documentation . . . 1205
10.329.1.1 PerformAction() . . . 1205
10.330 gdcm::network::ULActionAA5 Class Reference . . . 1206
10.330.1 Member Function Documentation . . . 1207
10.330.1.1 PerformAction() . . . 1207
10.331 gdcm::network::ULActionAA6 Class Reference . . . 1207
10.331.1 Member Function Documentation . . . 1208
10.331.1.1 PerformAction() . . . 1208
10.332 gdcm::network::ULActionAA7 Class Reference . . . 1208
10.332.1 Member Function Documentation . . . 1209
10.332.1.1 PerformAction() . . . 1209
10.333 gdcm::network::ULActionAA8 Class Reference . . . 1210
10.333.1 Member Function Documentation . . . 1211
10.333.1.1 PerformAction() . . . 1211
10.334 gdcm::network::ULActionAE1 Class Reference . . . 1211
10.334.1 Member Function Documentation . . . 1212
10.334.1.1 PerformAction() . . . 1212
10.335 gdcm::network::ULActionAE2 Class Reference . . . 1212
10.335.1 Member Function Documentation . . . 1213
10.335.1.1 PerformAction() . . . 1213
10.336 gdcm::network::ULActionAE3 Class Reference . . . 1214
10.336.1 Member Function Documentation . . . 1215
10.336.1.1 PerformAction() . . . 1215
10.337 gdcm::network::ULActionAE4 Class Reference . . . 1215
10.337.1 Member Function Documentation . . . 1216
10.337.1.1 PerformAction() . . . 1216
10.338 gdcm::network::ULActionAE5 Class Reference . . . 1216
10.338.1 Member Function Documentation . . . 1217
10.338.1.1 PerformAction() . . . 1217
10.339 gdcm::network::ULActionAE6 Class Reference . . . 1218
10.339.1 Member Function Documentation . . . 1219
10.339.1.1 PerformAction() . . . 1219
10.340 gdcm::network::ULActionAE7 Class Reference . . . 1219
10.340.1 Member Function Documentation . . . 1220

10.340.1.1 PerformAction() 1220
10.341 gdcm::network::ULActionAE8 Class Reference 1220
10.341.1 Member Function Documentation 1221
10.341.1.1 PerformAction() 1221
10.342 gdcm::network::ULActionAR1 Class Reference 1222
10.342.1 Member Function Documentation 1223
10.342.1.1 PerformAction() 1223
10.343 gdcm::network::ULActionAR10 Class Reference 1223
10.343.1 Member Function Documentation 1224
10.343.1.1 PerformAction() 1224
10.344 gdcm::network::ULActionAR2 Class Reference 1224
10.344.1 Member Function Documentation 1225
10.344.1.1 PerformAction() 1225
10.345 gdcm::network::ULActionAR3 Class Reference 1226
10.345.1 Member Function Documentation 1227
10.345.1.1 PerformAction() 1227
10.346 gdcm::network::ULActionAR4 Class Reference 1227
10.346.1 Member Function Documentation 1228
10.346.1.1 PerformAction() 1228
10.347 gdcm::network::ULActionAR5 Class Reference 1228
10.347.1 Member Function Documentation 1229
10.347.1.1 PerformAction() 1229
10.348 gdcm::network::ULActionAR6 Class Reference 1230
10.348.1 Member Function Documentation 1231
10.348.1.1 PerformAction() 1231
10.349 gdcm::network::ULActionAR7 Class Reference 1231
10.349.1 Member Function Documentation 1232
10.349.1.1 PerformAction() 1232
10.350 gdcm::network::ULActionAR8 Class Reference 1232
10.350.1 Member Function Documentation 1233
10.350.1.1 PerformAction() 1233
10.351 gdcm::network::ULActionAR9 Class Reference 1234
10.351.1 Member Function Documentation 1235
10.351.1.1 PerformAction() 1235
10.352 gdcm::network::ULActionDT1 Class Reference 1235
10.352.1 Member Function Documentation 1236
10.352.1.1 PerformAction() 1236
10.353 gdcm::network::ULActionDT2 Class Reference 1236
10.353.1 Member Function Documentation 1237

10.353.1.1 PerformAction() . . . 1237
10.354 gdcm::network::ULBasicCallback Class Reference . . . 1238
10.354.1 Detailed Description . . . 1239
10.354.2 Constructor & Destructor Documentation . . . 1239
10.354.2.1 ULBasicCallback() . . . 1239
10.354.2.2 ~ULBasicCallback() . . . 1239
10.354.3 Member Function Documentation . . . 1239
10.354.3.1 GetDataSets() . . . 1239
10.354.3.2 GetResponses() . . . 1240
10.354.3.3 HandleDataSet() . . . 1240
10.354.3.4 HandleResponse() . . . 1240
10.355 gdcm::network::ULConnection Class Reference . . . 1240
10.355.1 Detailed Description . . . 1241
10.355.2 Constructor & Destructor Documentation . . . 1241
10.355.2.1 ULConnection() [1/2] . . . 1241
10.355.2.2 ~ULConnection() . . . 1242
10.355.2.3 ULConnection() [2/2] . . . 1242
10.355.3 Member Function Documentation . . . 1242
10.355.3.1 AddAcceptedPresentationContext() . . . 1242
10.355.3.2 FindContext() . . . 1242
10.355.3.3 GetAcceptedPresentationContexts() [1/2] . . . 1242
10.355.3.4 GetAcceptedPresentationContexts() [2/2] . . . 1242
10.355.3.5 GetConnectionInfo() . . . 1242
10.355.3.6 GetMaxPDUSize() . . . 1242
10.355.3.7 GetPresentationContextACByID() . . . 1243
10.355.3.8 GetPresentationContextIDFromPresentationContext() . . . 1243
10.355.3.9 GetPresentationContextRQByID() . . . 1243
10.355.3.10 GetPresentationContexts() . . . 1243
10.355.3.11 GetProtocol() . . . 1243
10.355.3.12 GetState() . . . 1243
10.355.3.13 GetTimer() . . . 1243
10.355.3.14 InitializeConnection() . . . 1243
10.355.3.15 InitializeIncomingConnection() . . . 1244
10.355.3.16 operator=() . . . 1244
10.355.3.17 SetMaxPDUSize() . . . 1244
10.355.3.18 SetPresentationContexts() [1/2] . . . 1244
10.355.3.19 SetPresentationContexts() [2/2] . . . 1244
10.355.3.20 SetState() . . . 1244
10.355.3.21 StopProtocol() . . . 1244

10.355.4 Friends And Related Symbol Documentation . . . 1244
10.355.4.1 ULActionAE6 . . . 1244
10.355.4.2 ULConnectionManager . . . 1245
10.356 gdcm::network::ULConnectionCallback Class Reference . . . 1245
10.356.1 Detailed Description . . . 1246
10.356.2 Constructor & Destructor Documentation . . . 1246
10.356.2.1 ULConnectionCallback() . . . 1246
10.356.2.2 ∼ULConnectionCallback() . . . 1246
10.356.3 Member Function Documentation . . . 1246
10.356.3.1 DataSetHandled() . . . 1246
10.356.3.2 DataSetHandles() . . . 1246
10.356.3.3 HandleDataSet() . . . 1246
10.356.3.4 HandleResponse() . . . 1246
10.356.3.5 ResetHandledDataSet() . . . 1247
10.356.3.6 SetImplicitFlag() . . . 1247
10.356.4 Member Data Documentation . . . 1247
10.356.4.1 mImplicit . . . 1247
10.357 gdcm::network::ULConnectionInfo Class Reference . . . 1247
10.357.1 Detailed Description . . . 1247
10.357.2 Constructor & Destructor Documentation . . . 1248
10.357.2.1 ULConnectionInfo() . . . 1248
10.357.3 Member Function Documentation . . . 1248
10.357.3.1 GetCalledAETitle() . . . 1248
10.357.3.2 GetCalledComputerName() . . . 1248
10.357.3.3 GetCalledIPAddress() . . . 1248
10.357.3.4 GetCalledIPPort() . . . 1248
10.357.3.5 GetCallingAETitle() . . . 1248
10.357.3.6 GetMaxPDULength() . . . 1248
10.357.3.7 Initialize() . . . 1248
10.357.3.8 SetMaxPDULength() . . . 1249
10.358 gdcm::network::ULConnectionManager Class Reference . . . 1249
10.358.1 Detailed Description . . . 1251
10.358.2 Constructor & Destructor Documentation . . . 1251
10.358.2.1 ULConnectionManager() [1/2] . . . 1251
10.358.2.2 ULConnectionManager() [2/2] . . . 1252
10.358.2.3 ∼ULConnectionManager() . . . 1252
10.358.3 Member Function Documentation . . . 1252
10.358.3.1 BreakConnection() . . . 1252
10.358.3.2 BreakConnectionNow() . . . 1252

10.358.3.3 EstablishConnection() . . . 1252
10.358.3.4 EstablishConnectionMove() . . . 1252
10.358.3.5 RunEventLoop() . . . 1253
10.358.3.6 RunMoveEventLoop() . . . 1253
10.358.3.7 SendEcho() . . . 1253
10.358.3.8 SendFind() [1/2] . . . 1253
10.358.3.9 SendFind() [2/2] . . . 1253
10.358.3.10 SendMove() [1/2] . . . 1253
10.358.3.11 SendMove() [2/2] . . . 1253
10.358.3.12 SendNAction() [1/2] . . . 1254
10.358.3.13 SendNAction() [2/2] . . . 1254
10.358.3.14 SendNCreate() [1/2] . . . 1254
10.358.3.15 SendNCreate() [2/2] . . . 1254
10.358.3.16 SendNDelete() [1/2] . . . 1254
10.358.3.17 SendNDelete() [2/2] . . . 1254
10.358.3.18 SendNEventReport() [1/2] . . . 1254
10.358.3.19 SendNEventReport() [2/2] . . . 1254
10.358.3.20 SendNGet() [1/2] . . . 1255
10.358.3.21 SendNGet() [2/2] . . . 1255
10.358.3.22 SendNSet() [1/2] . . . 1255
10.358.3.23 SendNSet() [2/2] . . . 1255
10.358.3.24 SendStore() [1/2] . . . 1255
10.358.3.25 SendStore() [2/2] . . . 1255
10.358.4 Member Data Documentation . . . 1255
10.358.4.1 mConnection . . . 1255
10.358.4.2 mSecondaryConnection . . . 1256
10.358.4.3 mTransitions . . . 1256
10.359 gdcm::network::ULEvent Class Reference . . . 1256
10.359.1 Detailed Description . . . 1256
10.359.2 Constructor & Destructor Documentation . . . 1257
10.359.2.1 ULEvent() [1/2] . . . 1257
10.359.2.2 ULEvent() [2/2] . . . 1257
10.359.2.3 ~ULEvent() . . . 1257
10.359.3 Member Function Documentation . . . 1257
10.359.3.1 GetDataSetPos() . . . 1257
10.359.3.2 GetEvent() . . . 1257
10.359.3.3 GetIStream() . . . 1257
10.359.3.4 GetPDUs() . . . 1257
10.359.3.5 SetEvent() . . . 1258

10.359.3.6 SetPDU() . . . 1258
10.360 gdcm::network::ULTransitionTable Class Reference . . . 1258
10.360.1 Detailed Description . . . 1258
10.360.2 Constructor & Destructor Documentation . . . 1258
10.360.2.1 ULTransitionTable() . . . 1258
10.360.3 Member Function Documentation . . . 1259
10.360.3.1 HandleEvent() . . . 1259
10.360.3.2 PrintTable() . . . 1259
10.361 gdcm::network::ULWritingCallback Class Reference . . . 1259
10.361.1 Constructor & Destructor Documentation . . . 1261
10.361.1.1 ULWritingCallback() . . . 1261
10.361.1.2 ∼ULWritingCallback() . . . 1261
10.361.2 Member Function Documentation . . . 1261
10.361.2.1 HandleDataSet() . . . 1261
10.361.2.2 HandleResponse() . . . 1261
10.361.2.3 SetDirectory() . . . 1261
10.362 gdcm::UNExplicitDataElement Class Reference . . . 1262
10.362.1 Detailed Description . . . 1264
10.362.2 Member Function Documentation . . . 1264
10.362.2.1 GetLength() . . . 1264
10.362.2.2 Read() . . . 1265
10.362.2.3 ReadPreValue() . . . 1265
10.362.2.4 ReadValue() . . . 1265
10.362.2.5 ReadWithLength() . . . 1265
10.363 gdcm::UNExplicitImplicitDataElement Class Reference . . . 1265
10.363.1 Detailed Description . . . 1268
10.363.2 Member Function Documentation . . . 1268
10.363.2.1 GetLength() . . . 1268
10.363.2.2 Read() . . . 1268
10.363.2.3 ReadPreValue() . . . 1269
10.363.2.4 ReadValue() . . . 1269
10.364 gdcm::Unpacker12Bits Class Reference . . . 1269
10.364.1 Detailed Description . . . 1269
10.364.2 Member Function Documentation . . . 1270
10.364.2.1 Pack() . . . 1270
10.364.2.2 Unpack() . . . 1270
10.365 gdcm::Usage Class Reference . . . 1270
10.365.1 Detailed Description . . . 1271
10.365.2 Member Enumeration Documentation . . . 1271

10.365.2.1 UsageType . . . 1271
10.365.3 Constructor & Destructor Documentation . . . 1272
10.365.3.1 Usage() . . . 1272
10.365.4 Member Function Documentation . . . 1272
10.365.4.1 GetUsageString() . . . 1272
10.365.4.2 GetUsageType() . . . 1272
10.365.4.3 operator UsageType() . . . 1272
10.365.5 Friends And Related Symbol Documentation . . . 1272
10.365.5.1 operator<< . . . 1272
10.366 gdcm::UserEvent Class Reference . . . 1273
10.367 gdcm::network::UserInformation Class Reference . . . 1274
10.367.1 Detailed Description . . . 1274
10.367.2 Constructor & Destructor Documentation . . . 1275
10.367.2.1 UserInformation() [1/2] . . . 1275
10.367.2.2 ~UserInformation() . . . 1275
10.367.2.3 UserInformation() [2/2] . . . 1275
10.367.3 Member Function Documentation . . . 1275
10.367.3.1 AddRoleSelectionSub() . . . 1275
10.367.3.2 AddSOPClassExtendedNegociationSub() . . . 1275
10.367.3.3 GetMaximumLengthSub() [1/2] . . . 1275
10.367.3.4 GetMaximumLengthSub() [2/2] . . . 1275
10.367.3.5 operator=() . . . 1275
10.367.3.6 Print() . . . 1276
10.367.3.7 Read() . . . 1276
10.367.3.8 Size() . . . 1276
10.367.3.9 Write() . . . 1276
10.368 gdcm::UUIDGenerator Class Reference . . . 1276
10.368.1 Detailed Description . . . 1277
10.368.2 Member Function Documentation . . . 1277
10.368.2.1 Generate() . . . 1277
10.368.2.2 IsValid() . . . 1277
10.369 gdcm::Validate Class Reference . . . 1277
10.369.1 Detailed Description . . . 1278
10.369.2 Constructor & Destructor Documentation . . . 1278
10.369.2.1 Validate() . . . 1278
10.369.2.2 ~Validate() . . . 1278
10.369.3 Member Function Documentation . . . 1278
10.369.3.1 GetValidatedFile() . . . 1278
10.369.3.2 SetFile() . . . 1278

10.369.3.3 Validation() . . . 1278
10.369.4 Member Data Documentation . . . 1279
10.369.4.1 F . . . 1279
10.369.4.2 V . . . 1279
10.370 gdcm::Value Class Reference . . . 1279
10.370.1 Detailed Description . . . 1280
10.370.2 Constructor & Destructor Documentation . . . 1280
10.370.2.1 Value() . . . 1280
10.370.2.2 ∼Value() . . . 1281
10.370.3 Member Function Documentation . . . 1281
10.370.3.1 Clear() . . . 1281
10.370.3.2 GetLength() . . . 1281
10.370.3.3 operator==() . . . 1281
10.370.3.4 SetLength() . . . 1281
10.370.3.5 SetLengthOnly() . . . 1281
10.370.4 Friends And Related Symbol Documentation . . . 1282
10.370.4.1 DataElement . . . 1282
10.371 gdcm::ValueIO< TDE, TSwap, TType > Class Template Reference . . . 1282
10.371.1 Detailed Description . . . 1282
10.371.2 Member Function Documentation . . . 1282
10.371.2.1 Read() . . . 1282
10.371.2.2 Write() . . . 1283
10.372 gdcm::MrProtocol::Vector3 Struct Reference . . . 1283
10.372.1 Member Data Documentation . . . 1283
10.372.1.1 dCor . . . 1283
10.372.1.2 dSag . . . 1283
10.372.1.3 dTra . . . 1283
10.373 gdcm::Version Class Reference . . . 1284
10.373.1 Detailed Description . . . 1284
10.373.2 Constructor & Destructor Documentation . . . 1284
10.373.2.1 Version() . . . 1284
10.373.2.2 ∼Version() . . . 1284
10.373.3 Member Function Documentation . . . 1284
10.373.3.1 GetBuildVersion() . . . 1284
10.373.3.2 GetMajorVersion() . . . 1285
10.373.3.3 GetMinorVersion() . . . 1285
10.373.3.4 GetVersion() . . . 1285
10.373.3.5 Print() . . . 1285
10.373.4 Friends And Related Symbol Documentation . . . 1285

10.373.4.1 operator<< . . . 1285
10.374 gdcm::VL Class Reference . . . 1285
10.374.1 Detailed Description . . . 1286
10.374.2 Member Typedef Documentation . . . 1286
10.374.2.1 Type . . . 1286
10.374.3 Constructor & Destructor Documentation . . . 1287
10.374.3.1 VL() . . . 1287
10.374.4 Member Function Documentation . . . 1287
10.374.4.1 GetLength() . . . 1287
10.374.4.2 GetVL16Max() . . . 1287
10.374.4.3 GetVL32Max() . . . 1287
10.374.4.4 IsOdd() . . . 1287
10.374.4.5 IsUndefined() . . . 1287
10.374.4.6 operator uint32_t() . . . 1287
10.374.4.7 operator++() [1/2] . . . 1288
10.374.4.8 operator++() [2/2] . . . 1288
10.374.4.9 operator+=() . . . 1288
10.374.4.10 Read() . . . 1288
10.374.4.11 Read16() . . . 1288
10.374.4.12 SetToUndefined() . . . 1288
10.374.4.13 Write() . . . 1288
10.374.4.14 Write16() . . . 1289
10.374.5 Friends And Related Symbol Documentation . . . 1289
10.374.5.1 operator<< . . . 1289
10.375 gdcm::VM Class Reference . . . 1289
10.375.1 Detailed Description . . . 1291
10.375.2 Member Enumeration Documentation . . . 1291
10.375.2.1 VMType . . . 1291
10.375.3 Constructor & Destructor Documentation . . . 1292
10.375.3.1 VM() . . . 1292
10.375.4 Member Function Documentation . . . 1292
10.375.4.1 Compatible() . . . 1292
10.375.4.2 GetIndex() . . . 1292
10.375.4.3 GetLength() . . . 1292
10.375.4.4 GetNumberOfElementsFromArray() . . . 1293
10.375.4.5 GetVMString() . . . 1293
10.375.4.6 GetVMType() . . . 1293
10.375.4.7 GetVMTypeFromLength() . . . 1293
10.375.4.8 IsValid() . . . 1293

10.375.4.9 operator VMType() . . . 1293
10.375.5 Friends And Related Symbol Documentation . . . 1293
10.375.5.1 operator<< . . . 1293
10.376 gdcm::VMToLength< T > Struct Template Reference . . . 1294
10.377 gdcm::VR Class Reference . . . 1294
10.377.1 Detailed Description . . . 1296
10.377.2 Member Enumeration Documentation . . . 1296
10.377.2.1 VRType . . . 1296
10.377.3 Constructor & Destructor Documentation . . . 1297
10.377.3.1 VR() . . . 1297
10.377.4 Member Function Documentation . . . 1297
10.377.4.1 CanDisplay() . . . 1297
10.377.4.2 Compatible() . . . 1298
10.377.4.3 GetLength() [1/2] . . . 1298
10.377.4.4 GetLength() [2/2] . . . 1298
10.377.4.5 GetSize() . . . 1298
10.377.4.6 GetSizeof() . . . 1298
10.377.4.7 GetVRString() . . . 1298
10.377.4.8 GetVRStringFromFile() . . . 1298
10.377.4.9 GetVRType() . . . 1299
10.377.4.10 GetVRTypeFromFile() . . . 1299
10.377.4.11 IsASCII() . . . 1299
10.377.4.12 IsASCII2() . . . 1299
10.377.4.13 IsBinary() . . . 1299
10.377.4.14 IsBinary2() . . . 1299
10.377.4.15 IsDual() . . . 1299
10.377.4.16 IsSwap() . . . 1299
10.377.4.17 IsValid() [1/2] . . . 1300
10.377.4.18 IsValid() [2/2] . . . 1300
10.377.4.19 IsVRFile() . . . 1300
10.377.4.20 operator VRType() . . . 1300
10.377.4.21 Read() . . . 1300
10.377.4.22 Write() . . . 1300
10.377.5 Friends And Related Symbol Documentation . . . 1300
10.377.5.1 operator<< . . . 1300
10.378 gdcm::VR16ExplicitDataElement Class Reference . . . 1301
10.378.1 Detailed Description . . . 1303
10.378.2 Member Function Documentation . . . 1303
10.378.2.1 GetLength() . . . 1303

10.378.2.2 Read() . . . 1304
10.378.2.3 ReadPreValue() . . . 1304
10.378.2.4 ReadValue() . . . 1304
10.378.2.5 ReadWithLength() . . . 1304
10.379 gdcm::VRToEncoding< T > Struct Template Reference . . . 1304
10.380 gdcm::VRToType< T > Struct Template Reference . . . 1305
10.380.1 Detailed Description . . . 1305
10.381 gdcm::VRVLSize< T > Class Template Reference . . . 1305
10.382 gdcm::VRVLSize< 0 > Class Reference . . . 1305
10.382.1 Member Function Documentation . . . 1306
10.382.1.1 Read() . . . 1306
10.382.1.2 Write() . . . 1306
10.383 gdcm::VRVLSize< 1 > Class Reference . . . 1306
10.383.1 Member Function Documentation . . . 1306
10.383.1.1 Read() . . . 1306
10.383.1.2 Write() . . . 1307
10.384 vtkGDCMImageReader Class Reference . . . 1307
10.384.1 Detailed Description . . . 1309
10.384.2 Constructor & Destructor Documentation . . . 1310
10.384.2.1 vtkGDCMImageReader() . . . 1310
10.384.2.2 ~vtkGDCMImageReader() . . . 1310
10.384.3 Member Function Documentation . . . 1310
10.384.3.1 CanReadFile() . . . 1310
10.384.3.2 ExecuteData() . . . 1310
10.384.3.3 ExecuteInformation() . . . 1310
10.384.3.4 FillMedicalImageInformation() . . . 1310
10.384.3.5 GetDescriptiveName() . . . 1311
10.384.3.6 GetFileExtensions() . . . 1311
10.384.3.7 GetIconImage() . . . 1311
10.384.3.8 GetOverlay() . . . 1311
10.384.3.9 LoadSingleFile() . . . 1311
10.384.3.10 New() . . . 1311
10.384.3.11 PrintSelf() . . . 1311
10.384.3.12 RequestDataCompat() . . . 1312
10.384.3.13 RequestInformationCompat() . . . 1312
10.384.3.14 SetCurve() . . . 1312
10.384.3.15 SetFileNames() . . . 1312
10.384.3.16 SetFilePattern() . . . 1312
10.384.3.17 SetFilePrefix() . . . 1312

10.384.3.18 SetMedicalImageProperties() . . . 1312
10.384.3.19 vtkBooleanMacro() [1/5] . . . 1313
10.384.3.20 vtkBooleanMacro() [2/5] . . . 1313
10.384.3.21 vtkBooleanMacro() [3/5] . . . 1313
10.384.3.22 vtkBooleanMacro() [4/5] . . . 1313
10.384.3.23 vtkBooleanMacro() [5/5] . . . 1313
10.384.3.24 vtkGetMacro() [1/11] . . . 1313
10.384.3.25 vtkGetMacro() [2/11] . . . 1313
10.384.3.26 vtkGetMacro() [3/11] . . . 1314
10.384.3.27 vtkGetMacro() [4/11] . . . 1314
10.384.3.28 vtkGetMacro() [5/11] . . . 1314
10.384.3.29 vtkGetMacro() [6/11] . . . 1314
10.384.3.30 vtkGetMacro() [7/11] . . . 1314
10.384.3.31 vtkGetMacro() [8/11] . . . 1314
10.384.3.32 vtkGetMacro() [9/11] . . . 1314
10.384.3.33 vtkGetMacro() [10/11] . . . 1315
10.384.3.34 vtkGetMacro() [11/11] . . . 1315
10.384.3.35 vtkGetObjectMacro() [1/4] . . . 1315
10.384.3.36 vtkGetObjectMacro() [2/4] . . . 1315
10.384.3.37 vtkGetObjectMacro() [3/4] . . . 1315
10.384.3.38 vtkGetObjectMacro() [4/4] . . . 1315
10.384.3.39 vtkGetStringMacro() [1/2] . . . 1315
10.384.3.40 vtkGetStringMacro() [2/2] . . . 1316
10.384.3.41 vtkGetVector3Macro() . . . 1316
10.384.3.42 vtkGetVector6Macro() . . . 1316
10.384.3.43 vtkSetMacro() [1/4] . . . 1316
10.384.3.44 vtkSetMacro() [2/4] . . . 1316
10.384.3.45 vtkSetMacro() [3/4] . . . 1316
10.384.3.46 vtkSetMacro() [4/4] . . . 1316
10.384.3.47 vtkSetVector6Macro() . . . 1317
10.384.3.48 vtkTypeMacro() . . . 1317
10.384.4 Member Data Documentation . . . 1317
10.384.4.1 ApplyInverseVideo . . . 1317
10.384.4.2 ApplyLookupTable . . . 1317
10.384.4.3 ApplyPlanarConfiguration . . . 1317
10.384.4.4 ApplyShiftScale . . . 1317
10.384.4.5 ApplyYBRToRGB . . . 1317
10.384.4.6 Curve . . . 1317
10.384.4.7 DirectionCosines . . . 1318

10.384.4.8 FileNames . . . 1318
10.384.4.9 ForceRescale . . . 1318
10.384.4.10 IconDataScalarType . . . 1318
10.384.4.11 IconImageDataExtent . . . 1318
10.384.4.12 IconNumberOfScalarComponents . . . 1318
10.384.4.13 ImageFormat . . . 1318
10.384.4.14 ImageOrientationPatient . . . 1318
10.384.4.15 ImagePositionPatient . . . 1318
10.384.4.16 LoadIconImage . . . 1318
10.384.4.17 LoadOverlays . . . 1319
10.384.4.18 LossyFlag . . . 1319
10.384.4.19 MedicalImageProperties . . . 1319
10.384.4.20 NumberOfIconImages . . . 1319
10.384.4.21 NumberOfOverlays . . . 1319
10.384.4.22 PlanarConfiguration . . . 1319
10.384.4.23 Scale . . . 1319
10.384.4.24 Shift . . . 1319
10.385 vtkGDCMImageReader2 Class Reference . . . 1320
10.385.1 Detailed Description . . . 1322
10.385.2 Constructor & Destructor Documentation . . . 1322
10.385.2.1 vtkGDCMImageReader2() . . . 1322
10.385.2.2 ∼vtkGDCMImageReader2() . . . 1322
10.385.3 Member Function Documentation . . . 1322
10.385.3.1 CanReadFile() . . . 1322
10.385.3.2 FillMedicalImageInformation() . . . 1323
10.385.3.3 GetDescriptiveName() . . . 1323
10.385.3.4 GetFileExtensions() . . . 1323
10.385.3.5 GetIconImage() . . . 1323
10.385.3.6 GetIconImagePort() . . . 1323
10.385.3.7 GetOverlay() . . . 1323
10.385.3.8 GetOverlayPort() . . . 1323
10.385.3.9 LoadSingleFile() . . . 1323
10.385.3.10 New() . . . 1324
10.385.3.11 PrintSelf() . . . 1324
10.385.3.12 ProcessRequest() . . . 1324
10.385.3.13 RequestData() . . . 1324
10.385.3.14 RequestDataCompat() . . . 1324
10.385.3.15 RequestInformation() . . . 1324
10.385.3.16 RequestInformationCompat() . . . 1324

10.385.3.17 SetCurve() . . . 1325
10.385.3.18 SetFilePattern() . . . 1325
10.385.3.19 SetFilePrefix() . . . 1325
10.385.3.20 SetMedicalImageProperties() . . . 1325
10.385.3.21 vtkBooleanMacro() [1/5] . . . 1325
10.385.3.22 vtkBooleanMacro() [2/5] . . . 1325
10.385.3.23 vtkBooleanMacro() [3/5] . . . 1325
10.385.3.24 vtkBooleanMacro() [4/5] . . . 1325
10.385.3.25 vtkBooleanMacro() [5/5] . . . 1326
10.385.3.26 vtkGetMacro() [1/11] . . . 1326
10.385.3.27 vtkGetMacro() [2/11] . . . 1326
10.385.3.28 vtkGetMacro() [3/11] . . . 1326
10.385.3.29 vtkGetMacro() [4/11] . . . 1326
10.385.3.30 vtkGetMacro() [5/11] . . . 1326
10.385.3.31 vtkGetMacro() [6/11] . . . 1326
10.385.3.32 vtkGetMacro() [7/11] . . . 1327
10.385.3.33 vtkGetMacro() [8/11] . . . 1327
10.385.3.34 vtkGetMacro() [9/11] . . . 1327
10.385.3.35 vtkGetMacro() [10/11] . . . 1327
10.385.3.36 vtkGetMacro() [11/11] . . . 1327
10.385.3.37 vtkGetObjectMacro() [1/2] . . . 1327
10.385.3.38 vtkGetObjectMacro() [2/2] . . . 1327
10.385.3.39 vtkGetStringMacro() [1/2] . . . 1328
10.385.3.40 vtkGetStringMacro() [2/2] . . . 1328
10.385.3.41 vtkGetVector3Macro() . . . 1328
10.385.3.42 vtkGetVector6Macro() . . . 1328
10.385.3.43 vtkSetMacro() [1/4] . . . 1328
10.385.3.44 vtkSetMacro() [2/4] . . . 1328
10.385.3.45 vtkSetMacro() [3/4] . . . 1328
10.385.3.46 vtkSetMacro() [4/4] . . . 1329
10.385.3.47 vtkSetVector6Macro() . . . 1329
10.385.3.48 vtkTypeMacro() . . . 1329
10.385.4 Member Data Documentation . . . 1329
10.385.4.1 ApplyInverseVideo . . . 1329
10.385.4.2 ApplyLookupTable . . . 1329
10.385.4.3 ApplyPlanarConfiguration . . . 1329
10.385.4.4 ApplyShiftScale . . . 1329
10.385.4.5 ApplyYBRToRGB . . . 1329
10.385.4.6 Curve . . . 1330

10.385.4.7 DirectionCosines . . . 1330
10.385.4.8 ForceRescale . . . 1330
10.385.4.9 IconDataScalarType . . . 1330
10.385.4.10 IconImageDataExtent . . . 1330
10.385.4.11 IconNumberOfScalarComponents . . . 1330
10.385.4.12 ImageFormat . . . 1330
10.385.4.13 ImageOrientationPatient . . . 1330
10.385.4.14 ImagePositionPatient . . . 1330
10.385.4.15 LoadIconImage . . . 1330
10.385.4.16 LoadOverlays . . . 1331
10.385.4.17 LossyFlag . . . 1331
10.385.4.18 NumberOfIconImages . . . 1331
10.385.4.19 NumberOfOverlays . . . 1331
10.385.4.20 PlanarConfiguration . . . 1331
10.385.4.21 Scale . . . 1331
10.385.4.22 Shift . . . 1331
10.386 vtkGDCMImageWriter Class Reference . . . 1332
10.386.1 Detailed Description . . . 1334
10.386.2 Member Enumeration Documentation . . . 1334
10.386.2.1 CompressionTypes . . . 1334
10.386.3 Constructor & Destructor Documentation . . . 1334
10.386.3.1 vtkGDCMImageWriter() . . . 1334
10.386.3.2 ~vtkGDCMImageWriter() . . . 1334
10.386.4 Member Function Documentation . . . 1334
10.386.4.1 GetDescriptiveName() . . . 1334
10.386.4.2 GetFileExtensions() . . . 1334
10.386.4.3 GetFileName() . . . 1335
10.386.4.4 New() . . . 1335
10.386.4.5 PrintSelf() . . . 1335
10.386.4.6 SetDirectionCosines() . . . 1335
10.386.4.7 SetDirectionCosinesFromImageOrientationPatient() . . . 1335
10.386.4.8 SetFileNames() . . . 1335
10.386.4.9 SetMedicalImageProperties() . . . 1336
10.386.4.10 vtkBooleanMacro() [1/2] . . . 1336
10.386.4.11 vtkBooleanMacro() [2/2] . . . 1336
10.386.4.12 vtkGetMacro() [1/7] . . . 1336
10.386.4.13 vtkGetMacro() [2/7] . . . 1336
10.386.4.14 vtkGetMacro() [3/7] . . . 1336
10.386.4.15 vtkGetMacro() [4/7] . . . 1337

10.386.4.16 vtkGetMacro() [5/7] . . . 1337
10.386.4.17 vtkGetMacro() [6/7] . . . 1337
10.386.4.18 vtkGetMacro() [7/7] . . . 1337
10.386.4.19 vtkGetObjectMacro() [1/3] . . . 1337
10.386.4.20 vtkGetObjectMacro() [2/3] . . . 1337
10.386.4.21 vtkGetObjectMacro() [3/3] . . . 1337
10.386.4.22 vtkGetStringMacro() [1/2] . . . 1338
10.386.4.23 vtkGetStringMacro() [2/2] . . . 1338
10.386.4.24 vtkSetMacro() [1/7] . . . 1338
10.386.4.25 vtkSetMacro() [2/7] . . . 1338
10.386.4.26 vtkSetMacro() [3/7] . . . 1338
10.386.4.27 vtkSetMacro() [4/7] . . . 1338
10.386.4.28 vtkSetMacro() [5/7] . . . 1338
10.386.4.29 vtkSetMacro() [6/7] . . . 1339
10.386.4.30 vtkSetMacro() [7/7] . . . 1339
10.386.4.31 vtkSetStringMacro() [1/2] . . . 1339
10.386.4.32 vtkSetStringMacro() [2/2] . . . 1339
10.386.4.33 vtkTypeMacro() . . . 1339
10.386.4.34 Write() . . . 1339
10.386.4.35 WriteGDCMData() . . . 1339
10.386.4.36 WriteSlice() . . . 1340
10.387 vtkGDCMMedicalImageProperties Class Reference . . . 1340
10.387.1 Constructor & Destructor Documentation . . . 1341
10.387.1.1 vtkGDCMMedicalImageProperties() . . . 1341
10.387.1.2 ∼vtkGDCMMedicalImageProperties() . . . 1341
10.387.2 Member Function Documentation . . . 1341
10.387.2.1 Clear() . . . 1341
10.387.2.2 GetFile() . . . 1341
10.387.2.3 New() . . . 1342
10.387.2.4 PrintSelf() . . . 1342
10.387.2.5 PushBackFile() . . . 1342
10.387.2.6 vtkTypeMacro() . . . 1342
10.387.3 Friends And Related Symbol Documentation . . . 1342
10.387.3.1 vtkGDCMImageReader . . . 1342
10.387.3.2 vtkGDCMImageReader2 . . . 1342
10.387.3.3 vtkGDCMImageWriter . . . 1342
10.388 vtkGDCMPolyDataReader Class Reference . . . 1343
10.388.1 Detailed Description . . . 1344
10.388.2 Constructor & Destructor Documentation . . . 1344

10.388.2.1 vtkGDCMPolyDataReader() . . . 1344
10.388.2.2 ~vtkGDCMPolyDataReader() . . . 1344
10.388.3 Member Function Documentation . . . 1344
10.388.3.1 FillMedicalImageInformation() . . . 1344
10.388.3.2 New() . . . 1345
10.388.3.3 PrintSelf() . . . 1345
10.388.3.4 RequestData() . . . 1345
10.388.3.5 RequestData_HemodynamicWaveformStorage() . . . 1345
10.388.3.6 RequestData_RTStructureSetStorage() . . . 1345
10.388.3.7 RequestInformation() . . . 1345
10.388.3.8 RequestInformation_HemodynamicWaveformStorage() . . . 1345
10.388.3.9 RequestInformation_RTStructureSetStorage() . . . 1346
10.388.3.10 vtkGetObjectMacro() [1/2] . . . 1346
10.388.3.11 vtkGetObjectMacro() [2/2] . . . 1346
10.388.3.12 vtkGetStringMacro() . . . 1346
10.388.3.13 vtkSetStringMacro() . . . 1346
10.388.3.14 vtkTypeMacro() . . . 1346
10.388.4 Member Data Documentation . . . 1346
10.388.4.1 FileName . . . 1346
10.388.4.2 MedicalImageProperties . . . 1347
10.388.4.3 RTStructSetProperties . . . 1347
10.389 vtkGDCMPolyDataWriter Class Reference . . . 1347
10.389.1 Detailed Description . . . 1348
10.389.2 Constructor & Destructor Documentation . . . 1348
10.389.2.1 vtkGDCMPolyDataWriter() . . . 1348
10.389.2.2 ~vtkGDCMPolyDataWriter() . . . 1348
10.389.3 Member Function Documentation . . . 1349
10.389.3.1 InitializeRTStructSet() . . . 1349
10.389.3.2 New() . . . 1349
10.389.3.3 PrintSelf() . . . 1349
10.389.3.4 SetMedicalImageProperties() . . . 1349
10.389.3.5 SetNumberOfInputPorts() . . . 1349
10.389.3.6 SetRTStructSetProperties() . . . 1350
10.389.3.7 vtkTypeMacro() . . . 1350
10.389.3.8 WriteData() . . . 1350
10.389.3.9 WriteRTSTRUCTData() . . . 1350
10.389.3.10 WriteRTSTRUCTInfo() . . . 1350
10.389.4 Member Data Documentation . . . 1350
10.389.4.1 MedicalImageProperties . . . 1350

10.389.4.2 RTStructSetProperties . . . 1350
10.390 vtkGDCMTesting Class Reference . . . 1351
10.390.1 Detailed Description . . . 1352
10.390.2 Member Typedef Documentation . . . 1352
10.390.2.1 MD5MetaImagesType . . . 1352
10.390.3 Constructor & Destructor Documentation . . . 1352
10.390.3.1 vtkGDCMTesting() . . . 1352
10.390.3.2 ~vtkGDCMTesting() . . . 1352
10.390.4 Member Function Documentation . . . 1352
10.390.4.1 GetGDCMDataRoot() . . . 1352
10.390.4.2 GetMD5MetaImage() . . . 1353
10.390.4.3 GetMHDMD5FromFile() . . . 1353
10.390.4.4 GetNumberOfMD5MetaImages() . . . 1353
10.390.4.5 GetRAWMD5FromFile() . . . 1353
10.390.4.6 GetVTKDataRoot() . . . 1353
10.390.4.7 New() . . . 1353
10.390.4.8 PrintSelf() . . . 1354
10.390.4.9 vtkTypeMacro() . . . 1354
10.391 vtkGDCMThreadedImageReader Class Reference . . . 1354
10.391.1 Constructor & Destructor Documentation . . . 1357
10.391.1.1 vtkGDCMThreadedImageReader() . . . 1357
10.391.1.2 ~vtkGDCMThreadedImageReader() . . . 1357
10.391.2 Member Function Documentation . . . 1357
10.391.2.1 ExecuteData() . . . 1357
10.391.2.2 ExecuteInformation() . . . 1358
10.391.2.3 New() . . . 1358
10.391.2.4 PrintSelf() . . . 1358
10.391.2.5 ReadFiles() . . . 1358
10.391.2.6 RequestDataCompat() . . . 1358
10.391.2.7 vtkBooleanMacro() . . . 1358
10.391.2.8 vtkGetMacro() . . . 1358
10.391.2.9 vtkSetMacro() [1/3] . . . 1358
10.391.2.10 vtkSetMacro() [2/3] . . . 1359
10.391.2.11 vtkSetMacro() [3/3] . . . 1359
10.391.2.12 vtkTypeMacro() . . . 1359
10.392 vtkGDCMThreadedImageReader2 Class Reference . . . 1359
10.392.1 Constructor & Destructor Documentation . . . 1361
10.392.1.1 vtkGDCMThreadedImageReader2() . . . 1361
10.392.1.2 ~vtkGDCMThreadedImageReader2() . . . 1361

10.392.2 Member Function Documentation . . . 1361
10.392.2.1 GetFileName() . . . 1361
10.392.2.2 New() . . . 1361
10.392.2.3 PrintSelf() . . . 1361
10.392.2.4 RequestInformation() . . . 1362
10.392.2.5 SetFileName() . . . 1362
10.392.2.6 SetFileNames() . . . 1362
10.392.2.7 SplitExtent() . . . 1362
10.392.2.8 ThreadedRequestData() . . . 1362
10.392.2.9 vtkBooleanMacro() [1/3] . . . 1362
10.392.2.10 vtkBooleanMacro() [2/3] . . . 1363
10.392.2.11 vtkBooleanMacro() [3/3] . . . 1363
10.392.2.12 vtkGetMacro() [1/8] . . . 1363
10.392.2.13 vtkGetMacro() [2/8] . . . 1363
10.392.2.14 vtkGetMacro() [3/8] . . . 1363
10.392.2.15 vtkGetMacro() [4/8] . . . 1363
10.392.2.16 vtkGetMacro() [5/8] . . . 1363
10.392.2.17 vtkGetMacro() [6/8] . . . 1364
10.392.2.18 vtkGetMacro() [7/8] . . . 1364
10.392.2.19 vtkGetMacro() [8/8] . . . 1364
10.392.2.20 vtkGetObjectMacro() . . . 1364
10.392.2.21 vtkGetVector3Macro() [1/2] . . . 1364
10.392.2.22 vtkGetVector3Macro() [2/2] . . . 1364
10.392.2.23 vtkGetVector6Macro() . . . 1364
10.392.2.24 vtkSetMacro() [1/7] . . . 1365
10.392.2.25 vtkSetMacro() [2/7] . . . 1365
10.392.2.26 vtkSetMacro() [3/7] . . . 1365
10.392.2.27 vtkSetMacro() [4/7] . . . 1365
10.392.2.28 vtkSetMacro() [5/7] . . . 1365
10.392.2.29 vtkSetMacro() [6/7] . . . 1365
10.392.2.30 vtkSetMacro() [7/7] . . . 1365
10.392.2.31 vtkSetVector3Macro() [1/2] . . . 1366
10.392.2.32 vtkSetVector3Macro() [2/2] . . . 1366
10.392.2.33 vtkSetVector6Macro() . . . 1366
10.392.2.34 vtkTypeMacro() . . . 1366
10.393 vtkImageColorViewer Class Reference . . . 1366
10.393.1 Detailed Description . . . 1369
10.393.2 Member Enumeration Documentation . . . 1369
10.393.2.1 anonymous enum . . . 1369

10.393.3 Constructor & Destructor Documentation . . . 1369
10.393.3.1 vtkImageColorViewer() . . . 1369
10.393.3.2 ~vtkImageColorViewer() . . . 1369
10.393.4 Member Function Documentation . . . 1370
10.393.4.1 AddInput() . . . 1370
10.393.4.2 AddInputConnection() . . . 1370
10.393.4.3 GetColorLevel() . . . 1370
10.393.4.4 GetColorWindow() . . . 1370
10.393.4.5 GetInput() . . . 1370
10.393.4.6 GetOffScreenRendering() . . . 1370
10.393.4.7 GetOverlayVisibility() . . . 1370
10.393.4.8 GetPosition() . . . 1370
10.393.4.9 GetSize() . . . 1370
10.393.4.10 GetSliceMax() . . . 1371
10.393.4.11 GetSliceMin() . . . 1371
10.393.4.12 GetSliceRange() [1/3] . . . 1371
10.393.4.13 GetSliceRange() [2/3] . . . 1371
10.393.4.14 GetSliceRange() [3/3] . . . 1371
10.393.4.15 GetWindowName() . . . 1371
10.393.4.16 InstallPipeline() . . . 1371
10.393.4.17 New() . . . 1371
10.393.4.18 PrintSelf() . . . 1372
10.393.4.19 Render() . . . 1372
10.393.4.20 SetColorLevel() . . . 1372
10.393.4.21 SetColorWindow() . . . 1372
10.393.4.22 SetDisplayId() . . . 1372
10.393.4.23 SetInput() . . . 1372
10.393.4.24 SetInputConnection() . . . 1372
10.393.4.25 SetOffScreenRendering() . . . 1373
10.393.4.26 SetOverlayVisibility() . . . 1373
10.393.4.27 SetParentId() . . . 1373
10.393.4.28 SetPosition() [1/2] . . . 1373
10.393.4.29 SetPosition() [2/2] . . . 1373
10.393.4.30 SetRenderer() . . . 1373
10.393.4.31 SetRenderWindow() . . . 1373
10.393.4.32 SetSize() [1/2] . . . 1374
10.393.4.33 SetSize() [2/2] . . . 1374
10.393.4.34 SetSlice() . . . 1374
10.393.4.35 SetSliceOrientation() . . . 1374

10.393.4.36 SetSliceOrientationToXY() . . . 1374
10.393.4.37 SetSliceOrientationToXZ() . . . 1374
10.393.4.38 SetSliceOrientationToYZ() . . . 1375
10.393.4.39 SetupInteractor() . . . 1375
10.393.4.40 SetWindowId() . . . 1375
10.393.4.41 UnInstallPipeline() . . . 1375
10.393.4.42 UpdateDisplayExtent() . . . 1375
10.393.4.43 UpdateOrientation() . . . 1375
10.393.4.44 vtkBooleanMacro() . . . 1375
10.393.4.45 vtkGetMacro() [1/2] . . . 1376
10.393.4.46 vtkGetMacro() [2/2] . . . 1376
10.393.4.47 vtkGetObjectMacro() [1/5] . . . 1376
10.393.4.48 vtkGetObjectMacro() [2/5] . . . 1376
10.393.4.49 vtkGetObjectMacro() [3/5] . . . 1376
10.393.4.50 vtkGetObjectMacro() [4/5] . . . 1376
10.393.4.51 vtkGetObjectMacro() [5/5] . . . 1376
10.393.4.52 vtkTypeMacro() . . . 1377
10.393.5 Friends And Related Symbol Documentation . . . 1377
10.393.5.1 vtkImageColorViewerCallback . . . 1377
10.393.6 Member Data Documentation . . . 1377
10.393.6.1 FirstRender . . . 1377
10.393.6.2 ImageActor . . . 1377
10.393.6.3 Interactor . . . 1377
10.393.6.4 InteractorStyle . . . 1377
10.393.6.5 OverlayImageActor . . . 1377
10.393.6.6 Renderer . . . 1377
10.393.6.7 RenderWindow . . . 1378
10.393.6.8 Slice . . . 1378
10.393.6.9 SliceOrientation . . . 1378
10.393.6.10 WindowLevel . . . 1378
10.394 vtkImageMapToColors16 Class Reference . . . 1378
10.394.1 Constructor & Destructor Documentation . . . 1380
10.394.1.1 vtkImageMapToColors16() . . . 1380
10.394.1.2 ~vtkImageMapToColors16() . . . 1380
10.394.2 Member Function Documentation . . . 1380
10.394.2.1 GetMTime() . . . 1380
10.394.2.2 New() . . . 1380
10.394.2.3 PrintSelf() . . . 1380
10.394.2.4 RequestData() . . . 1380

10.394.2.5 RequestInformation() . . . 1381
10.394.2.6 SetLookupTable() . . . 1381
10.394.2.7 SetOutputFormatToLuminance() . . . 1381
10.394.2.8 SetOutputFormatToLuminanceAlpha() . . . 1381
10.394.2.9 SetOutputFormatToRGB() . . . 1381
10.394.2.10 SetOutputFormatToRGBA() . . . 1381
10.394.2.11 ThreadedRequestData() . . . 1381
10.394.2.12 vtkBooleanMacro() . . . 1382
10.394.2.13 vtkGetMacro() [1/3] . . . 1382
10.394.2.14 vtkGetMacro() [2/3] . . . 1382
10.394.2.15 vtkGetMacro() [3/3] . . . 1382
10.394.2.16 vtkGetObjectMacro() . . . 1382
10.394.2.17 vtkSetMacro() [1/3] . . . 1382
10.394.2.18 vtkSetMacro() [2/3] . . . 1382
10.394.2.19 vtkSetMacro() [3/3] . . . 1383
10.394.2.20 vtkTypeMacro() . . . 1383
10.394.3 Member Data Documentation . . . 1383
10.394.3.1 ActiveComponent . . . 1383
10.394.3.2 DataWasPassed . . . 1383
10.394.3.3 LookupTable . . . 1383
10.394.3.4 OutputFormat . . . 1383
10.394.3.5 PassAlphaToOutput . . . 1383
10.395 vtkImageMapToWindowLevelColors2 Class Reference . . . 1384
10.395.1 Constructor & Destructor Documentation . . . 1385
10.395.1.1 vtkImageMapToWindowLevelColors2() . . . 1385
10.395.1.2 ∼vtkImageMapToWindowLevelColors2() . . . 1385
10.395.2 Member Function Documentation . . . 1385
10.395.2.1 New() . . . 1385
10.395.2.2 PrintSelf() . . . 1385
10.395.2.3 RequestData() . . . 1385
10.395.2.4 RequestInformation() . . . 1386
10.395.2.5 ThreadedRequestData() . . . 1386
10.395.2.6 vtkGetMacro() [1/2] . . . 1386
10.395.2.7 vtkGetMacro() [2/2] . . . 1386
10.395.2.8 vtkSetMacro() [1/2] . . . 1386
10.395.2.9 vtkSetMacro() [2/2] . . . 1386
10.395.2.10 vtkTypeMacro() . . . 1387
10.395.3 Member Data Documentation . . . 1387
10.395.3.1 Level . . . 1387

10.395.3.2 Window . . . 1387
10.396 vtkImagePlanarComponentsToComponents Class Reference . . . 1387
10.396.1 Constructor & Destructor Documentation . . . 1388
10.396.1.1 vtkImagePlanarComponentsToComponents() . . . 1388
10.396.1.2 ∼vtkImagePlanarComponentsToComponents() . . . 1388
10.396.2 Member Function Documentation . . . 1389
10.396.2.1 New() . . . 1389
10.396.2.2 PrintSelf() . . . 1389
10.396.2.3 RequestData() . . . 1389
10.396.2.4 vtkTypeMacro() . . . 1389
10.397 vtkImageRGBToYBR Class Reference . . . 1389
10.397.1 Constructor & Destructor Documentation . . . 1390
10.397.1.1 vtkImageRGBToYBR() . . . 1390
10.397.1.2 ∼vtkImageRGBToYBR() . . . 1390
10.397.2 Member Function Documentation . . . 1391
10.397.2.1 New() . . . 1391
10.397.2.2 PrintSelf() . . . 1391
10.397.2.3 ThreadedExecute() . . . 1391
10.397.2.4 vtkTypeMacro() . . . 1391
10.398 vtkImageYBRToRGB Class Reference . . . 1391
10.398.1 Constructor & Destructor Documentation . . . 1392
10.398.1.1 vtkImageYBRToRGB() . . . 1392
10.398.1.2 ∼vtkImageYBRToRGB() . . . 1392
10.398.2 Member Function Documentation . . . 1393
10.398.2.1 New() . . . 1393
10.398.2.2 PrintSelf() . . . 1393
10.398.2.3 ThreadedExecute() . . . 1393
10.398.2.4 vtkTypeMacro() . . . 1393
10.399 vtkLookupTable16 Class Reference . . . 1393
10.399.1 Constructor & Destructor Documentation . . . 1394
10.399.1.1 vtkLookupTable16() . . . 1394
10.399.1.2 ∼vtkLookupTable16() . . . 1395
10.399.2 Member Function Documentation . . . 1395
10.399.2.1 Build() . . . 1395
10.399.2.2 GetPointer() . . . 1395
10.399.2.3 MapScalarsThroughTable2() . . . 1395
10.399.2.4 New() . . . 1395
10.399.2.5 PrintSelf() . . . 1395
10.399.2.6 SetNumberOfTableValues() . . . 1395

10.399.2.7 vtkTypeMacro() . . . 1396
10.399.2.8 WritePointer() . . . 1396
10.399.3 Member Data Documentation . . . 1396
10.399.3.1 Table16 . . . 1396
10.400 vtkRTStructSetProperties Class Reference . . . 1396
10.400.1 Detailed Description . . . 1398
10.400.2 Constructor & Destructor Documentation . . . 1398
10.400.2.1 vtkRTStructSetProperties() . . . 1398
10.400.2.2 ∼vtkRTStructSetProperties() . . . 1399
10.400.3 Member Function Documentation . . . 1399
10.400.3.1 AddContourReferencedFrameOfReference() . . . 1399
10.400.3.2 AddReferencedFrameOfReference() . . . 1399
10.400.3.3 AddStructureSetROI() . . . 1399
10.400.3.4 AddStructureSetROIObservation() . . . 1399
10.400.3.5 Clear() . . . 1399
10.400.3.6 DeepCopy() . . . 1400
10.400.3.7 GetContourReferencedFrameOfReferenceClassUID() . . . 1400
10.400.3.8 GetContourReferencedFrameOfReferenceInstanceUID() . . . 1400
10.400.3.9 GetNumberOfContourReferencedFrameOfReferences() [1/2] . . . 1400
10.400.3.10 GetNumberOfContourReferencedFrameOfReferences() [2/2] . . . 1400
10.400.3.11 GetNumberOfReferencedFrameOfReferences() . . . 1400
10.400.3.12 GetNumberOfStructureSetROIs() . . . 1400
10.400.3.13 GetReferencedFrameOfReferenceClassUID() . . . 1400
10.400.3.14 GetReferencedFrameOfReferenceInstanceUID() . . . 1401
10.400.3.15 GetStructureSetObservationNumber() . . . 1401
10.400.3.16 GetStructureSetROIDescription() . . . 1401
10.400.3.17 GetStructureSetROIGenerationAlgorithm() . . . 1401
10.400.3.18 GetStructureSetROIName() . . . 1401
10.400.3.19 GetStructureSetROINumber() . . . 1401
10.400.3.20 GetStructureSetROIObservationLabel() . . . 1401
10.400.3.21 GetStructureSetROIRefFrameRefUID() . . . 1401
10.400.3.22 GetStructureSetRTROIInterpretedType() . . . 1402
10.400.3.23 New() . . . 1402
10.400.3.24 PrintSelf() . . . 1402
10.400.3.25 vtkGetStringMacro() [1/9] . . . 1402
10.400.3.26 vtkGetStringMacro() [2/9] . . . 1402
10.400.3.27 vtkGetStringMacro() [3/9] . . . 1402
10.400.3.28 vtkGetStringMacro() [4/9] . . . 1402
10.400.3.29 vtkGetStringMacro() [5/9] . . . 1403

10.400.3.30 vtkGetStringMacro() [6/9] . . . 1403
10.400.3.31 vtkGetStringMacro() [7/9] . . . 1403
10.400.3.32 vtkGetStringMacro() [8/9] . . . 1403
10.400.3.33 vtkGetStringMacro() [9/9] . . . 1403
10.400.3.34 vtkSetStringMacro() [1/9] . . . 1403
10.400.3.35 vtkSetStringMacro() [2/9] . . . 1403
10.400.3.36 vtkSetStringMacro() [3/9] . . . 1403
10.400.3.37 vtkSetStringMacro() [4/9] . . . 1404
10.400.3.38 vtkSetStringMacro() [5/9] . . . 1404
10.400.3.39 vtkSetStringMacro() [6/9] . . . 1404
10.400.3.40 vtkSetStringMacro() [7/9] . . . 1404
10.400.3.41 vtkSetStringMacro() [8/9] . . . 1404
10.400.3.42 vtkSetStringMacro() [9/9] . . . 1404
10.400.3.43 vtkTypeMacro() . . . 1404
10.400.4 Member Data Documentation . . . 1404
10.400.4.1 Internals . . . 1404
10.400.4.2 ReferenceFrameOfReferenceUID . . . 1405
10.400.4.3 ReferenceSeriesInstanceUID . . . 1405
10.400.4.4 SeriesInstanceUID . . . 1405
10.400.4.5 SOPInstanceUID . . . 1405
10.400.4.6 StructureSetDate . . . 1405
10.400.4.7 StructureSetLabel . . . 1405
10.400.4.8 StructureSetName . . . 1405
10.400.4.9 StructureSetTime . . . 1405
10.400.4.10 StudyInstanceUID . . . 1405
10.401 gdcm::Waveform Class Reference . . . 1406
10.401.1 Detailed Description . . . 1406
10.401.2 Constructor & Destructor Documentation . . . 1406
10.401.2.1 Waveform() . . . 1406
10.402 gdcm::WLMFindQuery Class Reference . . . 1406
10.402.1 Detailed Description . . . 1409
10.402.2 Constructor & Destructor Documentation . . . 1409
10.402.2.1 WLMFindQuery() . . . 1409
10.402.3 Member Function Documentation . . . 1409
10.402.3.1 GetAbstractSyntaxUID() . . . 1409
10.402.3.2 GetTagListByLevel() . . . 1410
10.402.3.3 GetValidDataSet() . . . 1410
10.402.3.4 InitializeDataSet() . . . 1410
10.402.3.5 ValidateQuery() . . . 1410

10.402.4 Friends And Related Symbol Documentation . . . 1410
10.402.4.1 QueryFactory . . . 1410
10.403 gdcm::Writer Class Reference . . . 1411
10.403.1 Detailed Description . . . 1413
10.403.2 Constructor & Destructor Documentation . . . 1414
10.403.2.1 Writer() . . . 1414
10.403.2.2 ∼Writer() . . . 1414
10.403.3 Member Function Documentation . . . 1414
10.403.3.1 CheckFileMetaInformationOff() . . . 1414
10.403.3.2 CheckFileMetaInformationOn() . . . 1414
10.403.3.3 GetCheckFileMetaInformation() . . . 1414
10.403.3.4 GetFile() . . . 1414
10.403.3.5 GetStreamPtr() . . . 1414
10.403.3.6 SetCheckFileMetaInformation() . . . 1415
10.403.3.7 SetFile() . . . 1415
10.403.3.8 SetFileName() . . . 1415
10.403.3.9 SetStream() . . . 1416
10.403.3.10 SetWriteDataSetOnly() . . . 1416
10.403.3.11 Write() . . . 1416
10.403.4 Friends And Related Symbol Documentation . . . 1416
10.403.4.1 StreamImageWriter . . . 1416
10.403.5 Member Data Documentation . . . 1416
10.403.5.1 Ofstream . . . 1416
10.403.5.2 Stream . . . 1417
10.404 gdcm::XMLDictReader Class Reference . . . 1417
10.404.1 Detailed Description . . . 1418
10.404.2 Constructor & Destructor Documentation . . . 1418
10.404.2.1 XMLDictReader() . . . 1418
10.404.2.2 ∼XMLDictReader() . . . 1419
10.404.3 Member Function Documentation . . . 1419
10.404.3.1 CharacterDataHandler() . . . 1419
10.404.3.2 EndElement() . . . 1419
10.404.3.3 GetDict() . . . 1419
10.404.3.4 HandleDescription() . . . 1419
10.404.3.5 HandleEntry() . . . 1419
10.404.3.6 StartElement() . . . 1419
10.405 gdcm::XMLPrinter Class Reference . . . 1420
10.405.1 Member Enumeration Documentation . . . 1421
10.405.1.1 PrintStyles . . . 1421

10.405.2 Constructor & Destructor Documentation . . . 1421
10.405.2.1 XMLPrinter() . . . 1421
10.405.2.2 ∼XMLPrinter() . . . 1421
10.405.3 Member Function Documentation . . . 1421
10.405.3.1 GetPrintStyle() . . . 1421
10.405.3.2 HandleBulkData() . . . 1421
10.405.3.3 Print() . . . 1422
10.405.3.4 PrintDataElement() . . . 1422
10.405.3.5 PrintDataSet() . . . 1422
10.405.3.6 PrintSQ() . . . 1422
10.405.3.7 SetFile() . . . 1422
10.405.3.8 SetStyle() . . . 1422
10.405.4 Member Data Documentation . . . 1422
10.405.4.1 F . . . 1422
10.405.4.2 PrintStyle . . . 1423
10.406 gdcm::XMLPrivateDictReader Class Reference . . . 1423
10.406.1 Detailed Description . . . 1424
10.406.2 Constructor & Destructor Documentation . . . 1424
10.406.2.1 XMLPrivateDictReader() . . . 1424
10.406.2.2 ∼XMLPrivateDictReader() . . . 1425
10.406.3 Member Function Documentation . . . 1425
10.406.3.1 CharacterDataHandler() . . . 1425
10.406.3.2 EndElement() . . . 1425
10.406.3.3 GetPrivateDict() . . . 1425
10.406.3.4 HandleDescription() . . . 1425
10.406.3.5 HandleEntry() . . . 1425
10.406.3.6 StartElement() . . . 1425

11 File Documentation **1427**
11.1 README.txt File Reference . . . 1427
11.2 TestsList.txt File Reference . . . 1427
11.3 gdcmASN1.h File Reference . . . 1427
11.4 gdcmASN1.h . . . 1428
11.5 gdcmBase64.h File Reference . . . 1429
11.6 gdcmBase64.h . . . 1429
11.7 gdcmBoxRegion.h File Reference . . . 1430
11.8 gdcmBoxRegion.h . . . 1431
11.9 gdcmByteSwap.h File Reference . . . 1431
11.10 gdcmByteSwap.h . . . 1432

11.11 gdcmCAPICryptoFactory.h File Reference . . . 1433
11.12 gdcmCAPICryptoFactory.h . . . 1434
11.13 gdcmCAPICryptographicMessageSyntax.h File Reference . . . 1434
11.14 gdcmCAPICryptographicMessageSyntax.h . . . 1435
11.15 gdcmCommand.h File Reference . . . 1436
11.16 gdcmCommand.h . . . 1437
11.17 gdcmCryptoFactory.h File Reference . . . 1439
11.18 gdcmCryptoFactory.h . . . 1440
11.19 gdcmCryptographicMessageSyntax.h File Reference . . . 1441
11.20 gdcmCryptographicMessageSyntax.h . . . 1441
11.21 gdcmDataEvent.h File Reference . . . 1443
11.22 gdcmDataEvent.h . . . 1444
11.23 gdcmDeflateStream.h File Reference . . . 1445
11.24 gdcmDeflateStream.h . . . 1445
11.25 gdcmDirectory.h File Reference . . . 1445
11.26 gdcmDirectory.h . . . 1446
11.27 gdcmDummyValueGenerator.h File Reference . . . 1448
11.28 gdcmDummyValueGenerator.h . . . 1448
11.29 gdcmEvent.h File Reference . . . 1449
11.29.1 Macro Definition Documentation . . . 1450
11.29.1.1 gdcmEventMacro . . . 1450
11.30 gdcmEvent.h . . . 1451
11.31 gdcmException.h File Reference . . . 1452
11.32 gdcmException.h . . . 1453
11.33 gdcmFilename.h File Reference . . . 1454
11.34 gdcmFilename.h . . . 1455
11.35 gdcmFileNameEvent.h File Reference . . . 1455
11.36 gdcmFileNameEvent.h . . . 1456
11.37 gdcmFilenameGenerator.h File Reference . . . 1457
11.38 gdcmFilenameGenerator.h . . . 1458
11.39 gdcmLegacyMacro.h File Reference . . . 1458
11.39.1 Macro Definition Documentation . . . 1459
11.39.1.1 GDCM_LEGACY . . . 1459
11.39.1.2 GDCM_LEGACY_BODY . . . 1459
11.39.1.3 GDCM_LEGACY_REPLACED_BODY . . . 1460
11.39.1.4 GDCM_NOOP_STATEMENT . . . 1460
11.40 gdcmLegacyMacro.h . . . 1460
11.41 gdcmMD5.h File Reference . . . 1461
11.42 gdcmMD5.h . . . 1462

11.43 gdcmObject.h File Reference . . . 1462
11.44 gdcmObject.h . . . 1463
11.45 gdcmOpenSSLCryptoFactory.h File Reference . . . 1464
11.46 gdcmOpenSSLCryptoFactory.h . . . 1465
11.47 gdcmOpenSSLCryptographicMessageSyntax.h File Reference . . . 1466
11.48 gdcmOpenSSLCryptographicMessageSyntax.h . . . 1467
11.49 gdcmOpenSSLP7CryptoFactory.h File Reference . . . 1468
11.50 gdcmOpenSSLP7CryptoFactory.h . . . 1469
11.51 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference . . . 1469
11.52 gdcmOpenSSLP7CryptographicMessageSyntax.h . . . 1471
11.53 gdcmProgressEvent.h File Reference . . . 1471
11.54 gdcmProgressEvent.h . . . 1472
11.55 gdcmRegion.h File Reference . . . 1473
11.56 gdcmRegion.h . . . 1474
11.57 gdcmSHA1.h File Reference . . . 1475
11.58 gdcmSHA1.h . . . 1476
11.59 gdcmSmartPointer.h File Reference . . . 1476
11.60 gdcmSmartPointer.h . . . 1477
11.61 gdcmStaticAssert.h File Reference . . . 1478
11.61.1 Macro Definition Documentation . . . 1479
11.61.1.1 GDCM_DO_JOIN . . . 1479
11.61.1.2 GDCM_DO_JOIN2 . . . 1479
11.61.1.3 GDCM_JOIN . . . 1479
11.61.1.4 GDCM_STATIC_ASSERT . . . 1479
11.62 gdcmStaticAssert.h . . . 1480
11.63 gdcmString.h File Reference . . . 1480
11.64 gdcmString.h . . . 1481
11.65 gdcmSubject.h File Reference . . . 1483
11.66 gdcmSubject.h . . . 1484
11.67 gdcmSwapCode.h File Reference . . . 1485
11.68 gdcmSwapCode.h . . . 1486
11.69 gdcmSwapper.h File Reference . . . 1486
11.70 gdcmSwapper.h . . . 1487
11.71 gdcmSystem.h File Reference . . . 1489
11.72 gdcmSystem.h . . . 1489
11.73 gdcmTerminal.h File Reference . . . 1491
11.74 gdcmTerminal.h . . . 1492
11.75 gdcmTestDriver.h File Reference . . . 1493
11.76 gdcmTestDriver.h . . . 1493

11.77 gdcmTesting.h File Reference . . . 1494
11.78 gdcmTesting.h . . . 1494
11.79 gdcmTrace.h File Reference . . . 1495
11.79.1 Macro Definition Documentation . . . 1497
11.79.1.1 GDCM_FUNCTION . . . 1497
11.79.1.2 gdcmAssertAlwaysMacro . . . 1497
11.79.1.3 gdcmAssertMacro . . . 1497
11.79.1.4 gdcmDebugMacro . . . 1497
11.79.1.5 gdcmErrorMacro . . . 1498
11.79.1.6 gdcmWarningMacro . . . 1498
11.80 gdcmTrace.h . . . 1499
11.81 gdcmTypes.h File Reference . . . 1501
11.82 gdcmTypes.h . . . 1502
11.83 gdcmUnpacker12Bits.h File Reference . . . 1502
11.84 gdcmUnpacker12Bits.h . . . 1503
11.85 gdcmVersion.h File Reference . . . 1503
11.86 gdcmVersion.h . . . 1504
11.87 gdcmWin32.h File Reference . . . 1504
11.87.1 Macro Definition Documentation . . . 1505
11.87.1.1 GDCM_EXPORT . . . 1505
11.88 gdcmWin32.h . . . 1505
11.89 gdcmCSAHeaderDict.h File Reference . . . 1506
11.90 gdcmCSAHeaderDict.h . . . 1507
11.91 gdcmCSAHeaderDictEntry.h File Reference . . . 1509
11.92 gdcmCSAHeaderDictEntry.h . . . 1510
11.93 gdcmDict.h File Reference . . . 1512
11.94 gdcmDict.h . . . 1513
11.95 gdcmDictConverter.h File Reference . . . 1517
11.96 gdcmDictConverter.h . . . 1518
11.97 gdcmDictEntry.h File Reference . . . 1519
11.98 gdcmDictEntry.h . . . 1520
11.99 gdcmDicts.h File Reference . . . 1521
11.100 gdcmDicts.h . . . 1523
11.101 gdcmGlobal.h File Reference . . . 1524
11.102 gdcmGlobal.h . . . 1525
11.103 gdcmGroupDict.h File Reference . . . 1526
11.104 gdcmGroupDict.h . . . 1527
11.105 gdcmSOPClassUIDToIOD.h File Reference . . . 1528
11.106 gdcmSOPClassUIDToIOD.h . . . 1528

11.107 gdcmUIDs.h File Reference . . . 1529
11.108 gdcmUIDs.h . . . 1530
11.109 gdcmAttribute.h File Reference . . . 1543
11.110 gdcmAttribute.h . . . 1544
11.111 gdcmBasicOffsetTable.h File Reference . . . 1557
11.112 gdcmBasicOffsetTable.h . . . 1558
11.113 gdcmByteBuffer.h File Reference . . . 1560
11.114 gdcmByteBuffer.h . . . 1561
11.115 gdcmByteSwapFilter.h File Reference . . . 1563
11.116 gdcmByteSwapFilter.h . . . 1563
11.117 gdcmByteValue.h File Reference . . . 1564
11.118 gdcmByteValue.h . . . 1565
11.119 gdcmCodeString.h File Reference . . . 1568
11.120 gdcmCodeString.h . . . 1569
11.121 gdcmCP246ExplicitDataElement.h File Reference . . . 1570
11.122 gdcmCP246ExplicitDataElement.h . . . 1570
11.123 gdcmCSAElement.h File Reference . . . 1571
11.124 gdcmCSAElement.h . . . 1572
11.125 gdcmCSAHeader.h File Reference . . . 1574
11.126 gdcmCSAHeader.h . . . 1575
11.127 gdcmDataElement.h File Reference . . . 1577
11.128 gdcmDataElement.h . . . 1578
11.129 gdcmDataSet.h File Reference . . . 1580
11.130 gdcmDataSet.h . . . 1581
11.131 gdcmDataSetEvent.h File Reference . . . 1585
11.132 gdcmDataSetEvent.h . . . 1586
11.133 gdcmElement.h File Reference . . . 1587
11.134 gdcmElement.h . . . 1588
11.135 gdcmExplicitDataElement.h File Reference . . . 1599
11.136 gdcmExplicitDataElement.h . . . 1600
11.137 gdcmExplicitImplicitDataElement.h File Reference . . . 1601
11.138 gdcmExplicitImplicitDataElement.h . . . 1602
11.139 gdcmFile.h File Reference . . . 1602
11.140 gdcmFile.h . . . 1603
11.141 gdcmFileMetaInformation.h File Reference . . . 1604
11.142 gdcmFileMetaInformation.h . . . 1605
11.143 gdcmFileSet.h File Reference . . . 1607
11.144 gdcmFileSet.h . . . 1608
11.145 gdcmFragment.h File Reference . . . 1609

11.146 gdcmFragment.h . . . 1610
11.147 gdcmImplicitDataElement.h File Reference . . . 1613
11.148 gdcmImplicitDataElement.h . . . 1614
11.149 gdcmItem.h File Reference . . . 1615
11.150 gdcmItem.h . . . 1616
11.151 gdcmLO.h File Reference . . . 1621
11.152 gdcmLO.h . . . 1621
11.153 gdcmMediaStorage.h File Reference . . . 1622
11.154 gdcmMediaStorage.h . . . 1623
11.155 gdcmMrProtocol.h File Reference . . . 1626
11.156 gdcmMrProtocol.h . . . 1627
11.157 gdcmParseException.h File Reference . . . 1628
11.158 gdcmParseException.h . . . 1629
11.159 gdcmParser.h File Reference . . . 1630
11.160 gdcmParser.h . . . 1631
11.161 gdcmPDBElement.h File Reference . . . 1633
11.162 gdcmPDBElement.h . . . 1634
11.163 gdcmPDBHeader.h File Reference . . . 1635
11.164 gdcmPDBHeader.h . . . 1635
11.165 gdcmPreamble.h File Reference . . . 1636
11.166 gdcmPreamble.h . . . 1638
11.167 gdcmPrivateTag.h File Reference . . . 1639
11.168 gdcmPrivateTag.h . . . 1640
11.169 gdcmReader.h File Reference . . . 1641
11.170 gdcmReader.h . . . 1642
11.171 gdcmSequenceOfFragments.h File Reference . . . 1643
11.172 gdcmSequenceOfFragments.h . . . 1644
11.173 gdcmSequenceOfItems.h File Reference . . . 1648
11.174 gdcmSequenceOfItems.h . . . 1649
11.175 gdcmTag.h File Reference . . . 1652
11.176 gdcmTag.h . . . 1653
11.177 gdcmTagToVR.h File Reference . . . 1657
11.178 gdcmTagToVR.h . . . 1657
11.179 gdcmTransferSyntax.h File Reference . . . 1658
11.180 gdcmTransferSyntax.h . . . 1659
11.181 gdcmUNExplicitDataElement.h File Reference . . . 1660
11.182 gdcmUNExplicitDataElement.h . . . 1661
11.183 gdcmUNExplicitImplicitDataElement.h File Reference . . . 1662
11.184 gdcmUNExplicitImplicitDataElement.h . . . 1663

11.185 gdcmValue.h File Reference . . . 1663
11.186 gdcmValue.h . . . 1664
11.187 gdcmValueIO.h File Reference . . . 1665
11.188 gdcmValueIO.h . . . 1666
11.189 gdcmVL.h File Reference . . . 1666
11.190 gdcmVL.h . . . 1667
11.191 gdcmVM.h File Reference . . . 1669
11.191.1 Macro Definition Documentation . . . 1670
11.191.1.1 TYPETOLENGTH . . . 1670
11.192 gdcmVM.h . . . 1670
11.193 gdcmVR.h File Reference . . . 1672
11.193.1 Macro Definition Documentation . . . 1673
11.193.1.1 TYPETOENCODING . . . 1673
11.193.1.2 VRTypeTemplateCase . . . 1674
11.194 gdcmVR.h . . . 1674
11.195 gdcmVR16ExplicitDataElement.h File Reference . . . 1678
11.196 gdcmVR16ExplicitDataElement.h . . . 1679
11.197 gdcmWriter.h File Reference . . . 1680
11.198 gdcmWriter.h . . . 1681
11.199 gdcmDefinedTerms.h File Reference . . . 1682
11.200 gdcmDefinedTerms.h . . . 1683
11.201 gdcmDefs.h File Reference . . . 1683
11.202 gdcmDefs.h . . . 1684
11.203 gdcmEnumeratedValues.h File Reference . . . 1685
11.204 gdcmEnumeratedValues.h . . . 1686
11.205 gdcmIOD.h File Reference . . . 1686
11.206 gdcmIOD.h . . . 1688
11.207 gdcmIODEntry.h File Reference . . . 1689
11.208 gdcmIODEntry.h . . . 1691
11.209 gdcmIODs.h File Reference . . . 1691
11.210 gdcmIODs.h . . . 1693
11.211 gdcmMacro.h File Reference . . . 1694
11.212 gdcmMacro.h . . . 1695
11.213 gdcmMacroEntry.h File Reference . . . 1697
11.213.1 Macro Definition Documentation . . . 1698
11.213.1.1 GDCMMACROENTRY_H . . . 1698
11.214 gdcmMacroEntry.h . . . 1698
11.215 gdcmMacros.h File Reference . . . 1700
11.216 gdcmMacros.h . . . 1701

11.217 gdcmModule.h File Reference . . . 1702
11.218 gdcmModule.h . . . 1703
11.219 gdcmModuleEntry.h File Reference . . . 1705
11.220 gdcmModuleEntry.h . . . 1707
11.221 gdcmModules.h File Reference . . . 1708
11.222 gdcmModules.h . . . 1709
11.223 gdcmNestedModuleEntries.h File Reference . . . 1710
11.224 gdcmNestedModuleEntries.h . . . 1711
11.225 gdcmPatient.h File Reference . . . 1712
11.226 gdcmPatient.h . . . 1712
11.227 gdcmSeries.h File Reference . . . 1713
11.228 gdcmSeries.h . . . 1714
11.229 gdcmStudy.h File Reference . . . 1715
11.230 gdcmStudy.h . . . 1716
11.231 gdcmTable.h File Reference . . . 1716
11.232 gdcmTable.h . . . 1717
11.233 gdcmTableEntry.h File Reference . . . 1718
11.234 gdcmTableEntry.h . . . 1719
11.235 gdcmTableReader.h File Reference . . . 1720
11.236 gdcmTableReader.h . . . 1721
11.237 gdcmType.h File Reference . . . 1722
11.238 gdcmType.h . . . 1723
11.239 gdcmUsage.h File Reference . . . 1724
11.240 gdcmUsage.h . . . 1726
11.241 gdcmXMLDictReader.h File Reference . . . 1727
11.242 gdcmXMLDictReader.h . . . 1727
11.243 gdcmXMLPrivateDictReader.h File Reference . . . 1728
11.244 gdcmXMLPrivateDictReader.h . . . 1729
11.245 gdcmAnonymizeEvent.h File Reference . . . 1729
11.246 gdcmAnonymizeEvent.h . . . 1731
11.247 gdcmAnonymizer.h File Reference . . . 1731
11.248 gdcmAnonymizer.h . . . 1732
11.249 gdcmApplicationEntity.h File Reference . . . 1733
11.250 gdcmApplicationEntity.h . . . 1734
11.251 gdcmAudioCodec.h File Reference . . . 1735
11.252 gdcmAudioCodec.h . . . 1736
11.253 gdcmBitmap.h File Reference . . . 1736
11.254 gdcmBitmap.h . . . 1737
11.255 gdcmBitmapToBitmapFilter.h File Reference . . . 1740

11.256 gdcmBitmapToBitmapFilter.h . . . 1740
11.257 gdcmCleaner.h File Reference . . . 1741
11.258 gdcmCleaner.h . . . 1742
11.259 gdcmCodec.h File Reference . . . 1743
11.260 gdcmCodec.h . . . 1744
11.261 gdcmCoder.h File Reference . . . 1744
11.262 gdcmCoder.h . . . 1745
11.263 gdcmConstCharWrapper.h File Reference . . . 1746
11.264 gdcmConstCharWrapper.h . . . 1746
11.265 gdcmCurve.h File Reference . . . 1747
11.266 gdcmCurve.h . . . 1748
11.267 gdcmDataSetHelper.h File Reference . . . 1749
11.268 gdcmDataSetHelper.h . . . 1749
11.269 gdcmDecoder.h File Reference . . . 1750
11.270 gdcmDecoder.h . . . 1751
11.271 gdcmDeltaEncodingCodec.h File Reference . . . 1752
11.272 gdcmDeltaEncodingCodec.h . . . 1752
11.273 gdcmDICOMDIR.h File Reference . . . 1753
11.274 gdcmDICOMDIR.h . . . 1754
11.275 gdcmDICOMDIRGenerator.h File Reference . . . 1754
11.276 gdcmDICOMDIRGenerator.h . . . 1755
11.277 gdcmDictPrinter.h File Reference . . . 1756
11.278 gdcmDictPrinter.h . . . 1757
11.279 gdcmDirectionCosines.h File Reference . . . 1757
11.280 gdcmDirectionCosines.h . . . 1758
11.281 gdcmDirectoryHelper.h File Reference . . . 1759
11.282 gdcmDirectoryHelper.h . . . 1759
11.283 gdcmDPath.h File Reference . . . 1760
11.284 gdcmDPath.h . . . 1761
11.285 gdcmDumper.h File Reference . . . 1762
11.286 gdcmDumper.h . . . 1763
11.287 gdcmEmptyMaskGenerator.h File Reference . . . 1763
11.288 gdcmEmptyMaskGenerator.h . . . 1764
11.289 gdcmEncapsulatedDocument.h File Reference . . . 1765
11.290 gdcmEncapsulatedDocument.h . . . 1765
11.291 gdcmEquipmentManufacturer.h File Reference . . . 1766
11.292 gdcmEquipmentManufacturer.h . . . 1766
11.293 gdcmFiducials.h File Reference . . . 1767
11.294 gdcmFiducials.h . . . 1768

11.295 gdcmFileAnonymizer.h File Reference . . . 1768
11.296 gdcmFileAnonymizer.h . . . 1769
11.297 gdcmFileChangeTransferSyntax.h File Reference . . . 1770
11.298 gdcmFileChangeTransferSyntax.h . . . 1771
11.299 gdcmFileDecompressLookupTable.h File Reference . . . 1772
11.300 gdcmFileDecompressLookupTable.h . . . 1772
11.301 gdcmFileDerivation.h File Reference . . . 1773
11.302 gdcmFileDerivation.h . . . 1774
11.303 gdcmFileExplicitFilter.h File Reference . . . 1775
11.304 gdcmFileExplicitFilter.h . . . 1775
11.305 gdcmFileStreamer.h File Reference . . . 1776
11.306 gdcmFileStreamer.h . . . 1777
11.307 gdcmIconImage.h File Reference . . . 1778
11.308 gdcmIconImage.h . . . 1779
11.309 gdcmIconImageFilter.h File Reference . . . 1780
11.310 gdcmIconImageFilter.h . . . 1780
11.311 gdcmIconImageGenerator.h File Reference . . . 1781
11.312 gdcmIconImageGenerator.h . . . 1782
11.313 gdcmImage.h File Reference . . . 1783
11.314 gdcmImage.h . . . 1784
11.315 gdcmImageApplyLookupTable.h File Reference . . . 1785
11.316 gdcmImageApplyLookupTable.h . . . 1785
11.317 gdcmImageChangePhotometricInterpretation.h File Reference . . . 1786
11.318 gdcmImageChangePhotometricInterpretation.h . . . 1787
11.319 gdcmImageChangePlanarConfiguration.h File Reference . . . 1788
11.320 gdcmImageChangePlanarConfiguration.h . . . 1789
11.321 gdcmImageChangeTransferSyntax.h File Reference . . . 1790
11.322 gdcmImageChangeTransferSyntax.h . . . 1791
11.323 gdcmImageCodec.h File Reference . . . 1791
11.324 gdcmImageCodec.h . . . 1792
11.325 gdcmImageConverter.h File Reference . . . 1795
11.326 gdcmImageConverter.h . . . 1795
11.327 gdcmImageFragmentSplitter.h File Reference . . . 1796
11.328 gdcmImageFragmentSplitter.h . . . 1797
11.329 gdcmImageHelper.h File Reference . . . 1797
11.330 gdcmImageHelper.h . . . 1798
11.331 gdcmImageReader.h File Reference . . . 1800
11.332 gdcmImageReader.h . . . 1801
11.333 gdcmImageRegionReader.h File Reference . . . 1801

11.334 gdcmImageRegionReader.h . . . 1802
11.335 gdcmImageToImageFilter.h File Reference . . . 1803
11.336 gdcmImageToImageFilter.h . . . 1804
11.337 gdcmImageWriter.h File Reference . . . 1804
11.338 gdcmImageWriter.h . . . 1805
11.339 gdcmIPPSorter.h File Reference . . . 1806
11.340 gdcmIPPSorter.h . . . 1807
11.341 gdcmJPEG12Codec.h File Reference . . . 1808
11.342 gdcmJPEG12Codec.h . . . 1808
11.343 gdcmJPEG16Codec.h File Reference . . . 1809
11.344 gdcmJPEG16Codec.h . . . 1810
11.345 gdcmJPEG2000Codec.h File Reference . . . 1811
11.346 gdcmJPEG2000Codec.h . . . 1811
11.347 gdcmJPEG8Codec.h File Reference . . . 1813
11.348 gdcmJPEG8Codec.h . . . 1813
11.349 gdcmJPEGCodec.h File Reference . . . 1814
11.350 gdcmJPEGCodec.h . . . 1815
11.351 gdcmJPEGLSCodec.h File Reference . . . 1817
11.352 gdcmJPEGLSCodec.h . . . 1817
11.353 gdcmJSON.h File Reference . . . 1818
11.354 gdcmJSON.h . . . 1819
11.355 gdcmKAKADUCodec.h File Reference . . . 1820
11.356 gdcmKAKADUCodec.h . . . 1821
11.357 gdcmLookupTable.h File Reference . . . 1821
11.358 gdcmLookupTable.h . . . 1822
11.359 gdcmMEC_MR3.h File Reference . . . 1824
11.360 gdcmMEC_MR3.h . . . 1824
11.361 gdcmMeshPrimitive.h File Reference . . . 1825
11.362 gdcmMeshPrimitive.h . . . 1826
11.363 gdcmOrientation.h File Reference . . . 1828
11.364 gdcmOrientation.h . . . 1828
11.365 gdcmOverlay.h File Reference . . . 1829
11.366 gdcmOverlay.h . . . 1830
11.367 gdcmPDFCodec.h File Reference . . . 1832
11.368 gdcmPDFCodec.h . . . 1832
11.369 gdcmPersonName.h File Reference . . . 1833
11.370 gdcmPersonName.h . . . 1834
11.371 gdcmPGXCodec.h File Reference . . . 1835
11.372 gdcmPGXCodec.h . . . 1835

11.373 gdcmPhotometricInterpretation.h File Reference . . . 1836
11.374 gdcmPhotometricInterpretation.h . . . 1837
11.375 gdcmPixelFormat.h File Reference . . . 1838
11.376 gdcmPixelFormat.h . . . 1840
11.377 gdcmPixmap.h File Reference . . . 1842
11.378 gdcmPixmap.h . . . 1843
11.379 gdcmPixmapReader.h File Reference . . . 1844
11.380 gdcmPixmapReader.h . . . 1846
11.381 gdcmPixmapToPixmapFilter.h File Reference . . . 1847
11.382 gdcmPixmapToPixmapFilter.h . . . 1847
11.383 gdcmPixmapWriter.h File Reference . . . 1848
11.384 gdcmPixmapWriter.h . . . 1849
11.385 gdcmPNMCodec.h File Reference . . . 1850
11.386 gdcmPNMCodec.h . . . 1851
11.387 gdcmPrinter.h File Reference . . . 1851
11.388 gdcmPrinter.h . . . 1853
11.389 gdcmPVRGCodec.h File Reference . . . 1854
11.390 gdcmPVRGCodec.h . . . 1855
11.391 gdcmRAWCodec.h File Reference . . . 1855
11.392 gdcmRAWCodec.h . . . 1856
11.393 gdcmRescaler.h File Reference . . . 1857
11.394 gdcmRescaler.h . . . 1857
11.395 gdcmRLECodec.h File Reference . . . 1859
11.396 gdcmRLECodec.h . . . 1859
11.397 gdcmScanner.h File Reference . . . 1860
11.398 gdcmScanner.h . . . 1861
11.399 gdcmScanner2.h File Reference . . . 1863
11.400 gdcmScanner2.h . . . 1864
11.401 gdcmSegment.h File Reference . . . 1866
11.402 gdcmSegment.h . . . 1868
11.403 gdcmSegmentedPaletteColorLookupTable.h File Reference . . . 1870
11.404 gdcmSegmentedPaletteColorLookupTable.h . . . 1870
11.405 gdcmSegmentHelper.h File Reference . . . 1871
11.406 gdcmSegmentHelper.h . . . 1872
11.407 gdcmSegmentReader.h File Reference . . . 1873
11.408 gdcmSegmentReader.h . . . 1875
11.409 gdcmSegmentWriter.h File Reference . . . 1875
11.410 gdcmSegmentWriter.h . . . 1877
11.411 gdcmSerieHelper.h File Reference . . . 1877

11.412 gdcmSerieHelper.h . . . 1879
11.413 gdcmSimpleSubjectWatcher.h File Reference . . . 1880
11.414 gdcmSimpleSubjectWatcher.h . . . 1881
11.415 gdcmSorter.h File Reference . . . 1882
11.416 gdcmSorter.h . . . 1884
11.417 gdcmSpacing.h File Reference . . . 1885
11.418 gdcmSpacing.h . . . 1885
11.419 gdcmSpectroscopy.h File Reference . . . 1886
11.420 gdcmSpectroscopy.h . . . 1887
11.421 gdcmSplitMosaicFilter.h File Reference . . . 1887
11.422 gdcmSplitMosaicFilter.h . . . 1888
11.423 gdcmStreamImageReader.h File Reference . . . 1889
11.424 gdcmStreamImageReader.h . . . 1890
11.425 gdcmStreamImageWriter.h File Reference . . . 1891
11.426 gdcmStreamImageWriter.h . . . 1892
11.427 gdcmStrictScanner.h File Reference . . . 1893
11.428 gdcmStrictScanner.h . . . 1894
11.429 gdcmStrictScanner2.h File Reference . . . 1895
11.430 gdcmStrictScanner2.h . . . 1896
11.431 gdcmStringFilter.h File Reference . . . 1898
11.432 gdcmStringFilter.h . . . 1899
11.433 gdcmSurface.h File Reference . . . 1900
11.434 gdcmSurface.h . . . 1901
11.435 gdcmSurfaceHelper.h File Reference . . . 1904
11.436 gdcmSurfaceHelper.h . . . 1905
11.437 gdcmSurfaceReader.h File Reference . . . 1907
11.438 gdcmSurfaceReader.h . . . 1908
11.439 gdcmSurfaceWriter.h File Reference . . . 1909
11.440 gdcmSurfaceWriter.h . . . 1910
11.441 gdcmTagPath.h File Reference . . . 1910
11.442 gdcmTagPath.h . . . 1911
11.443 gdcmUIDGenerator.h File Reference . . . 1912
11.444 gdcmUIDGenerator.h . . . 1913
11.445 gdcmUUIDGenerator.h File Reference . . . 1914
11.446 gdcmUUIDGenerator.h . . . 1914
11.447 gdcmValidate.h File Reference . . . 1915
11.448 gdcmValidate.h . . . 1915
11.449 gdcmWaveform.h File Reference . . . 1916
11.450 gdcmWaveform.h . . . 1917

11.451 gdcmXMLPrinter.h File Reference . . . 1917
11.452 gdcmXMLPrinter.h . . . 1918
11.453 gdcmAAbortPDU.h File Reference . . . 1920
11.454 gdcmAAbortPDU.h . . . 1920
11.455 gdcmAAssociateACPDU.h File Reference . . . 1921
11.456 gdcmAAssociateACPDU.h . . . 1922
11.457 gdcmAAssociateRJPDU.h File Reference . . . 1923
11.458 gdcmAAssociateRJPDU.h . . . 1924
11.459 gdcmAAssociateRQPDU.h File Reference . . . 1925
11.460 gdcmAAssociateRQPDU.h . . . 1925
11.461 gdcmAbstractSyntax.h File Reference . . . 1927
11.462 gdcmAbstractSyntax.h . . . 1928
11.463 gdcmApplicationContext.h File Reference . . . 1929
11.464 gdcmApplicationContext.h . . . 1930
11.465 gdcmAReleaseRPPDU.h File Reference . . . 1931
11.466 gdcmAReleaseRPPDU.h . . . 1932
11.467 gdcmAReleaseRQPDU.h File Reference . . . 1932
11.468 gdcmAReleaseRQPDU.h . . . 1933
11.469 gdcmARTIMTimer.h File Reference . . . 1934
11.470 gdcmARTIMTimer.h . . . 1935
11.471 gdcmAsynchronousOperationsWindowSub.h File Reference . . . 1936
11.472 gdcmAsynchronousOperationsWindowSub.h . . . 1936
11.473 gdcmBaseCompositeMessage.h File Reference . . . 1937
11.474 gdcmBaseCompositeMessage.h . . . 1938
11.475 gdcmBaseNormalizedMessage.h File Reference . . . 1939
11.476 gdcmBaseNormalizedMessage.h . . . 1939
11.477 gdcmBasePDU.h File Reference . . . 1940
11.478 gdcmBasePDU.h . . . 1941
11.479 gdcmBaseQuery.h File Reference . . . 1942
11.480 gdcmBaseQuery.h . . . 1943
11.481 gdcmBaseRootQuery.h File Reference . . . 1944
11.482 gdcmBaseRootQuery.h . . . 1945
11.483 gdcmCEchoMessages.h File Reference . . . 1946
11.484 gdcmCEchoMessages.h . . . 1947
11.485 gdcmCFindMessages.h File Reference . . . 1947
11.486 gdcmCFindMessages.h . . . 1948
11.487 gdcmCMoveMessages.h File Reference . . . 1949
11.488 gdcmCMoveMessages.h . . . 1950
11.489 gdcmCommandDataSet.h File Reference . . . 1950

11.490 gdcmCommandDataSet.h . . . 1951
11.491 gdcmCompositeMessageFactory.h File Reference . . . 1952
11.492 gdcmCompositeMessageFactory.h . . . 1953
11.493 gdcmCompositeNetworkFunctions.h File Reference . . . 1953
11.494 gdcmCompositeNetworkFunctions.h . . . 1954
11.495 gdcmCStoreMessages.h File Reference . . . 1955
11.496 gdcmCStoreMessages.h . . . 1956
11.497 gdcmDIMSE.h File Reference . . . 1957
11.498 gdcmDIMSE.h . . . 1957
11.499 gdcmFindPatientRootQuery.h File Reference . . . 1959
11.500 gdcmFindPatientRootQuery.h . . . 1960
11.501 gdcmFindStudyRootQuery.h File Reference . . . 1961
11.502 gdcmFindStudyRootQuery.h . . . 1961
11.503 gdcmImplementationClassUIDSub.h File Reference . . . 1962
11.504 gdcmImplementationClassUIDSub.h . . . 1963
11.505 gdcmImplementationUIDSub.h File Reference . . . 1964
11.506 gdcmImplementationUIDSub.h . . . 1964
11.507 gdcmImplementationVersionNameSub.h File Reference . . . 1965
11.508 gdcmImplementationVersionNameSub.h . . . 1966
11.509 gdcmMaximumLengthSub.h File Reference . . . 1967
11.510 gdcmMaximumLengthSub.h . . . 1968
11.511 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference . . . 1969
11.512 gdcmModalityPerformedProcedureStepCreateQuery.h . . . 1969
11.513 gdcmModalityPerformedProcedureStepSetQuery.h File Reference . . . 1970
11.514 gdcmModalityPerformedProcedureStepSetQuery.h . . . 1971
11.515 gdcmMovePatientRootQuery.h File Reference . . . 1971
11.516 gdcmMovePatientRootQuery.h . . . 1972
11.517 gdcmMoveStudyRootQuery.h File Reference . . . 1973
11.518 gdcmMoveStudyRootQuery.h . . . 1973
11.519 gdcmNActionMessages.h File Reference . . . 1974
11.520 gdcmNActionMessages.h . . . 1975
11.521 gdcmNCreateMessages.h File Reference . . . 1975
11.522 gdcmNCreateMessages.h . . . 1976
11.523 gdcmNDeleteMessages.h File Reference . . . 1977
11.524 gdcmNDeleteMessages.h . . . 1977
11.525 gdcmNetworkEvents.h File Reference . . . 1978
11.526 gdcmNetworkEvents.h . . . 1979
11.527 gdcmNetworkStateID.h File Reference . . . 1980
11.528 gdcmNetworkStateID.h . . . 1981

11.529 gdcmNEventReportMessages.h File Reference . . . 1982
11.530 gdcmNEventReportMessages.h . . . 1983
11.531 gdcmNGetMessages.h File Reference . . . 1983
11.532 gdcmNGetMessages.h . . . 1984
11.533 gdcmNormalizedMessageFactory.h File Reference . . . 1984
11.534 gdcmNormalizedMessageFactory.h . . . 1985
11.535 gdcmNormalizedNetworkFunctions.h File Reference . . . 1986
11.536 gdcmNormalizedNetworkFunctions.h . . . 1987
11.537 gdcmNSetMessages.h File Reference . . . 1988
11.538 gdcmNSetMessages.h . . . 1988
11.539 gdcmPDataTFPDU.h File Reference . . . 1989
11.540 gdcmPDataTFPDU.h . . . 1990
11.541 gdcmPDUFactory.h File Reference . . . 1991
11.542 gdcmPDUFactory.h . . . 1991
11.543 gdcmPresentationContext.h File Reference . . . 1992
11.544 gdcmPresentationContext.h . . . 1993
11.545 gdcmPresentationContextAC.h File Reference . . . 1994
11.546 gdcmPresentationContextAC.h . . . 1996
11.547 gdcmPresentationContextGenerator.h File Reference . . . 1996
11.548 gdcmPresentationContextGenerator.h . . . 1997
11.549 gdcmPresentationContextRQ.h File Reference . . . 1998
11.550 gdcmPresentationContextRQ.h . . . 1999
11.551 gdcmPresentationDataValue.h File Reference . . . 2000
11.552 gdcmPresentationDataValue.h . . . 2001
11.553 gdcmQueryBase.h File Reference . . . 2002
11.554 gdcmQueryBase.h . . . 2004
11.555 gdcmQueryFactory.h File Reference . . . 2005
11.556 gdcmQueryFactory.h . . . 2006
11.557 gdcmQueryImage.h File Reference . . . 2006
11.558 gdcmQueryImage.h . . . 2007
11.559 gdcmQueryPatient.h File Reference . . . 2008
11.560 gdcmQueryPatient.h . . . 2009
11.561 gdcmQuerySeries.h File Reference . . . 2010
11.562 gdcmQuerySeries.h . . . 2010
11.563 gdcmQueryStudy.h File Reference . . . 2011
11.564 gdcmQueryStudy.h . . . 2012
11.565 gdcmRoleSelectionSub.h File Reference . . . 2013
11.566 gdcmRoleSelectionSub.h . . . 2013
11.567 gdcmServiceClassApplicationInformation.h File Reference . . . 2014

11.568 gdcmServiceClassApplicationInformation.h . . . 2015
11.569 gdcmServiceClassUser.h File Reference . . . 2016
11.570 gdcmServiceClassUser.h . . . 2017
11.571 gdcmSOPClassExtendedNegociationSub.h File Reference . . . 2018
11.572 gdcmSOPClassExtendedNegociationSub.h . . . 2019
11.573 gdcmTransferSyntaxSub.h File Reference . . . 2019
11.574 gdcmTransferSyntaxSub.h . . . 2021
11.575 gdcmULAction.h File Reference . . . 2021
11.576 gdcmULAction.h . . . 2022
11.577 gdcmULActionAA.h File Reference . . . 2023
11.578 gdcmULActionAA.h . . . 2024
11.579 gdcmULActionAE.h File Reference . . . 2025
11.580 gdcmULActionAE.h . . . 2026
11.581 gdcmULActionAR.h File Reference . . . 2027
11.582 gdcmULActionAR.h . . . 2028
11.583 gdcmULActionDT.h File Reference . . . 2030
11.584 gdcmULActionDT.h . . . 2030
11.585 gdcmULBasicCallback.h File Reference . . . 2031
11.586 gdcmULBasicCallback.h . . . 2032
11.587 gdcmULConnection.h File Reference . . . 2032
11.588 gdcmULConnection.h . . . 2033
11.589 gdcmULConnectionCallback.h File Reference . . . 2035
11.590 gdcmULConnectionCallback.h . . . 2036
11.591 gdcmULConnectionInfo.h File Reference . . . 2036
11.592 gdcmULConnectionInfo.h . . . 2038
11.593 gdcmULConnectionManager.h File Reference . . . 2038
11.594 gdcmULConnectionManager.h . . . 2039
11.595 gdcmULEvent.h File Reference . . . 2041
11.596 gdcmULEvent.h . . . 2042
11.597 gdcmULTransitionTable.h File Reference . . . 2043
11.598 gdcmULTransitionTable.h . . . 2044
11.599 gdcmULWritingCallback.h File Reference . . . 2046
11.600 gdcmULWritingCallback.h . . . 2046
11.601 gdcmUserInformation.h File Reference . . . 2047
11.602 gdcmUserInformation.h . . . 2048
11.603 gdcmWLMFindQuery.h File Reference . . . 2049
11.604 gdcmWLMFindQuery.h . . . 2050
11.605 vtkGDCMImageReader.h File Reference . . . 2050
11.605.1 Macro Definition Documentation . . . 2051

11.605.1.1 VTK_CMYK . . . 2051
11.605.1.2 VTK_INVERSE_LUMINANCE . . . 2052
11.605.1.3 VTK_LOOKUP_TABLE . . . 2052
11.605.1.4 VTK_YBR . . . 2052
11.606 vtkGDCMImageReader.h . . . 2052
11.607 vtkGDCMImageReader2.h File Reference . . . 2056
11.607.1 Macro Definition Documentation . . . 2057
11.607.1.1 VTK_CMYK . . . 2057
11.607.1.2 VTK_INVERSE_LUMINANCE . . . 2057
11.607.1.3 VTK_LOOKUP_TABLE . . . 2057
11.607.1.4 VTK_YBR . . . 2057
11.608 vtkGDCMImageReader2.h . . . 2057
11.609 vtkGDCMImageWriter.h File Reference . . . 2061
11.610 vtkGDCMImageWriter.h . . . 2061
11.611 vtkGDCMMedicalImageProperties.h File Reference . . . 2064
11.612 vtkGDCMMedicalImageProperties.h . . . 2064
11.613 vtkGDCMPolyDataReader.h File Reference . . . 2069
11.614 vtkGDCMPolyDataReader.h . . . 2070
11.615 vtkGDCMPolyDataWriter.h File Reference . . . 2071
11.616 vtkGDCMPolyDataWriter.h . . . 2072
11.617 vtkGDCMTesting.h File Reference . . . 2073
11.618 vtkGDCMTesting.h . . . 2073
11.619 vtkGDCMThreadedImageReader.h File Reference . . . 2074
11.620 vtkGDCMThreadedImageReader.h . . . 2075
11.621 vtkGDCMThreadedImageReader2.h File Reference . . . 2076
11.622 vtkGDCMThreadedImageReader2.h . . . 2076
11.623 vtkImageColorViewer.h File Reference . . . 2078
11.624 vtkImageColorViewer.h . . . 2079
11.625 vtkImageMapToColors16.h File Reference . . . 2082
11.626 vtkImageMapToColors16.h . . . 2083
11.627 vtkImageMapToWindowLevelColors2.h File Reference . . . 2084
11.628 vtkImageMapToWindowLevelColors2.h . . . 2085
11.629 vtkImagePlanarComponentsToComponents.h File Reference . . . 2086
11.630 vtkImagePlanarComponentsToComponents.h . . . 2086
11.631 vtkImageRGBToYBR.h File Reference . . . 2088
11.632 vtkImageRGBToYBR.h . . . 2088
11.633 vtkImageYBRToRGB.h File Reference . . . 2089
11.634 vtkImageYBRToRGB.h . . . 2090
11.635 vtkLookupTable16.h File Reference . . . 2090

11.636 vtkLookupTable16.h . . . 2091
11.637 vtkRTStructSetProperties.h File Reference . . . 2092
11.638 vtkRTStructSetProperties.h . . . 2093
11.639 gdcmPythonFilter.h File Reference . . . 2094
11.640 gdcmPythonFilter.h . . . 2095

12 Examples **2097**

12.1 TestByteSwap.cxx . . . 2097
12.2 PatchFile.cxx . . . 2099
12.3 SimplePrint.cs . . . 2100
12.4 TestReader.cxx . . . 2101
12.5 TestReader.py . . . 2103
12.6 DecompressJPEGFile.cs . . . 2103
12.7 ManipulateFile.cs . . . 2104
12.8 ClinicalTrialIdentificationWorkflow.cs . . . 2105
12.9 GenerateDICOMDIR.cs . . . 2108
12.10 GenFakeImage.cxx . . . 2109
12.11 ReformatFile.cs . . . 2111
12.12 DecompressImage.cs . . . 2112
12.13 StandardizeFiles.cs . . . 2113
12.14 ScanDirectory.cs . . . 2115
12.15 BasicAnonymizer.cs . . . 2116
12.16 BasicImageAnonymizer.cs . . . 2117
12.17 Cleaner.cs . . . 2118
12.18 CompressLossyJPEG.cs . . . 2120
12.19 DecompressImageMultiframe.cs . . . 2121
12.20 DumpCSA.cs . . . 2123
12.21 ExtractEncapsulatedFile.cs . . . 2124
12.22 ExtractImageRegion.cs . . . 2125
12.23 ExtractImageRegionWithLUT.cs . . . 2126
12.24 ExtractOneFrame.cs . . . 2128
12.25 FileAnonymize.cs . . . 2129
12.26 FileChangeTS.cs . . . 2130
12.27 FileChangeTSLossy.cs . . . 2132
12.28 FileStreaming.cs . . . 2134
12.29 GetArray.cs . . . 2135
12.30 MpegVideoInfo.cs . . . 2136
12.31 NewSequence.cs . . . 2141
12.32 RescaleImage.cs . . . 2142

12.33 SendFileSCU.cs . . . 2143
12.34 SimplePrintPatientName.cs . . . 2143
12.35 SortImage2.cs . . . 2144
12.36 CStoreQtProgress.cxx . . . 2145
12.37 ChangePrivateTags.cxx . . . 2147
12.38 ChangeSequenceUltrasound.cxx . . . 2148
12.39 CheckBigEndianBug.cxx . . . 2149
12.40 ClinicalTrialAnnotate.cxx . . . 2151
12.41 CompressImage.cxx . . . 2152
12.42 ConvertToQImage.cxx . . . 2153
12.43 CreateARGBImage.cxx . . . 2155
12.44 CreateCMYKImage.cxx . . . 2156
12.45 CreateJPIPDataSet.cxx . . . 2157
12.46 DeriveSeries.cxx . . . 2158
12.47 DiffFile.cxx . . . 2159
12.48 DiscriminateVolume.cxx . . . 2160
12.49 DumpADAC.cxx . . . 2164
12.50 DumpExamCard.cxx . . . 2168
12.51 DumpGEMSMovieGroup.cxx . . . 2177
12.52 DumpImageHeaderInfo.cxx . . . 2183
12.53 DumpPhilipsECHO.cxx . . . 2185
12.54 DumpSiemensBase64.cxx . . . 2190
12.55 DumpToSQLITE3.cxx . . . 2191
12.56 DumpToshibaDTI.cxx . . . 2193
12.57 DumpToshibaDTI2.cxx . . . 2195
12.58 DumpVisusChange.cxx . . . 2196
12.59 DuplicatePCDE.cxx . . . 2198
12.60 ELSCINT1WaveToText.cxx . . . 2201
12.61 EmptyMask.cxx . . . 2203
12.62 EncapsulateFileInRawData.cxx . . . 2203
12.63 ExtractEncryptedContent.cxx . . . 2204
12.64 ExtractIconFromFile.cxx . . . 2205
12.65 Extracting_All_Resolution.cxx . . . 2207
12.66 Fake_Image_Using_Stream_Image_Writer.cxx . . . 2212
12.67 FixBrokenJ2K.cxx . . . 2215
12.68 FixJAIBugJPEGLS.cxx . . . 2217
12.69 FixOrientation.cxx . . . 2220
12.70 GenAllVR.cxx . . . 2221
12.71 GenFakeIdentifyFile.cxx . . . 2223

12.72 GenLongSeqs.cxx . . . 2226
12.73 GenSeqs.cxx . . . 2227
12.74 GenerateStandardSOPClasses.cxx . . . 2228
12.75 GetJPEGSamplePrecision.cxx . . . 2229
12.76 GetSequenceUltrasound.cxx . . . 2231
12.77 GetSubSequenceData.cxx . . . 2233
12.78 HelloVizWorld.cxx . . . 2235
12.79 HelloWorld.cxx . . . 2236
12.80 LargeVRDSExplicit.cxx . . . 2237
12.81 MakeTemplate.cxx . . . 2239
12.82 MergeTwoFiles.cxx . . . 2240
12.83 MrProtocol.cxx . . . 2242
12.84 PrintLUT.cxx . . . 2248
12.85 PublicDict.cxx . . . 2249
12.86 QIDO-RS.cxx . . . 2250
12.87 ReadAndDumpDICOMDIR.cxx . . . 2251
12.88 ReadAndDumpDICOMDIR2.cxx . . . 2253
12.89 ReadAndPrintAttributes.cxx . . . 2258
12.90 ReadExplicitLengthSQIVR.cxx . . . 2260
12.91 ReadGEMSSDO.cxx . . . 2261
12.92 ReadMultiTimesException.cxx . . . 2263
12.93 ReadUTF8QtDir.cxx . . . 2264
12.94 SimpleScanner.cxx . . . 2265
12.95 SortImage.cxx . . . 2267
12.96 StreamImageReaderTest.cxx . . . 2268
12.97 TemplateEmptyImage.cxx . . . 2272
12.98 TraverseModules.cxx . . . 2273
12.99 VolumeSorter.cxx . . . 2274
12.100 csa2img.cxx . . . 2277
12.101 iU22tomultisc.cxx . . . 2279
12.102 pmsct_rgb1.cxx . . . 2280
12.103 rle2img.cxx . . . 2284
12.104 uid_unique.cxx . . . 2286
12.105 DecompressImage.java . . . 2287
12.106 DecompressPixmap.java . . . 2288
12.107 ExtractImageRegion.java . . . 2289
12.108 FileAnonymize.java . . . 2290
12.109 HelloSimple.java . . . 2291
12.110 ReadFiles.java . . . 2291

12.111 ScanDirectory.java . . . 2293
12.112 SimplePrint.java . . . 2296
12.113 AddPrivateAttribute.py . . . 2297
12.114 ConvertMPL.py . . . 2298
12.115 ConvertNumpy.py . . . 2299
12.116 ConvertPIL.py . . . 2300
12.117 CreateRAWStorage.py . . . 2301
12.118 DecompressImage.py . . . 2303
12.119 DumbAnonymizer.py . . . 2304
12.120 ExtractImageRegion.py . . . 2305
12.121 FindAllPatientName.py . . . 2306
12.122 FixCommaBug.py . . . 2307
12.123 GetPortionCSAHeader.py . . . 2308
12.124 HelloWorld.py . . . 2308
12.125 ManipulateFile.py . . . 2309
12.126 ManipulateSequence.py . . . 2310
12.127 MergeFile.py . . . 2311
12.128 NewSequence.py . . . 2312
12.129 PhilipsPrivateRescaleInterceptSlope.py . . . 2313
12.130 PlaySound.py . . . 2313
12.131 PrivateDict.py . . . 2314
12.132 ReWriteSCAsMR.py . . . 2315
12.133 ReadAndDumpDICOMDIR.py . . . 2316
12.134 RemovePrivateTags.py . . . 2318
12.135 ScanDirectory.py . . . 2318
12.136 SortImage.py . . . 2319
12.137 WriteBuffer.py . . . 2320
12.138 HelloActiviz.cs . . . 2321
12.139 HelloActiviz2.cs . . . 2322
12.140 HelloActiviz3.cs . . . 2323
12.141 HelloActiviz4.cs . . . 2324
12.142 HelloActiviz5.cs . . . 2325
12.143 HelloVTKWorld.cs . . . 2326
12.144 HelloVTKWorld2.cs . . . 2327
12.145 MetaImageMD5Activiz.cs . . . 2327
12.146 RefCounting.cs . . . 2329
12.147 Compute3DSpacing.cxx . . . 2330
12.148 Convert16BitsTo8Bits.cxx . . . 2331
12.149 ConvertMultiFrameToSingleFrame.cxx . . . 2332

12.150 ConvertRGBToLuminance.cxx 2333
12.151 ConvertSingleBitTo8Bits.cxx 2334
12.152 CreateFakePET.cxx 2335
12.153 CreateFakeRTDOSE.cxx 2337
12.154 GenerateRTSTRUCT.cxx 2338
12.155 MagnifyFile.cxx 2341
12.156 gdcmorthoplanes.cxx 2342
12.157 gdcmreslice.cxx 2348
12.158 gdcmrtionplan.cxx 2350
12.159 gdcmrtplan.cxx 2354
12.160 gdcmscene.cxx 2358
12.161 gdcmtexture.cxx 2360
12.162 gdcmvolume.cxx 2362
12.163 offscreenimage.cxx 2363
12.164 reslicesphere.cxx 2364
12.165 rtstructapp.cxx 2372
12.166 threadgdcm.cxx 2374
12.167 AWTMedical3.java 2377
12.168 HelloVTKWorld.java 2381
12.169 MIPViewer.java 2383
12.170 MPRViewer.java 2385
12.171 MPRViewer2.java 2387
12.172 ReadSeriesIntoVTK.java 2391
12.173 CastConvertPhilips.py 2393
12.174 headsq2dcm.py 2395

Index **2397**

Chapter 1

GDCM Documentation

This is the developers documentation.

A PDF version of this doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.0/gdcm-3.0.24.pdf`

A tarball version of this HTML doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.0/gdcm-3.0.24-doc.tar.gz`

Author

Mathieu Malaterre

Chapter 2

Todo List

Class gdcm::CSAHeader

MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

Class gdcm::network::ApplicationContext

Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

Class gdcm::Overlay

Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Class gdcm::SequenceOfFragments

I do not enforce that Sequence of Fragments ends with a SQ end del

Class gdcm::TransferSyntax

: The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Member gdcm::UIDGenerator::IsValid (const char *uid)

: Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

Chapter 3

Deprecated List

Member gdcm::CompositeNetworkFunctions::ConstructQuery (ERootType inRootType, EQueryLevel in↩ QueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)

Member gdcm::FileSet::AddFile (File const &)

. Does nothing

Member gdcm::TransferSyntax::GetSwapCode () const

Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

Chapter 4

Bug List

Class gdcm::DICOMDIRGenerator

: There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Member gdcm::FileStreamer::StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_↩ t startoffset=0)

maxsizede should be a value lower than the actual total size of the buffer to be copied

Class gdcm::IPPSorter

There are currently a couple of bugs in this implementation:

Chapter 5

Namespace Index

5.1 Namespace List

Here is a list of all namespaces with brief descriptions:

gdcm 43
gdcm::network 75
gdcm::SegmentHelper 81
gdcm::terminal
Class for Terminal 81

Chapter 6

Hierarchical Index

6.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

gdcm::network::AbstractSyntax . . . 100
gdcm::network::ApplicationContext . . . 116
gdcm::ApplicationEntity . . . 118
gdcm::network::ARTIMTimer . . . 125
gdcm::ASN1 . . . 126
gdcm::network::AsynchronousOperationsWindowSub . . . 128
gdcm::Attribute< Group, Element, TVR, TVM > . . . 130
gdcm::Attribute< Group, Element, TVR, VM::VM1 > . . . 138
gdcm::Attribute< Group, Element, TVR, VM::VM1_n > . . . 148
  gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > . . . 144
  gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > . . . 146
  gdcm::Attribute< Group, Element, TVR, VM::VM2_n > . . . 156
    gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > . . . 153
  gdcm::Attribute< Group, Element, TVR, VM::VM3_n > . . . 161
    gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > . . . 158
gdcm::Base64 . . . 166
gdcm::network::BaseCompositeMessage . . . 169
  gdcm::network::CEchoRQ . . . 231
  gdcm::network::CEchoRSP . . . 233
  gdcm::network::CFindCancelRQ . . . 234
  gdcm::network::CFindRQ . . . 236
  gdcm::network::CFindRSP . . . 237
  gdcm::network::CMoveCancelRq . . . 246
  gdcm::network::CMoveRQ . . . 247
  gdcm::network::CMoveRSP . . . 248
  gdcm::network::CStoreRQ . . . 300
  gdcm::network::CStoreRSP . . . 301
gdcm::network::BaseNormalizedMessage . . . 170
  gdcm::network::NActionRQ . . . 737
  gdcm::network::NActionRSP . . . 738

gdcm::network::NCreateRQ . . . 740
gdcm::network::NCreateRSP . . . 741
gdcm::network::NDeleteRQ . . . 743
gdcm::network::NDeleteRSP . . . 744
gdcm::network::NEventReportRQ . . . 749
gdcm::network::NEventReportRSP . . . 751
gdcm::network::NGetRQ . . . 752
gdcm::network::NGetRSP . . . 754
gdcm::network::NSetRQ . . . 760
gdcm::network::NSetRSP . . . 761
gdcm::network::BasePDU . . . 173
gdcm::network::AAbortPDU . . . 85
gdcm::network::AAssociateACPDU . . . 88
gdcm::network::AAssociateRJPDU . . . 92
gdcm::network::AAssociateRQPDU . . . 94
gdcm::network::AReleaseRPPDU . . . 120
gdcm::network::AReleaseRQPDU . . . 123
gdcm::network::PDataTFPDU . . . 795
std::basic_string< Char >
std::string
gdcm::String< TDelimiter, TMaxLength, TPadChar > . . . 1067
gdcm::SegmentHelper::BasicCodedEntry . . . 185
gdcm::BitmapToBitmapFilter . . . 206
gdcm::PixmapToPixmapFilter . . . 839
gdcm::ImageToImageFilter . . . 587
gdcm::ImageApplyLookupTable . . . 536
gdcm::ImageChangePhotometricInterpretation . . . 539
gdcm::ImageChangePlanarConfiguration . . . 543
gdcm::ImageChangeTransferSyntax . . . 548
gdcm::ImageFragmentSplitter . . . 567
gdcm::ByteBuffer . . . 213
gdcm::ByteSwap< T > . . . 214
gdcm::ByteSwapFilter . . . 216
gdcm::network::CFind . . . 234
gdcm::Coder . . . 251
gdcm::Codec . . . 250
gdcm::AudioCodec . . . 163
gdcm::ImageCodec . . . 554
gdcm::DeltaEncodingCodec . . . 348
gdcm::JPEG2000Codec . . . 633
gdcm::JPEGCodec . . . 646
gdcm::JPEG12Codec . . . 623
gdcm::JPEG16Codec . . . 628
gdcm::JPEG8Codec . . . 641
gdcm::JPEGLSCodec . . . 655
gdcm::KAKADUCodec . . . 664
gdcm::PGXCodec . . . 812
gdcm::PNMCodec . . . 847
gdcm::PVRGCodec . . . 886
gdcm::RAWCodec . . . 906
gdcm::RLECodec . . . 926
gdcm::PDFCodec . . . 803
gdcm::CodeString . . . 253

gdcm::network::CompositeMessageFactory . . . 264
gdcm::CompositeNetworkFunctions . . . 266
gdcm::ConstCharWrapper . . . 271
gdcm::CryptoFactory . . . 275
  gdcm::CAPICryptoFactory . . . 226
  gdcm::OpenSSLCryptoFactory . . . 766
  gdcm::OpenSSLP7CryptoFactory . . . 771
gdcm::CryptographicMessageSyntax . . . 278
  gdcm::CAPICryptographicMessageSyntax . . . 227
  gdcm::OpenSSLCryptographicMessageSyntax . . . 768
  gdcm::OpenSSLP7CryptographicMessageSyntax . . . 773
gdcm::CSAElement . . . 281
gdcm::CSAHeader . . . 288
gdcm::CSAHeaderDict . . . 293
gdcm::CSAHeaderDictEntry . . . 296
gdcm::DataElement . . . 308
  gdcm::CP246ExplicitDataElement . . . 272
  gdcm::ExplicitDataElement . . . 439
  gdcm::ExplicitImplicitDataElement . . . 443
  gdcm::Fragment . . . 510
    gdcm::BasicOffsetTable . . . 188
  gdcm::ImplicitDataElement . . . 598
  gdcm::Item . . . 616
  gdcm::UNExplicitDataElement . . . 1262
  gdcm::UNExplicitImplicitDataElement . . . 1265
  gdcm::VR16ExplicitDataElement . . . 1301
gdcm::DataSet . . . 325
  gdcm::CommandDataSet . . . 260
  gdcm::FileMetaInformation . . . 471
gdcm::DataSetHelper . . . 340
gdcm::Decoder . . . 341
  gdcm::Codec . . . 250
gdcm::DefinedTerms . . . 343
gdcm::Defs . . . 344
gdcm::DICOMDIR . . . 351
gdcm::DICOMDIRGenerator . . . 352
gdcm::Dict . . . 356
gdcm::DictConverter . . . 360
gdcm::DictEntry . . . 364
gdcm::Dicts . . . 371
gdcm::network::DIMSE . . . 375
gdcm::DirectionCosines . . . 376
gdcm::Directory . . . 380
gdcm::DirectoryHelper . . . 383
gdcm::DPath . . . 385
gdcm::DummyValueGenerator . . . 388
gdcm::Element< TVR, TVM > . . . 391
gdcm::Element< TVR, VM::VM1_n > . . . 399
  gdcm::Element< TVR, VM::VM1_2 > . . . 397
  gdcm::Element< TVR, VM::VM2_n > . . . 406
    gdcm::Element< TVR, VM::VM2_2n > . . . 404
  gdcm::Element< TVR, VM::VM3_4 > . . . 411

gdcm::Element< TVR, VM::VM3_n > . . . 413
gdcm::Element< TVR, VM::VM3_3n > . . . 408
gdcm::Element< VR::AS, VM::VM5 > . . . 416
gdcm::Element< VR::OB, VM::VM1_n > . . . 391
gdcm::Element< VR::OB, VM::VM1 > . . . 417
gdcm::Element< VR::OW, VM::VM1_n > . . . 391
gdcm::Element< VR::OW, VM::VM1 > . . . 419
gdcm::ElementDisableCombinations< TVR, TVM > . . . 421
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > . . . 422
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > . . . 422
gdcm::EmptyMaskGenerator . . . 422
gdcm::EncapsulatedDocument . . . 425
gdcm::EncodingImplementation< T > . . . 425
gdcm::EncodingImplementation< VR::VRASCII > . . . 426
gdcm::EncodingImplementation< VR::VRBINARY > . . . 427
gdcm::EnumeratedValues . . . 430
gdcm::EquipmentManufacturer . . . 431
gdcm::Event . . . 432
gdcm::AnyEvent . . . 115
gdcm::AbortEvent . . . 99
gdcm::AnonymizeEvent . . . 103
gdcm::DataEvent . . . 321
gdcm::DataSetEvent . . . 337
gdcm::EndEvent . . . 429
gdcm::ExitEvent . . . 438
gdcm::FileNameEvent . . . 484
gdcm::InitializeEvent . . . 602
gdcm::IterationEvent . . . 622
gdcm::ModifiedEvent . . . 717
gdcm::ProgressEvent . . . 883
gdcm::StartEvent . . . 1035
gdcm::UserEvent . . . 1273
gdcm::NoEvent . . . 755
std::exception
gdcm::CSAHeaderDictException . . . 299
gdcm::DataElementException . . . 321
gdcm::Exception . . . 435
gdcm::ParseException . . . 788
gdcm::Fiducials . . . 447
gdcm::FileDerivation . . . 464
gdcm::FileExplicitFilter . . . 468
gdcm::Filename . . . 481
gdcm::FilenameGenerator . . . 487
gdcm::FileSet . . . 491
gdcm::Global . . . 514
gdcm::GroupDict . . . 518
gdcm::IconImageFilter . . . 520
gdcm::IconImageGenerator . . . 523
gdcm::ignore_char . . . 526
gdcm::ImageConverter . . . 566
gdcm::ImageHelper . . . 570
gdcm::network::ImplementationClassUIDSub . . . 594
gdcm::network::ImplementationUIDSub . . . 596

gdcm::network::ImplementationVersionNameSub . . . 596
gdcm::IOD . . . 603
gdcm::IODEntry . . . 606
gdcm::IODs . . . 608
gdcm::JSON . . . 662
gdcm::Scanner2::ltstr . . . 679
gdcm::Scanner::ltstr . . . 680
gdcm::StrictScanner2::ltstr . . . 680
gdcm::StrictScanner::ltstr . . . 681
gdcm::Macro . . . 681
gdcm::Macros . . . 684
gdcm::network::MaximumLengthSub . . . 686
gdcm::MD5 . . . 687
gdcm::MEC_MR3 . . . 688
gdcm::MediaStorage . . . 689
gdcm::Module . . . 718
gdcm::ModuleEntry . . . 721
gdcm::NestedModuleEntries . . . 746
gdcm::Modules . . . 725
gdcm::MrProtocol . . . 735
gdcm::network::NormalizedMessageFactory . . . 756
gdcm::NormalizedNetworkFunctions . . . 757
gdcm::Object . . . 763
gdcm::BaseQuery . . . 175
gdcm::BaseRootQuery . . . 180
gdcm::FindPatientRootQuery . . . 502
gdcm::FindStudyRootQuery . . . 506
gdcm::MovePatientRootQuery . . . 727
gdcm::MoveStudyRootQuery . . . 731
gdcm::WLMFindQuery . . . 1406
gdcm::ModalityPerformedProcedureStepCreateQuery . . . 710
gdcm::ModalityPerformedProcedureStepSetQuery . . . 713
gdcm::Bitmap . . . 192
gdcm::Pixmap . . . 828
gdcm::Image . . . 527
gdcm::Curve . . . 303
gdcm::File . . . 448
gdcm::FileWithName . . . 499
gdcm::LookupTable . . . 671
gdcm::SegmentedPaletteColorLookupTable . . . 963
gdcm::MeshPrimitive . . . 705
gdcm::Overlay . . . 779
gdcm::Segment . . . 954
gdcm::Subject . . . 1077
gdcm::Anonymizer . . . 106
gdcm::Cleaner . . . 239
gdcm::Command . . . 257
gdcm::MemberCommand< T > . . . 699
gdcm::SimpleMemberCommand< T > . . . 1007
gdcm::FileAnonymizer . . . 453
gdcm::FileChangeTransferSyntax . . . 457
gdcm::FileDecompressLookupTable . . . 461
gdcm::FileStreamer . . . 493

gdcm::Scanner . . . 934
gdcm::Scanner2 . . . 943
gdcm::ServiceClassUser . . . 997
gdcm::StrictScanner . . . 1048
gdcm::StrictScanner2 . . . 1057
gdcm::network::ULConnectionManager . . . 1249
gdcm::Surface . . . 1081
gdcm::Value . . . 1279
gdcm::ByteValue . . . 218
gdcm::SequenceOfFragments . . . 974
gdcm::SequenceOfItems . . . 982
gdcm::Orientation . . . 776
gdcm::Parser . . . 790
gdcm::Patient . . . 794
gdcm::PDBElement . . . 798
gdcm::PDBHeader . . . 800
gdcm::network::PDUFactory . . . 806
gdcm::PersonName . . . 809
gdcm::PhotometricInterpretation . . . 816
gdcm::PixelFormat . . . 820
gdcm::Preamble . . . 852
gdcm::PresentationContext . . . 855
gdcm::network::PresentationContextAC . . . 859
gdcm::PresentationContextGenerator . . . 861
gdcm::network::PresentationContextRQ . . . 864
gdcm::network::PresentationDataValue . . . 867
gdcm::Printer . . . 871
gdcm::DictPrinter . . . 368
gdcm::Dumper . . . 389
gdcm::PrivateDict . . . 875
gdcm::PythonFilter . . . 890
gdcm::QueryBase . . . 892
gdcm::QueryImage . . . 896
gdcm::QueryPatient . . . 899
gdcm::QuerySeries . . . 901
gdcm::QueryStudy . . . 904
gdcm::QueryFactory . . . 895
gdcm::Reader . . . 911
gdcm::PixmapReader . . . 835
gdcm::ImageReader . . . 577
gdcm::ImageRegionReader . . . 582
gdcm::SegmentReader . . . 966
gdcm::SurfaceReader . . . 1096
gdcm::RealWorldValueMappingContent . . . 918
gdcm::Region . . . 919
gdcm::BoxRegion . . . 208
gdcm::Rescaler . . . 921
gdcm::network::RoleSelectionSub . . . 933
gdcm::SerieHelper . . . 990
gdcm::Series . . . 995
gdcm::network::ServiceClassApplicationInformation . . . 996
gdcm::SHA1 . . . 1005
gdcm::SimpleSubjectWatcher . . . 1012

gdcm::MrProtocol::Slice . . . 1015
gdcm::MrProtocol::SliceArray . . . 1016
gdcm::SmartPointer< ObjectType > . . . 1017
gdcm::SmartPointer< gdcm::Bitmap > . . . 1017
gdcm::SmartPointer< gdcm::File > . . . 1017
gdcm::SmartPointer< gdcm::Image > . . . 1017
gdcm::SmartPointer< gdcm::MemberCommand > . . . 1017
gdcm::SmartPointer< gdcm::MeshPrimitive > . . . 1017
gdcm::SmartPointer< gdcm::Pixmap > . . . 1017
gdcm::SmartPointer< gdcm::SimpleMemberCommand > . . . 1017
gdcm::SmartPointer< gdcm::Subject > . . . 1017
gdcm::SmartPointer< LookupTable > . . . 1017
gdcm::SmartPointer< Segment > . . . 1017
gdcm::SmartPointer< Surface > . . . 1017
gdcm::SmartPointer< Value > . . . 1017
gdcm::network::SOPClassExtendedNegociationSub . . . 1021
gdcm::SOPClassUIDToIOD . . . 1022
gdcm::Sorter . . . 1024
gdcm::IPPSorter . . . 611
gdcm::Spacing . . . 1029
gdcm::Spectroscopy . . . 1031
gdcm::SplitMosaicFilter . . . 1032
gdcm::static_assert_test< x > . . . 1036
gdcm::STATIC_ASSERTION_FAILURE< x > . . . 1037
gdcm::STATIC_ASSERTION_FAILURE< true > . . . 1037
gdcm::StreamImageReader . . . 1037
gdcm::StreamImageWriter . . . 1041
String<'\', 64 >
gdcm::LO . . . 668
gdcm::StringFilter . . . 1072
gdcm::Study . . . 1076
gdcm::SurfaceHelper . . . 1093
gdcm::SwapCode . . . 1104
gdcm::SwapperDoOp . . . 1106
gdcm::SwapperNoOp . . . 1107
gdcm::System . . . 1107
gdcm::Table . . . 1114
gdcm::TableEntry . . . 1117
gdcm::TableReader . . . 1118
gdcm::XMLDictReader . . . 1417
gdcm::XMLPrivateDictReader . . . 1423
gdcm::network::TableRow . . . 1122
gdcm::Tag . . . 1123
gdcm::PrivateTag . . . 877
gdcm::TagPath . . . 1132
gdcm::Testing . . . 1134
gdcm::Trace . . . 1141
gdcm::TransferSyntax . . . 1146
gdcm::network::TransferSyntaxSub . . . 1152
gdcm::network::Transition . . . 1154
gdcm::Type . . . 1156
gdcm::UI . . . 1158
gdcm::UIDGenerator . . . 1158

gdcm::UIDs . . . 1161
gdcm::network::ULAction . . . 1197
gdcm::network::ULActionAA1 . . . 1200
gdcm::network::ULActionAA2 . . . 1202
gdcm::network::ULActionAA3 . . . 1203
gdcm::network::ULActionAA4 . . . 1204
gdcm::network::ULActionAA5 . . . 1206
gdcm::network::ULActionAA6 . . . 1207
gdcm::network::ULActionAA7 . . . 1208
gdcm::network::ULActionAA8 . . . 1210
gdcm::network::ULActionAE1 . . . 1211
gdcm::network::ULActionAE2 . . . 1212
gdcm::network::ULActionAE3 . . . 1214
gdcm::network::ULActionAE4 . . . 1215
gdcm::network::ULActionAE5 . . . 1216
gdcm::network::ULActionAE6 . . . 1218
gdcm::network::ULActionAE7 . . . 1219
gdcm::network::ULActionAE8 . . . 1220
gdcm::network::ULActionAR1 . . . 1222
gdcm::network::ULActionAR10 . . . 1223
gdcm::network::ULActionAR2 . . . 1224
gdcm::network::ULActionAR3 . . . 1226
gdcm::network::ULActionAR4 . . . 1227
gdcm::network::ULActionAR5 . . . 1228
gdcm::network::ULActionAR6 . . . 1230
gdcm::network::ULActionAR7 . . . 1231
gdcm::network::ULActionAR8 . . . 1232
gdcm::network::ULActionAR9 . . . 1234
gdcm::network::ULActionDT1 . . . 1235
gdcm::network::ULActionDT2 . . . 1236
gdcm::network::ULConnection . . . 1240
gdcm::network::ULConnectionCallback . . . 1245
gdcm::network::ULBasicCallback . . . 1238
gdcm::network::ULWritingCallback . . . 1259
gdcm::network::ULConnectionInfo . . . 1247
gdcm::network::ULEvent . . . 1256
gdcm::network::ULTransitionTable . . . 1258
gdcm::Unpacker12Bits . . . 1269
gdcm::Usage . . . 1270
gdcm::network::UserInformation . . . 1274
gdcm::UUIDGenerator . . . 1276
gdcm::Validate . . . 1277
gdcm::ValueIO< TDE, TSwap, TType > . . . 1282
gdcm::MrProtocol::Vector3 . . . 1283
gdcm::Version . . . 1284
gdcm::VL . . . 1285
gdcm::VM . . . 1289
gdcm::VMToLength< T > . . . 1294
gdcm::VR . . . 1294
gdcm::VRToEncoding< T > . . . 1304
gdcm::VRToType< T > . . . 1305
gdcm::VRToType< TagToType< Group, Element >::VRType > . . . 1305
gdcm::VRToType< TVR > . . . 1305
gdcm::VRVLSize< T > . . . 1305

gdcm::VRVLSize< 0 > 1305
gdcm::VRVLSize< 1 > 1306
vtkImageAlgorithm
  vtkImagePlanarComponentsToComponents 1387
vtkImageMapToColors
  vtkImageMapToWindowLevelColors2 1384
vtkImageWriter
  vtkGDCMImageWriter 1332
vtkLookupTable
  vtkLookupTable16 1393
vtkMedicalImageProperties
  vtkGDCMMedicalImageProperties 1340
vtkMedicalImageReader2
  vtkGDCMImageReader 1307
    vtkGDCMThreadedImageReader 1354
  vtkGDCMImageReader2 1320
vtkObject
  vtkGDCMTesting 1351
  vtkImageColorViewer 1366
  vtkRTStructSetProperties 1396
vtkPolyDataAlgorithm
  vtkGDCMPolyDataReader 1343
vtkPolyDataWriter
  vtkGDCMPolyDataWriter 1347
vtkThreadedImageAlgorithm
  vtkGDCMThreadedImageReader2 1359
  vtkImageMapToColors16 1378
  vtkImageRGBToYBR 1389
  vtkImageYBRToRGB 1391
gdcm::Waveform 1406
gdcm::Writer 1411
  gdcm::PixmapWriter 842
    gdcm::ImageWriter 590
  gdcm::SegmentWriter 970
    gdcm::SurfaceWriter 1100
gdcm::XMLPrinter 1420

Chapter 7

Class Index

7.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

gdcm::network::AAbortPDU
AAbortPDU 85
gdcm::network::AAssociateACPDU
AAssociateACPDU 88
gdcm::network::AAssociateRJPDU
AAssociateRJPDU 92
gdcm::network::AAssociateRQPDU
AAssociateRQPDU 94
gdcm::AbortEvent 99
gdcm::network::AbstractSyntax
AbstractSyntax 100
gdcm::AnonymizeEvent
AnonymizeEvent 103
gdcm::Anonymizer
Anonymizer 106
gdcm::AnyEvent 115
gdcm::network::ApplicationContext
ApplicationContext 116
gdcm::ApplicationEntity
ApplicationEntity 118
gdcm::network::AReleaseRPPDU
AReleaseRPPDU 120
gdcm::network::AReleaseRQPDU
AReleaseRQPDU 123
gdcm::network::ARTIMTimer
ARTIMTimer 125
gdcm::ASN1
Class for ASN1 126
gdcm::network::AsynchronousOperationsWindowSub
AsynchronousOperationsWindowSub 128

gdcm::Attribute< Group, Element, TVR, TVM >
Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary . . . 130
gdcm::Attribute< Group, Element, TVR, VM::VM1 > . . . 138
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > . . . 144
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > . . . 146
gdcm::Attribute< Group, Element, TVR, VM::VM1_n > . . . 148
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > . . . 153
gdcm::Attribute< Group, Element, TVR, VM::VM2_n > . . . 156
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > . . . 158
gdcm::Attribute< Group, Element, TVR, VM::VM3_n > . . . 161
gdcm::AudioCodec
AudioCodec . . . 163
gdcm::Base64
Class for Base64 . . . 166
gdcm::network::BaseCompositeMessage
BaseCompositeMessage . . . 169
gdcm::network::BaseNormalizedMessage
BaseNormalizedMessage . . . 170
gdcm::network::BasePDU
BasePDU . . . 173
gdcm::BaseQuery
BaseQuery . . . 175
gdcm::BaseRootQuery
BaseRootQuery . . . 180
gdcm::SegmentHelper::BasicCodedEntry
This structure defines a basic coded entry with all of its attributes . . . 185
gdcm::BasicOffsetTable
Class to represent a BasicOffsetTable . . . 188
gdcm::Bitmap
Bitmap class . . . 192
gdcm::BitmapToBitmapFilter
BitmapToBitmapFilter class . . . 206
gdcm::BoxRegion
Class for manipulation box region . . . 208
gdcm::ByteBuffer
ByteBuffer . . . 213
gdcm::ByteSwap< T >
ByteSwap . . . 214
gdcm::ByteSwapFilter
ByteSwapFilter . . . 216
gdcm::ByteValue
Class to represent binary value (array of bytes) . . . 218
gdcm::CAPICryptoFactory . . . 226
gdcm::CAPICryptographicMessageSyntax . . . 227
gdcm::network::CEchoRQ
CEchoRQ . . . 231
gdcm::network::CEchoRSP
CEchoRSP this file defines the messages for the cecho action . . . 233
gdcm::network::CFind . . . 234
gdcm::network::CFindCancelRQ
CFindCancelRQ this file defines the messages for the cfind action . . . 234
gdcm::network::CFindRQ
CFindRQ . . . 236

gdcm::network::CFindRSP
CFindRSP this file defines the messages for the cfind action . . . 237
gdcm::Cleaner
Cleaner . . . 239
gdcm::network::CMoveCancelRq . . . 246
gdcm::network::CMoveRQ
CMoveRQ . . . 247
gdcm::network::CMoveRSP
CMoveRSP this file defines the messages for the cmove action . . . 248
gdcm::Codec
Codec class . . . 250
gdcm::Coder
Coder . . . 251
gdcm::CodeString
CodeString . . . 253
gdcm::Command
Command superclass for callback/observer methods . . . 257
gdcm::CommandDataSet
Class to represent a Command DataSet . . . 260
gdcm::network::CompositeMessageFactory
CompositeMessageFactory . . . 264
gdcm::CompositeNetworkFunctions
Composite Network Functions . . . 266
gdcm::ConstCharWrapper
Do not use me . . . 271
gdcm::CP246ExplicitDataElement
Class to read/write a DataElement as CP246Explicit Data Element . . . 272
gdcm::CryptoFactory
Class to do handle the crypto factory . . . 275
gdcm::CryptographicMessageSyntax . . . 278
gdcm::CSAElement
Class to represent a CSA Element . . . 281
gdcm::CSAHeader
Class for CSAHeader . . . 288
gdcm::CSAHeaderDict
Class to represent a map of CSAHeaderDictEntry . . . 293
gdcm::CSAHeaderDictEntry
Class to represent an Entry in the Dict . . . 296
gdcm::CSAHeaderDictException . . . 299
gdcm::network::CStoreRQ
CStoreRQ . . . 300
gdcm::network::CStoreRSP
CStoreRSP this file defines the messages for the cecho action . . . 301
gdcm::Curve
Curve class to handle element 50xx,3000 Curve Data . . . 303
gdcm::DataElement
Class to represent a Data Element either Implicit or Explicit . . . 308
gdcm::DataElementException . . . 321
gdcm::DataEvent
DataEvent . . . 321
gdcm::DataSet
Class to represent a Data Set (which contains Data Elements) . . . 325
gdcm::DataSetEvent
DataSetEvent . . . 337

gdcm::DataSetHelper
DataSetHelper (internal class, not intended for user level) . . . 340
gdcm::Decoder
Decoder . . . 341
gdcm::DefinedTerms
Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor . . . 343
gdcm::Defs
FIXME I do not like the name 'Defs' . . . 344
gdcm::DeltaEncodingCodec
DeltaEncodingCodec compression used by some private vendor . . . 348
gdcm::DICOMDIR
DICOMDIR class . . . 351
gdcm::DICOMDIRGenerator
DICOMDIRGenerator class . . . 352
gdcm::Dict
Class to represent a map of DictEntry . . . 356
gdcm::DictConverter
Class to convert a .dic file into something else: . . . 360
gdcm::DictEntry
Class to represent an Entry in the Dict . . . 364
gdcm::DictPrinter
DictPrinter class . . . 368
gdcm::Dicts
Class to manipulate the sum of knowledge (all the dict user load) . . . 371
gdcm::network::DIMSE
DIMSE . . . 375
gdcm::DirectionCosines
Class to handle DirectionCosines . . . 376
gdcm::Directory
Class for manipulation directories . . . 380
gdcm::DirectoryHelper
DirectoryHelper . . . 383
gdcm::DPath
Class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.↩google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA` . . . 385
gdcm::DummyValueGenerator
Class for generating dummy value . . . 388
gdcm::Dumper
Codec class . . . 389
gdcm::Element< TVR, TVM >
Element class . . . 391
gdcm::Element< TVR, VM::VM1_2 > . . . 397
gdcm::Element< TVR, VM::VM1_n > . . . 399
gdcm::Element< TVR, VM::VM2_2n > . . . 404
gdcm::Element< TVR, VM::VM2_n > . . . 406

gdcm::Element< TVR, VM::VM3_3n > . . . 408
gdcm::Element< TVR, VM::VM3_4 > . . . 411
gdcm::Element< TVR, VM::VM3_n > . . . 413
gdcm::Element< VR::AS, VM::VM5 > . . . 416
gdcm::Element< VR::OB, VM::VM1 > . . . 417
gdcm::Element< VR::OW, VM::VM1 > . . . 419
gdcm::ElementDisableCombinations< TVR, TVM >
A class which is used to produce compile errors for an invalid combination of template parameters . 421
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > . . . 422
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > . . . 422
gdcm::EmptyMaskGenerator
EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory . . . 422
gdcm::EncapsulatedDocument
EncapsulatedDocument . . . 425
gdcm::EncodingImplementation< T >
EncodingImplementation . . . 425
gdcm::EncodingImplementation< VR::VRASCII > . . . 426
gdcm::EncodingImplementation< VR::VRBINARY > . . . 427
gdcm::EndEvent . . . 429
gdcm::EnumeratedValues
Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note: . . . 430
gdcm::EquipmentManufacturer . . . 431
gdcm::Event
Superclass for callback/observer methods . . . 432
gdcm::Exception
Exception . . . 435
gdcm::ExitEvent . . . 438
gdcm::ExplicitDataElement
Class to read/write a DataElement as Explicit Data Element . . . 439
gdcm::ExplicitImplicitDataElement
Class to read/write a DataElement as ExplicitImplicit Data Element . . . 443
gdcm::Fiducials
Fiducials . . . 447
gdcm::File
DICOM File . . . 448
gdcm::FileAnonymizer
FileAnonymizer . . . 453
gdcm::FileChangeTransferSyntax
FileChangeTransferSyntax . . . 457
gdcm::FileDecompressLookupTable
FileDecompressLookupTable class . . . 461
gdcm::FileDerivation
FileDerivation class . . . 464
gdcm::FileExplicitFilter
FileExplicitFilter class . . . 468
gdcm::FileMetaInformation
Class to represent a File Meta Information . . . 471
gdcm::Filename
Class to manipulate file name's . . . 481

gdcm::FileNameEvent
FileNameEvent . . . 484
gdcm::FilenameGenerator
FilenameGenerator . . . 487
gdcm::FileSet . . . 491
gdcm::FileStreamer
FileStreamer . . . 493
gdcm::FileWithName
FileWithName . . . 499
gdcm::FindPatientRootQuery
PatientRootQuery . . . 502
gdcm::FindStudyRootQuery
FindStudyRootQuery . . . 506
gdcm::Fragment
Class to represent a Fragment . . . 510
gdcm::Global
Global . . . 514
gdcm::GroupDict
Class to represent the mapping from group number to its abbreviation and name . . . 518
gdcm::IconImageFilter
IconImageFilter . . . 520
gdcm::IconImageGenerator
IconImageGenerator . . . 523
gdcm::ignore_char . . . 526
gdcm::Image
Image . . . 527
gdcm::ImageApplyLookupTable
ImageApplyLookupTable class . . . 536
gdcm::ImageChangePhotometricInterpretation
ImageChangePhotometricInterpretation class . . . 539
gdcm::ImageChangePlanarConfiguration
ImageChangePlanarConfiguration class . . . 543
gdcm::ImageChangeTransferSyntax
ImageChangeTransferSyntax class . . . 548
gdcm::ImageCodec
ImageCodec . . . 554
gdcm::ImageConverter
Image Converter . . . 566
gdcm::ImageFragmentSplitter
ImageFragmentSplitter class . . . 567
gdcm::ImageHelper
ImageHelper (internal class, not intended for user level) . . . 570
gdcm::ImageReader
ImageReader . . . 577
gdcm::ImageRegionReader
ImageRegionReader . . . 582
gdcm::ImageToImageFilter
ImageToImageFilter class . . . 587
gdcm::ImageWriter
ImageWriter . . . 590
gdcm::network::ImplementationClassUIDSub
ImplementationClassUIDSub . . . 594
gdcm::network::ImplementationUIDSub
ImplementationUIDSub . . . 596

gdcm::network::ImplementationVersionNameSub
ImplementationVersionNameSub . . . 596
gdcm::ImplicitDataElement
Class to represent an *Implicit VR* Data Element . . . 598
gdcm::InitializeEvent . . . 602
gdcm::IOD
Class for representing a IOD . . . 603
gdcm::IODEntry
Class for representing a IODEntry . . . 606
gdcm::IODs
Class for representing a IODs . . . 608
gdcm::IPPSorter
IPPSorter . . . 611
gdcm::Item
Class to represent an Item . . . 616
gdcm::IterationEvent . . . 622
gdcm::JPEG12Codec
Class to do JPEG 12bits (lossy & lossless) . . . 623
gdcm::JPEG16Codec
Class to do JPEG 16bits (lossless) . . . 628
gdcm::JPEG2000Codec
Class to do JPEG 2000 . . . 633
gdcm::JPEG8Codec
Class to do JPEG 8bits (lossy & lossless) . . . 641
gdcm::JPEGCodec
JPEG codec . . . 646
gdcm::JPEGLSCodec
JPEG-LS . . . 655
gdcm::JSON . . . 662
gdcm::KAKADUCodec
KAKADUCodec . . . 664
gdcm::LO
LO . . . 668
gdcm::LookupTable
LookupTable class . . . 671
gdcm::Scanner2::ltstr . . . 679
gdcm::Scanner::ltstr . . . 680
gdcm::StrictScanner2::ltstr . . . 680
gdcm::StrictScanner::ltstr . . . 681
gdcm::Macro
Class for representing a Macro . . . 681
gdcm::Macros
Class for representing a Modules . . . 684
gdcm::network::MaximumLengthSub
MaximumLengthSub . . . 686
gdcm::MD5
Class for MD5 . . . 687
gdcm::MEC_MR3
Class for MEC_MR3 . . . 688
gdcm::MediaStorage
MediaStorage . . . 689
gdcm::MemberCommand< T >
Command subclass that calls a pointer to a member function . . . 699

gdcm::MeshPrimitive
This class defines surface mesh primitives . . . 705
gdcm::ModalityPerformedProcedureStepCreateQuery
ModalityPerformedProcedureStepCreateQuery . . . 710
gdcm::ModalityPerformedProcedureStepSetQuery
ModalityPerformedProcedureStepSetQuery . . . 713
gdcm::ModifiedEvent . . . 717
gdcm::Module
Class for representing a Module . . . 718
gdcm::ModuleEntry
Class for representing a ModuleEntry . . . 721
gdcm::Modules
Class for representing a Modules . . . 725
gdcm::MovePatientRootQuery
MovePatientRootQuery . . . 727
gdcm::MoveStudyRootQuery
MoveStudyRootQuery . . . 731
gdcm::MrProtocol
Class for MrProtocol . . . 735
gdcm::network::NActionRQ
NActionRQ . . . 737
gdcm::network::NActionRSP
NActionRSP this file defines the messages for the NAction action . . . 738
gdcm::network::NCreateRQ
NCreateRQ . . . 740
gdcm::network::NCreateRSP
NCreateRSP this file defines the messages for the ncreate action . . . 741
gdcm::network::NDeleteRQ
NDeleteRQ . . . 743
gdcm::network::NDeleteRSP
NDeleteRSP this file defines the messages for the ndelete action . . . 744
gdcm::NestedModuleEntries
Class for representing a NestedModuleEntries . . . 746
gdcm::network::NEventReportRQ
NEventReportRQ . . . 749
gdcm::network::NEventReportRSP
NEventReportRSP this file defines the messages for the neventreport action . . . 751
gdcm::network::NGetRQ
NGetRQ . . . 752
gdcm::network::NGetRSP
NGetRSP this file defines the messages for the nget action . . . 754
gdcm::NoEvent . . . 755
gdcm::network::NormalizedMessageFactory . . . 756
gdcm::NormalizedNetworkFunctions
Normalized Network Functions . . . 757
gdcm::network::NSetRQ
NSetRQ . . . 760
gdcm::network::NSetRSP
NSetRSP this file defines the messages for the nset action . . . 761
gdcm::Object
Object . . . 763
gdcm::OpenSSLCryptoFactory . . . 766
gdcm::OpenSSLCryptographicMessageSyntax . . . 768
gdcm::OpenSSLP7CryptoFactory . . . 771

gdcm::OpenSSLP7CryptographicMessageSyntax . . . 773
gdcm::Orientation
Class to handle Orientation . . . 776
gdcm::Overlay
Overlay class . . . 779
gdcm::ParseException
ParseException Standard exception handling object . . . 788
gdcm::Parser
Parser ala XML_Parser from expat (SAX) . . . 790
gdcm::Patient
See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54 . . . 794
gdcm::network::PDataTFPDU
PDataTFPDU . . . 795
gdcm::PDBElement
Class to represent a PDB Element . . . 798
gdcm::PDBHeader
Class for PDBHeader . . . 800
gdcm::PDFCodec
PDFCodec class . . . 803
gdcm::network::PDUFactory
PDUFactory basically, given an initial byte, construct the . . . 806
gdcm::PersonName
PersonName class . . . 809
gdcm::PGXCodec
Class to do PGX . . . 812
gdcm::PhotometricInterpretation
Class to represent an PhotometricInterpretation . . . 816
gdcm::PixelFormat
PixelFormat . . . 820
gdcm::Pixmap
Pixmap class . . . 828
gdcm::PixmapReader
PixmapReader . . . 835
gdcm::PixmapToPixmapFilter
PixmapToPixmapFilter class . . . 839
gdcm::PixmapWriter
PixmapWriter . . . 842
gdcm::PNMCodec
Class to do PNM . . . 847
gdcm::Preamble
DICOM Preamble (Part 10) . . . 852
gdcm::PresentationContext
PresentationContext . . . 855
gdcm::network::PresentationContextAC
PresentationContextAC . . . 859
gdcm::PresentationContextGenerator
PresentationContextGenerator . . . 861
gdcm::network::PresentationContextRQ
PresentationContextRQ . . . 864
gdcm::network::PresentationDataValue
PresentationDataValue . . . 867
gdcm::Printer
Printer class . . . 871

gdcm::PrivateDict
Private Dict 875
gdcm::PrivateTag
Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner) 877
gdcm::ProgressEvent
ProgressEvent 883
gdcm::PVRGCodec
PVRGCodec 886
gdcm::PythonFilter
PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language 890
gdcm::QueryBase
QueryBase 892
gdcm::QueryFactory
QueryFactory.h 895
gdcm::QueryImage
QueryImage 896
gdcm::QueryPatient
QueryPatient 899
gdcm::QuerySeries
QuerySeries 901
gdcm::QueryStudy
QueryStudy.h 904
gdcm::RAWCodec
RAWCodec class 906
gdcm::Reader
Reader ala DOM (Document Object Model) 911
gdcm::RealWorldValueMappingContent 918
gdcm::Region
Class for manipulation region 919
gdcm::Rescaler
Rescale class 921
gdcm::RLECodec
Class to do RLE 926
gdcm::network::RoleSelectionSub
RoleSelectionSub 933
gdcm::Scanner
Scanner 934
gdcm::Scanner2
Scanner2 943
gdcm::Segment
This class defines a segment 954
gdcm::SegmentedPaletteColorLookupTable
SegmentedPaletteColorLookupTable class 963
gdcm::SegmentReader
This class defines a segment reader 966
gdcm::SegmentWriter
This class defines a segment writer 970
gdcm::SequenceOfFragments
Class to represent a Sequence Of Fragments 974
gdcm::SequenceOfItems
Class to represent a Sequence Of Items 982

gdcm::SerieHelper
SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned . . . 990
gdcm::Series
Series . . . 995
gdcm::network::ServiceClassApplicationInformation . . . 996
gdcm::ServiceClassUser
ServiceClassUser . . . 997
gdcm::SHA1
Class for SHA1 . . . 1005
gdcm::SimpleMemberCommand< T >
Command subclass that calls a pointer to a member function . . . 1007
gdcm::SimpleSubjectWatcher
SimpleSubjectWatcher . . . 1012
gdcm::MrProtocol::Slice . . . 1015
gdcm::MrProtocol::SliceArray . . . 1016
gdcm::SmartPointer< ObjectType >
Class for Smart Pointer . . . 1017
gdcm::network::SOPClassExtendedNegociationSub
SOPClassExtendedNegociationSub . . . 1021
gdcm::SOPClassUIDToIOD
Class convert a class SOP Class UID into IOD . . . 1022
gdcm::Sorter
Sorter . . . 1024
gdcm::Spacing
Class for Spacing . . . 1029
gdcm::Spectroscopy
Spectroscopy class . . . 1031
gdcm::SplitMosaicFilter
SplitMosaicFilter class . . . 1032
gdcm::StartEvent . . . 1035
gdcm::static_assert_test< x > . . . 1036
gdcm::STATIC_ASSERTION_FAILURE< x > . . . 1037
gdcm::STATIC_ASSERTION_FAILURE< true > . . . 1037
gdcm::StreamImageReader
StreamImageReader . . . 1037
gdcm::StreamImageWriter
StreamImageReader . . . 1041
gdcm::StrictScanner
StrictScanner . . . 1048
gdcm::StrictScanner2
StrictScanner2 . . . 1057
gdcm::String< TDelimiter, TMaxLength, TPadChar >
String . . . 1067
gdcm::StringFilter
StringFilter . . . 1072
gdcm::Study
Study . . . 1076
gdcm::Subject
Subject . . . 1077
gdcm::Surface
This class defines a SURFACE IE . . . 1081
gdcm::SurfaceHelper
SurfaceHelper . . . 1093

gdcm::SurfaceReader
This class defines a SURFACE IE reader . . . 1096
gdcm::SurfaceWriter
This class defines a SURFACE IE writer . . . 1100
gdcm::SwapCode
SwapCode representation . . . 1104
gdcm::SwapperDoOp . . . 1106
gdcm::SwapperNoOp . . . 1107
gdcm::System
Class to do system operation . . . 1107
gdcm::Table
Table . . . 1114
gdcm::TableEntry
TableEntry . . . 1117
gdcm::TableReader
Class for representing a TableReader . . . 1118
gdcm::network::TableRow . . . 1122
gdcm::Tag
Class to represent a DICOM Data Element (Attribute) Tag (Group, Element) . . . 1123
gdcm::TagPath
Class to handle a path of tag . . . 1132
gdcm::Testing
Class for testing . . . 1134
gdcm::Trace
Trace . . . 1141
gdcm::TransferSyntax
Class to manipulate Transfer Syntax . . . 1146
gdcm::network::TransferSyntaxSub
TransferSyntaxSub . . . 1152
gdcm::network::Transition . . . 1154
gdcm::Type
Type . . . 1156
gdcm::UI . . . 1158
gdcm::UIDGenerator
Class for generating unique UID . . . 1158
gdcm::UIDs
All known uids . . . 1161
gdcm::network::ULAction
ULAction . . . 1197
gdcm::network::ULActionAA1 . . . 1200
gdcm::network::ULActionAA2 . . . 1202
gdcm::network::ULActionAA3 . . . 1203
gdcm::network::ULActionAA4 . . . 1204
gdcm::network::ULActionAA5 . . . 1206
gdcm::network::ULActionAA6 . . . 1207
gdcm::network::ULActionAA7 . . . 1208
gdcm::network::ULActionAA8 . . . 1210
gdcm::network::ULActionAE1 . . . 1211
gdcm::network::ULActionAE2 . . . 1212
gdcm::network::ULActionAE3 . . . 1214
gdcm::network::ULActionAE4 . . . 1215
gdcm::network::ULActionAE5 . . . 1216
gdcm::network::ULActionAE6 . . . 1218
gdcm::network::ULActionAE7 . . . 1219

gdcm::network::ULActionAE8 . . . 1220
gdcm::network::ULActionAR1 . . . 1222
gdcm::network::ULActionAR10 . . . 1223
gdcm::network::ULActionAR2 . . . 1224
gdcm::network::ULActionAR3 . . . 1226
gdcm::network::ULActionAR4 . . . 1227
gdcm::network::ULActionAR5 . . . 1228
gdcm::network::ULActionAR6 . . . 1230
gdcm::network::ULActionAR7 . . . 1231
gdcm::network::ULActionAR8 . . . 1232
gdcm::network::ULActionAR9 . . . 1234
gdcm::network::ULActionDT1 . . . 1235
gdcm::network::ULActionDT2 . . . 1236
gdcm::network::ULBasicCallback
ULBasicCallback . . . 1238
gdcm::network::ULConnection
ULConnection . . . 1240
gdcm::network::ULConnectionCallback . . . 1245
gdcm::network::ULConnectionInfo
ULConnectionInfo . . . 1247
gdcm::network::ULConnectionManager
ULConnectionManager . . . 1249
gdcm::network::ULEvent
ULEvent . . . 1256
gdcm::network::ULTransitionTable
ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates . . . 1258
gdcm::network::ULWritingCallback . . . 1259
gdcm::UNExplicitDataElement
Class to read/write a DataElement as UNExplicit Data Element . . . 1262
gdcm::UNExplicitImplicitDataElement
Class to read/write a DataElement as ExplicitImplicit Data Element . . . 1265
gdcm::Unpacker12Bits
Pack/Unpack 12 bits pixel into 16bits . . . 1269
gdcm::Usage
Usage . . . 1270
gdcm::UserEvent . . . 1273
gdcm::network::UserInformation
UserInformation . . . 1274
gdcm::UUIDGenerator
Class for generating unique UUID . . . 1276
gdcm::Validate
Validate class . . . 1277
gdcm::Value
Class to represent the value of a Data Element . . . 1279
gdcm::ValueIO< TDE, TSwap, TType >
Class to dispatch template calls . . . 1282
gdcm::MrProtocol::Vector3 . . . 1283
gdcm::Version
Major/minor and build version . . . 1284
gdcm::VL
Value Length . . . 1285
gdcm::VM
Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n . . . 1289

gdcm::VMToLength< T > 1294
gdcm::VR
VR class 1294
gdcm::VR16ExplicitDataElement
Class to read/write a DataElement as Explicit Data Element 1301
gdcm::VRToEncoding< T > 1304
gdcm::VRToType< T > 1305
gdcm::VRVLSize< T > 1305
gdcm::VRVLSize< 0 > 1305
gdcm::VRVLSize< 1 > 1306
vtkGDCMImageReader 1307
vtkGDCMImageReader2 1320
vtkGDCMImageWriter 1332
vtkGDCMMedicalImageProperties 1340
vtkGDCMPolyDataReader 1343
vtkGDCMPolyDataWriter 1347
vtkGDCMTesting 1351
vtkGDCMThreadedImageReader 1354
vtkGDCMThreadedImageReader2 1359
vtkImageColorViewer 1366
vtkImageMapToColors16 1378
vtkImageMapToWindowLevelColors2 1384
vtkImagePlanarComponentsToComponents 1387
vtkImageRGBToYBR 1389
vtkImageYBRToRGB 1391
vtkLookupTable16 1393
vtkRTStructSetProperties 1396
gdcm::Waveform
Waveform class 1406
gdcm::WLMFindQuery
PatientRootQuery 1406
gdcm::Writer
Writer ala DOM (Document Object Model) 1411
gdcm::XMLDictReader
Class for representing a XMLDictReader 1417
gdcm::XMLPrinter 1420
gdcm::XMLPrivateDictReader
Class for representing a XMLPrivateDictReader 1423

Chapter 8

File Index

8.1 File List

Here is a list of all files with brief descriptions:

gdcmASN1.h . . . 1427
gdcmBase64.h . . . 1429
gdcmBoxRegion.h . . . 1430
gdcmByteSwap.h . . . 1431
gdcmCAPICryptoFactory.h . . . 1433
gdcmCAPICryptographicMessageSyntax.h . . . 1434
gdcmCommand.h . . . 1436
gdcmCryptoFactory.h . . . 1439
gdcmCryptographicMessageSyntax.h . . . 1441
gdcmDataEvent.h . . . 1443
gdcmDeflateStream.h . . . 1445
gdcmDirectory.h . . . 1445
gdcmDummyValueGenerator.h . . . 1448
gdcmEvent.h . . . 1449
gdcmException.h . . . 1452
gdcmFilename.h . . . 1454
gdcmFileNameEvent.h . . . 1455
gdcmFilenameGenerator.h . . . 1457
gdcmLegacyMacro.h . . . 1458
gdcmMD5.h . . . 1461
gdcmObject.h . . . 1462
gdcmOpenSSLCryptoFactory.h . . . 1464
gdcmOpenSSLCryptographicMessageSyntax.h . . . 1466
gdcmOpenSSLP7CryptoFactory.h . . . 1468
gdcmOpenSSLP7CryptographicMessageSyntax.h . . . 1469
gdcmProgressEvent.h . . . 1471
gdcmRegion.h . . . 1473
gdcmSHA1.h . . . 1475
gdcmSmartPointer.h . . . 1476
gdcmStaticAssert.h . . . 1478
gdcmString.h . . . 1480

gdcmSubject.h . . . 1483
gdcmSwapCode.h . . . 1485
gdcmSwapper.h . . . 1486
gdcmSystem.h . . . 1489
gdcmTerminal.h . . . 1491
gdcmTestDriver.h . . . 1493
gdcmTesting.h . . . 1494
gdcmTrace.h . . . 1495
gdcmTypes.h . . . 1501
gdcmUnpacker12Bits.h . . . 1502
gdcmVersion.h . . . 1503
gdcmWin32.h . . . 1504
gdcmCSAHeaderDict.h . . . 1506
gdcmCSAHeaderDictEntry.h . . . 1509
gdcmDict.h . . . 1512
gdcmDictConverter.h . . . 1517
gdcmDictEntry.h . . . 1519
gdcmDicts.h . . . 1521
gdcmGlobal.h . . . 1524
gdcmGroupDict.h . . . 1526
gdcmSOPClassUIDToIOD.h . . . 1528
gdcmUIDs.h . . . 1529
gdcmAttribute.h . . . 1543
gdcmBasicOffsetTable.h . . . 1557
gdcmByteBuffer.h . . . 1560
gdcmByteSwapFilter.h . . . 1563
gdcmByteValue.h . . . 1564
gdcmCodeString.h . . . 1568
gdcmCP246ExplicitDataElement.h . . . 1570
gdcmCSAElement.h . . . 1571
gdcmCSAHeader.h . . . 1574
gdcmDataElement.h . . . 1577
gdcmDataSet.h . . . 1580
gdcmDataSetEvent.h . . . 1585
gdcmElement.h . . . 1587
gdcmExplicitDataElement.h . . . 1599
gdcmExplicitImplicitDataElement.h . . . 1601
gdcmFile.h . . . 1602
gdcmFileMetaInformation.h . . . 1604
gdcmFileSet.h . . . 1607
gdcmFragment.h . . . 1609
gdcmImplicitDataElement.h . . . 1613
gdcmItem.h . . . 1615
gdcmLO.h . . . 1621
gdcmMediaStorage.h . . . 1622
gdcmMrProtocol.h . . . 1626
gdcmParseException.h . . . 1628
gdcmParser.h . . . 1630
gdcmPDBElement.h . . . 1633
gdcmPDBHeader.h . . . 1635
gdcmPreamble.h . . . 1636
gdcmPrivateTag.h . . . 1639
gdcmReader.h . . . 1641
gdcmSequenceOfFragments.h . . . 1643

gdcmSequenceOfItems.h . . . 1648
gdcmTag.h . . . 1652
gdcmTagToVR.h . . . 1657
gdcmTransferSyntax.h . . . 1658
gdcmUNExplicitDataElement.h . . . 1660
gdcmUNExplicitImplicitDataElement.h . . . 1662
gdcmValue.h . . . 1663
gdcmValueIO.h . . . 1665
gdcmVL.h . . . 1666
gdcmVM.h . . . 1669
gdcmVR.h . . . 1672
gdcmVR16ExplicitDataElement.h . . . 1678
gdcmWriter.h . . . 1680
gdcmDefinedTerms.h . . . 1682
gdcmDefs.h . . . 1683
gdcmEnumeratedValues.h . . . 1685
gdcmIOD.h . . . 1686
gdcmIODEntry.h . . . 1689
gdcmIODs.h . . . 1691
gdcmMacro.h . . . 1694
gdcmMacroEntry.h . . . 1697
gdcmMacros.h . . . 1700
gdcmModule.h . . . 1702
gdcmModuleEntry.h . . . 1705
gdcmModules.h . . . 1708
gdcmNestedModuleEntries.h . . . 1710
gdcmPatient.h . . . 1712
gdcmSeries.h . . . 1713
gdcmStudy.h . . . 1715
gdcmTable.h . . . 1716
gdcmTableEntry.h . . . 1718
gdcmTableReader.h . . . 1720
gdcmType.h . . . 1722
gdcmUsage.h . . . 1724
gdcmXMLDictReader.h . . . 1727
gdcmXMLPrivateDictReader.h . . . 1728
gdcmAnonymizeEvent.h . . . 1729
gdcmAnonymizer.h . . . 1731
gdcmApplicationEntity.h . . . 1733
gdcmAudioCodec.h . . . 1735
gdcmBitmap.h . . . 1736
gdcmBitmapToBitmapFilter.h . . . 1740
gdcmCleaner.h . . . 1741
gdcmCodec.h . . . 1743
gdcmCoder.h . . . 1744
gdcmConstCharWrapper.h . . . 1746
gdcmCurve.h . . . 1747
gdcmDataSetHelper.h . . . 1749
gdcmDecoder.h . . . 1750
gdcmDeltaEncodingCodec.h . . . 1752
gdcmDICOMDIR.h . . . 1753
gdcmDICOMDIRGenerator.h . . . 1754
gdcmDictPrinter.h . . . 1756
gdcmDirectionCosines.h . . . 1757

gdcmDirectoryHelper.h . . . 1759
gdcmDPath.h . . . 1760
gdcmDumper.h . . . 1762
gdcmEmptyMaskGenerator.h . . . 1763
gdcmEncapsulatedDocument.h . . . 1765
gdcmEquipmentManufacturer.h . . . 1766
gdcmFiducials.h . . . 1767
gdcmFileAnonymizer.h . . . 1768
gdcmFileChangeTransferSyntax.h . . . 1770
gdcmFileDecompressLookupTable.h . . . 1772
gdcmFileDerivation.h . . . 1773
gdcmFileExplicitFilter.h . . . 1775
gdcmFileStreamer.h . . . 1776
gdcmIconImage.h . . . 1778
gdcmIconImageFilter.h . . . 1780
gdcmIconImageGenerator.h . . . 1781
gdcmImage.h . . . 1783
gdcmImageApplyLookupTable.h . . . 1785
gdcmImageChangePhotometricInterpretation.h . . . 1786
gdcmImageChangePlanarConfiguration.h . . . 1788
gdcmImageChangeTransferSyntax.h . . . 1790
gdcmImageCodec.h . . . 1791
gdcmImageConverter.h . . . 1795
gdcmImageFragmentSplitter.h . . . 1796
gdcmImageHelper.h . . . 1797
gdcmImageReader.h . . . 1800
gdcmImageRegionReader.h . . . 1801
gdcmImageToImageFilter.h . . . 1803
gdcmImageWriter.h . . . 1804
gdcmIPPSorter.h . . . 1806
gdcmJPEG12Codec.h . . . 1808
gdcmJPEG16Codec.h . . . 1809
gdcmJPEG2000Codec.h . . . 1811
gdcmJPEG8Codec.h . . . 1813
gdcmJPEGCodec.h . . . 1814
gdcmJPEGLSCodec.h . . . 1817
gdcmJSON.h . . . 1818
gdcmKAKADUCodec.h . . . 1820
gdcmLookupTable.h . . . 1821
gdcmMEC_MR3.h . . . 1824
gdcmMeshPrimitive.h . . . 1825
gdcmOrientation.h . . . 1828
gdcmOverlay.h . . . 1829
gdcmPDFCodec.h . . . 1832
gdcmPersonName.h . . . 1833
gdcmPGXCodec.h . . . 1835
gdcmPhotometricInterpretation.h . . . 1836
gdcmPixelFormat.h . . . 1838
gdcmPixmap.h . . . 1842
gdcmPixmapReader.h . . . 1844
gdcmPixmapToPixmapFilter.h . . . 1847
gdcmPixmapWriter.h . . . 1848
gdcmPNMCodec.h . . . 1850
gdcmPrinter.h . . . 1851

gdcmPVRGCodec.h . . . 1854
gdcmRAWCodec.h . . . 1855
gdcmRescaler.h . . . 1857
gdcmRLECodec.h . . . 1859
gdcmScanner.h . . . 1860
gdcmScanner2.h . . . 1863
gdcmSegment.h . . . 1866
gdcmSegmentedPaletteColorLookupTable.h . . . 1870
gdcmSegmentHelper.h . . . 1871
gdcmSegmentReader.h . . . 1873
gdcmSegmentWriter.h . . . 1875
gdcmSerieHelper.h . . . 1877
gdcmSimpleSubjectWatcher.h . . . 1880
gdcmSorter.h . . . 1882
gdcmSpacing.h . . . 1885
gdcmSpectroscopy.h . . . 1886
gdcmSplitMosaicFilter.h . . . 1887
gdcmStreamImageReader.h . . . 1889
gdcmStreamImageWriter.h . . . 1891
gdcmStrictScanner.h . . . 1893
gdcmStrictScanner2.h . . . 1895
gdcmStringFilter.h . . . 1898
gdcmSurface.h . . . 1900
gdcmSurfaceHelper.h . . . 1904
gdcmSurfaceReader.h . . . 1907
gdcmSurfaceWriter.h . . . 1909
gdcmTagPath.h . . . 1910
gdcmUIDGenerator.h . . . 1912
gdcmUUIDGenerator.h . . . 1914
gdcmValidate.h . . . 1915
gdcmWaveform.h . . . 1916
gdcmXMLPrinter.h . . . 1917
gdcmAAbortPDU.h . . . 1920
gdcmAAssociateACPDU.h . . . 1921
gdcmAAssociateRJPDU.h . . . 1923
gdcmAAssociateRQPDU.h . . . 1925
gdcmAbstractSyntax.h . . . 1927
gdcmApplicationContext.h . . . 1929
gdcmAReleaseRPPDU.h . . . 1931
gdcmAReleaseRQPDU.h . . . 1932
gdcmARTIMTimer.h . . . 1934
gdcmAsynchronousOperationsWindowSub.h . . . 1936
gdcmBaseCompositeMessage.h . . . 1937
gdcmBaseNormalizedMessage.h . . . 1939
gdcmBasePDU.h . . . 1940
gdcmBaseQuery.h . . . 1942
gdcmBaseRootQuery.h . . . 1944
gdcmCEchoMessages.h . . . 1946
gdcmCFindMessages.h . . . 1947
gdcmCMoveMessages.h . . . 1949
gdcmCommandDataSet.h . . . 1950
gdcmCompositeMessageFactory.h . . . 1952
gdcmCompositeNetworkFunctions.h . . . 1953
gdcmCStoreMessages.h . . . 1955

gdcmDIMSE.h . . . 1957
gdcmFindPatientRootQuery.h . . . 1959
gdcmFindStudyRootQuery.h . . . 1961
gdcmImplementationClassUIDSub.h . . . 1962
gdcmImplementationUIDSub.h . . . 1964
gdcmImplementationVersionNameSub.h . . . 1965
gdcmMaximumLengthSub.h . . . 1967
gdcmModalityPerformedProcedureStepCreateQuery.h . . . 1969
gdcmModalityPerformedProcedureStepSetQuery.h . . . 1970
gdcmMovePatientRootQuery.h . . . 1971
gdcmMoveStudyRootQuery.h . . . 1973
gdcmNActionMessages.h . . . 1974
gdcmNCreateMessages.h . . . 1975
gdcmNDeleteMessages.h . . . 1977
gdcmNetworkEvents.h . . . 1978
gdcmNetworkStateID.h . . . 1980
gdcmNEventReportMessages.h . . . 1982
gdcmNGetMessages.h . . . 1983
gdcmNormalizedMessageFactory.h . . . 1984
gdcmNormalizedNetworkFunctions.h . . . 1986
gdcmNSetMessages.h . . . 1988
gdcmPDataTFPDU.h . . . 1989
gdcmPDUFactory.h . . . 1991
gdcmPresentationContext.h . . . 1992
gdcmPresentationContextAC.h . . . 1994
gdcmPresentationContextGenerator.h . . . 1996
gdcmPresentationContextRQ.h . . . 1998
gdcmPresentationDataValue.h . . . 2000
gdcmQueryBase.h . . . 2002
gdcmQueryFactory.h . . . 2005
gdcmQueryImage.h . . . 2006
gdcmQueryPatient.h . . . 2008
gdcmQuerySeries.h . . . 2010
gdcmQueryStudy.h . . . 2011
gdcmRoleSelectionSub.h . . . 2013
gdcmServiceClassApplicationInformation.h . . . 2014
gdcmServiceClassUser.h . . . 2016
gdcmSOPClassExtendedNegociationSub.h . . . 2018
gdcmTransferSyntaxSub.h . . . 2019
gdcmULAction.h . . . 2021
gdcmULActionAA.h . . . 2023
gdcmULActionAE.h . . . 2025
gdcmULActionAR.h . . . 2027
gdcmULActionDT.h . . . 2030
gdcmULBasicCallback.h . . . 2031
gdcmULConnection.h . . . 2032
gdcmULConnectionCallback.h . . . 2035
gdcmULConnectionInfo.h . . . 2036
gdcmULConnectionManager.h . . . 2038
gdcmULEvent.h . . . 2041
gdcmULTransitionTable.h . . . 2043
gdcmULWritingCallback.h . . . 2046
gdcmUserInformation.h . . . 2047
gdcmWLMFindQuery.h . . . 2049

vtkGDCMImageReader.h 2050
vtkGDCMImageReader2.h 2056
vtkGDCMImageWriter.h 2061
vtkGDCMMedicalImageProperties.h 2064
vtkGDCMPolyDataReader.h 2069
vtkGDCMPolyDataWriter.h 2071
vtkGDCMTesting.h 2073
vtkGDCMThreadedImageReader.h 2074
vtkGDCMThreadedImageReader2.h 2076
vtkImageColorViewer.h 2078
vtkImageMapToColors16.h 2082
vtkImageMapToWindowLevelColors2.h 2084
vtkImagePlanarComponentsToComponents.h 2086
vtkImageRGBToYBR.h 2088
vtkImageYBRToRGB.h 2089
vtkLookupTable16.h 2090
vtkRTStructSetProperties.h 2092
gdcmPythonFilter.h 2094

Chapter 9

Namespace Documentation

9.1 gdcm Namespace Reference

Namespaces

- namespace network
- namespace SegmentHelper
- namespace terminal

  Class for Terminal.

Classes

- class AbortEvent
- class AnonymizeEvent

  AnonymizeEvent.
- class Anonymizer

  Anonymizer.
- class AnyEvent
- class ApplicationEntity

  ApplicationEntity.
- class ASN1

  Class for ASN1.
- class Attribute

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class Attribute< Group, Element, TVR, VM::VM1 >
- class Attribute< Group, Element, TVR, VM::VM1_3 >
- class Attribute< Group, Element, TVR, VM::VM1_8 >
- class Attribute< Group, Element, TVR, VM::VM1_n >
- class Attribute< Group, Element, TVR, VM::VM2_2n >
- class Attribute< Group, Element, TVR, VM::VM2_n >
- class Attribute< Group, Element, TVR, VM::VM3_3n >
- class Attribute< Group, Element, TVR, VM::VM3_n >

- class AudioCodec

  AudioCodec.
- class Base64

  Class for Base64.
- class BaseQuery

  BaseQuery.
- class BaseRootQuery

  BaseRootQuery.
- class BasicOffsetTable

  Class to represent a BasicOffsetTable.
- class Bitmap

  Bitmap class.
- class BitmapToBitmapFilter

  BitmapToBitmapFilter class.
- class BoxRegion

  Class for manipulation box region.
- class ByteBuffer

  ByteBuffer.
- class ByteSwap

  ByteSwap.
- class ByteSwapFilter

  ByteSwapFilter.
- class ByteValue

  Class to represent binary value (array of bytes)
- class CAPICryptoFactory
- class CAPICryptographicMessageSyntax
- class Cleaner

  Cleaner.
- class Codec

  Codec class.
- class Coder

  Coder.
- class CodeString

  CodeString.
- class Command

  Command superclass for callback/observer methods.
- class CommandDataSet

  Class to represent a Command DataSet.
- class CompositeNetworkFunctions

  Composite Network Functions.
- class ConstCharWrapper

  Do not use me.
- class CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.
- class CryptoFactory

  Class to do handle the crypto factory.
- class CryptographicMessageSyntax

- class CSAElement

  Class to represent a CSA Element.
- class CSAHeader

  Class for CSAHeader.
- class CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class CSAHeaderDictEntry

  Class to represent an Entry in the Dict.
- class CSAHeaderDictException
- class Curve

  Curve class to handle element 50xx,3000 Curve Data.
- class DataElement

  Class to represent a Data Element either Implicit or Explicit.
- class DataElementException
- class DataEvent

  DataEvent.
- class DataSet

  Class to represent a Data Set (which contains Data Elements)
- class DataSetEvent

  DataSetEvent.
- class DataSetHelper

  DataSetHelper (internal class, not intended for user level)
- class Decoder

  Decoder.
- class DefinedTerms

  Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.
- class Defs

  FIXME I do not like the name 'Defs'.
- class DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.
- class DICOMDIR

  DICOMDIR class.
- class DICOMDIRGenerator

  DICOMDIRGenerator class.
- class Dict

  Class to represent a map of DictEntry.
- class DictConverter

  Class to convert a .dic file into something else:
- class DictEntry

  Class to represent an Entry in the Dict.
- class DictPrinter

  DictPrinter class.

- class Dicts

  Class to manipulate the sum of knowledge (all the dict user load)
- class DirectionCosines

  class to handle DirectionCosines
- class Directory

  Class for manipulation directories.
- class DirectoryHelper

  DirectoryHelper.
- class DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.↩dicom/c/IyIH0IOBMPA`
- class DummyValueGenerator

  Class for generating dummy value.
- class Dumper

  Codec class.
- class Element

  Element class.
- class Element< TVR, VM::VM1_2 >
- class Element< TVR, VM::VM1_n >
- class Element< TVR, VM::VM2_2n >
- class Element< TVR, VM::VM2_n >
- class Element< TVR, VM::VM3_3n >
- class Element< TVR, VM::VM3_4 >
- class Element< TVR, VM::VM3_n >
- class Element< VR::AS, VM::VM5 >
- class Element< VR::OB, VM::VM1 >
- class Element< VR::OW, VM::VM1 >
- class ElementDisableCombinations

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class ElementDisableCombinations< VR::OB, VM::VM1_n >
- class ElementDisableCombinations< VR::OW, VM::VM1_n >
- class EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.
- class EncapsulatedDocument

  EncapsulatedDocument.
- class EncodingImplementation

  EncodingImplementation.
- class EncodingImplementation< VR::VRASCII >
- class EncodingImplementation< VR::VRBINARY >
- class EndEvent
- class EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:
- class EquipmentManufacturer
- class Event

  superclass for callback/observer methods

- class Exception

  Exception.
- class ExitEvent
- class ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- class ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Fiducials

  Fiducials.
- class File

  a DICOM File
- class FileAnonymizer

  FileAnonymizer.
- class FileChangeTransferSyntax

  FileChangeTransferSyntax.
- class FileDecompressLookupTable

  FileDecompressLookupTable class.
- class FileDerivation

  FileDerivation class.
- class FileExplicitFilter

  FileExplicitFilter class.
- class FileMetaInformation

  Class to represent a File Meta Information.
- class Filename

  Class to manipulate file name's.
- class FileNameEvent

  FileNameEvent.
- class FilenameGenerator

  FilenameGenerator.
- class FileSet
- class FileStreamer

  FileStreamer.
- class FileWithName

  FileWithName.
- class FindPatientRootQuery

  PatientRootQuery.
- class FindStudyRootQuery

  FindStudyRootQuery.
- class Fragment

  Class to represent a Fragment.
- class Global

  Global.
- class GroupDict

  Class to represent the mapping from group number to its abbreviation and name.
- class IconImageFilter

  IconImageFilter.
- class IconImageGenerator

IconImageGenerator.

- struct ignore_char
- class Image

  Image.
- class ImageApplyLookupTable

  ImageApplyLookupTable class.
- class ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.
- class ImageChangePlanarConfiguration

  ImageChangePlanarConfiguration class.
- class ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.
- class ImageCodec

  ImageCodec.
- class ImageConverter

  Image Converter.
- class ImageFragmentSplitter

  ImageFragmentSplitter class.
- class ImageHelper

  ImageHelper (internal class, not intended for user level)
- class ImageReader

  ImageReader.
- class ImageRegionReader

  ImageRegionReader.
- class ImageToImageFilter

  ImageToImageFilter class.
- class ImageWriter

  ImageWriter.
- class ImplicitDataElement

  Class to represent an Implicit VR Data Element.
- class InitializeEvent
- class IOD

  Class for representing a IOD.
- class IODEntry

  Class for representing a IODEntry.
- class IODs

  Class for representing a IODs.
- class IPPSorter

  IPPSorter.
- class Item

  Class to represent an Item.
- class IterationEvent
- class JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless)
- class JPEG16Codec

  Class to do JPEG 16bits (lossless)
- class JPEG2000Codec

Class to do JPEG 2000.

- class JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless)
- class JPEGCodec

  JPEG codec.
- class JPEGLSCodec

  JPEG-LS.
- class JSON
- class KAKADUCodec

  KAKADUCodec.
- class LO

  LO.
- class LookupTable

  LookupTable class.
- class Macro

  Class for representing a Macro.
- class Macros

  Class for representing a Modules.
- class MD5

  Class for MD5.
- class MEC_MR3

  Class for MEC_MR3.
- class MediaStorage

  MediaStorage.
- class MemberCommand

  Command subclass that calls a pointer to a member function.
- class MeshPrimitive

  This class defines surface mesh primitives.
- class ModalityPerformedProcedureStepCreateQuery

  ModalityPerformedProcedureStepCreateQuery.
- class ModalityPerformedProcedureStepSetQuery

  ModalityPerformedProcedureStepSetQuery.
- class ModifiedEvent
- class Module

  Class for representing a Module.
- class ModuleEntry

  Class for representing a ModuleEntry.
- class Modules

  Class for representing a Modules.
- class MovePatientRootQuery

  MovePatientRootQuery.
- class MoveStudyRootQuery

  MoveStudyRootQuery.
- class MrProtocol

  Class for MrProtocol.
- class NestedModuleEntries

  Class for representing a NestedModuleEntries.

- class NoEvent
- class NormalizedNetworkFunctions

  Normalized Network Functions.
- class Object

  Object.
- class OpenSSLCryptoFactory
- class OpenSSLCryptographicMessageSyntax
- class OpenSSLP7CryptoFactory
- class OpenSSLP7CryptographicMessageSyntax
- class Orientation

  class to handle Orientation
- class Overlay

  Overlay class.
- class ParseException

  ParseException Standard exception handling object.
- class Parser

  Parser ala XML_Parser from expat (SAX)
- class Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.
- class PDBElement

  Class to represent a PDB Element.
- class PDBHeader

  Class for PDBHeader.
- class PDFCodec

  PDFCodec class.
- class PersonName

  PersonName class.
- class PGXCodec

  Class to do PGX.
- class PhotometricInterpretation

  Class to represent an PhotometricInterpretation.
- class PixelFormat

  PixelFormat.
- class Pixmap

  Pixmap class.
- class PixmapReader

  PixmapReader.
- class PixmapToPixmapFilter

  PixmapToPixmapFilter class.
- class PixmapWriter

  PixmapWriter.
- class PNMCodec

  Class to do PNM.
- class Preamble

  DICOM Preamble (Part 10)
- class PresentationContext

  PresentationContext.

- class PresentationContextGenerator

  PresentationContextGenerator.
- class Printer

  Printer class.
- class PrivateDict

  Private Dict.
- class PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner)
- class ProgressEvent

  ProgressEvent.
- class PVRGCodec

  PVRGCodec.
- class PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.
- class QueryBase

  QueryBase.
- class QueryFactory

  QueryFactory.h.
- class QueryImage

  QueryImage.
- class QueryPatient

  QueryPatient.
- class QuerySeries

  QuerySeries.
- class QueryStudy

  QueryStudy.h.
- class RAWCodec

  RAWCodec class.
- class Reader

  Reader ala DOM (Document Object Model)
- struct RealWorldValueMappingContent
- class Region

  Class for manipulation region.
- class Rescaler

  Rescale class.
- class RLECodec

  Class to do RLE.
- class Scanner

  Scanner.
- class Scanner2

  Scanner2.
- class Segment

  This class defines a segment.
- class SegmentedPaletteColorLookupTable

  SegmentedPaletteColorLookupTable class.
- class SegmentReader

This class defines a segment reader.

- class SegmentWriter

  This class defines a segment writer.
- class SequenceOfFragments

  Class to represent a Sequence Of Fragments.
- class SequenceOfItems

  Class to represent a Sequence Of Items.
- class SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.
- class Series

  Series.
- class ServiceClassUser

  ServiceClassUser.
- class SHA1

  Class for SHA1.
- class SimpleMemberCommand

  Command subclass that calls a pointer to a member function.
- class SimpleSubjectWatcher

  SimpleSubjectWatcher.
- class SmartPointer

  Class for Smart Pointer.
- class SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.
- class Sorter

  Sorter.
- class Spacing

  Class for Spacing.
- class Spectroscopy

  Spectroscopy class.
- class SplitMosaicFilter

  SplitMosaicFilter class.
- class StartEvent
- struct static_assert_test
- struct STATIC_ASSERTION_FAILURE
- struct STATIC_ASSERTION_FAILURE< true >
- class StreamImageReader

  StreamImageReader.
- class StreamImageWriter

  StreamImageReader.
- class StrictScanner

  StrictScanner.
- class StrictScanner2

  StrictScanner2.
- class String

  String.
- class StringFilter

StringFilter.

- class Study

  Study.
- class Subject

  Subject.
- class Surface

  This class defines a SURFACE IE.
- class SurfaceHelper

  SurfaceHelper.
- class SurfaceReader

  This class defines a SURFACE IE reader.
- class SurfaceWriter

  This class defines a SURFACE IE writer.
- class SwapCode

  SwapCode representation.
- class SwapperDoOp
- class SwapperNoOp
- class System

  Class to do system operation.
- class Table

  Table.
- class TableEntry

  TableEntry.
- class TableReader

  Class for representing a TableReader.
- class Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).
- class TagPath

  class to handle a path of tag.
- class Testing

  class for testing
- class Trace

  Trace.
- class TransferSyntax

  Class to manipulate Transfer Syntax.
- class Type

  Type.
- struct UI
- class UIDGenerator

  Class for generating unique UID.
- class UIDs

  all known uids
- class UNExplicitDataElement

  Class to read/write a DataElement as UNExplicit Data Element.
- class UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Unpacker12Bits

Pack/Unpack 12 bits pixel into 16bits.

- class Usage

  Usage.
- class UserEvent
- class UUIDGenerator

  Class for generating unique UUID.
- class Validate

  Validate class.
- class Value

  Class to represent the value of a Data Element.
- class ValueIO

  Class to dispatch template calls.
- class Version

  major/minor and build version
- class VL

  Value Length.
- class VM

  Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.
- struct VMToLength
- class VR

  VR class.
- class VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- struct VRToEncoding
- struct VRToType
- class VRVLSize
- class VRVLSize< 0 >
- class VRVLSize< 1 >
- class Waveform

  Waveform class.
- class WLMFindQuery

  PatientRootQuery.
- class Writer

  Writer ala DOM (Document Object Model)
- class XMLDictReader

  Class for representing a XMLDictReader.
- class XMLPrinter
- class XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Typedefs

- typedef String<'\\', 16 > AEComp
- typedef String<'\\', 64 > ASComp
- typedef bool(∗ BOOL_FUNCTION_PFILE_PFILE_POINTER) (File ∗, File ∗)
- typedef String<'\\', 16 > CSComp
- typedef String<'\\', 64 > DAComp

- typedef String<'\\', 64 > DTComp
- typedef std::vector< SmartPointer< FileWithName > > FileList
- typedef Bitmap IconImage
- typedef String<'\\', 64 > LOComp
- typedef String<'\\', 64 > LTComp
- typedef ModuleEntry MacroEntry
- typedef NestedModuleEntries NestedMacroEntries
- typedef String<'\\', 64 > PNComp
- typedef String<'\\', 64 > SHComp
- typedef String<'\\', 64 > STComp
- typedef String<'\\', 16 > TMComp
- typedef String<'\\', 4294967294 > UCComp
- typedef String<'\\', 64, 0 > UIComp
- typedef String<'\\', 4294967294 > URComp
- typedef String<'\\', 64 > UTComp

Enumerations

- enum CompOperators {
  GDCM_EQUAL = 0 ,
  GDCM_DIFFERENT ,
  GDCM_GREATER ,
  GDCM_GREATEROREQUAL ,
  GDCM_LESS ,
  GDCM_LESSOREQUAL }
- enum ECharSet {
  eLatin1 = 0 ,
  eLatin2 ,
  eLatin3 ,
  eLatin4 ,
  eCyrillic ,
  eArabic ,
  eGreek ,
  eHebrew ,
  eLatin5 ,
  eJapanese ,
  eThai ,
  eJapaneseKanjiMultibyte ,
  eJapaneseSupplementaryKanjiMultibyte ,
  eKoreanHangulHanjaMultibyte ,
  eUTF8 ,
  eGB18030 }
- enum ENQueryType {
  eCreateMMPS = 0 ,
  eSetMMPS }
- enum EQueryLevel {
  ePatient = 0 ,
  eStudy = 1 ,
  eSeries = 2 ,
  eImage = 3 }

- enum EQueryType {
  eFind = 0 ,
  eMove ,
  eWLMFind }
- enum ERootType {
  ePatientRootType ,
  eStudyRootType }
- enum LodModeType {
  LD_ALL = 0x00000000 ,
  LD_NOSEQ = 0x00000001 ,
  LD_NOSHADOW = 0x00000002 ,
  LD_NOSHADOWSEQ = 0x00000004 }

Functions

- static int add1 (char *buf, int n)
- ignore_char const backslash ('\\')
- template<typename T >
  static T Clamp (int v)
- static void clean (char *mant)
- static int doround (char *buf, unsigned int n)
- VR::VRType GetVRFromTag (Tag const &tag)
- bool operator!= (const CodeString &ref, const CodeString &cs)
- bool operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)
- std::ostream & operator<< (std::ostream &_os, const IOD &_val)
- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const IODs &_val)
- std::ostream & operator<< (std::ostream &_os, const Macro &_val)
- std::ostream & operator<< (std::ostream &_os, const Macros &_val)
- std::ostream & operator<< (std::ostream &_os, const MediaStorage &ms)
- std::ostream & operator<< (std::ostream &_os, const Module &_val)
- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const Modules &_val)
- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)
- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::ostream & operator<< (std::ostream &_os, const TransferSyntax &ts)
- std::ostream & operator<< (std::ostream &_os, const Type &val)
- std::ostream & operator<< (std::ostream &_os, const UI &_val)
- std::ostream & operator<< (std::ostream &_os, const UIDs &uid)
- std::ostream & operator<< (std::ostream &_os, const Usage &val)
- std::ostream & operator<< (std::ostream &_os, const VM &_val)
- std::ostream & operator<< (std::ostream &_os, const VR &val)
- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- std::ostream & operator<< (std::ostream &os, const CommandDataSet &val)
- std::ostream & operator<< (std::ostream &os, const CSAElement &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeader &d)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDict &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDictEntry &val)

- std::ostream & operator<< (std::ostream &os, const DataElement &val)
- std::ostream & operator<< (std::ostream &os, const DataSet &val)
- std::ostream & operator<< (std::ostream &os, const Dict &val)
- std::ostream & operator<< (std::ostream &os, const DictEntry &val)
- std::ostream & operator<< (std::ostream &os, const Dicts &d)
- std::ostream & operator<< (std::ostream &os, const Directory &d)
- std::ostream & operator<< (std::ostream &os, const DPath &val)
- std::ostream & operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.
- std::ostream & operator<< (std::ostream &os, const File &val)
- std::ostream & operator<< (std::ostream &os, const FileMetaInformation &val)
- std::ostream & operator<< (std::ostream &os, const FileSet &f)
- std::ostream & operator<< (std::ostream &os, const Fragment &val)
- std::ostream & operator<< (std::ostream &os, const Global &g)
- std::ostream & operator<< (std::ostream &os, const Item &val)
- std::ostream & operator<< (std::ostream &os, const MrProtocol &d)
- std::ostream & operator<< (std::ostream &os, const Object &obj)
- std::ostream & operator<< (std::ostream &os, const Orientation &o)
- std::ostream & operator<< (std::ostream &os, const PDBElement &val)
- std::ostream & operator<< (std::ostream &os, const PDBHeader &d)
- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &val)
- std::ostream & operator<< (std::ostream &os, const PixelFormat &pf)
- std::ostream & operator<< (std::ostream &os, const Preamble &val)
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)
- std::ostream & operator<< (std::ostream &os, const PrivateTag &val)
- std::ostream & operator<< (std::ostream &os, const Region &r)
- std::ostream & operator<< (std::ostream &os, const Scanner &s)
- std::ostream & operator<< (std::ostream &os, const Scanner2 &s)
- std::ostream & operator<< (std::ostream &os, const Sorter &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner2 &s)
- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)
- std::ostream & operator<< (std::ostream &os, const Version &v)
- std::ostream & operator<< (std::ostream &os, const VL &val)
- bool operator== (const CodeString &ref, const CodeString &cs)
- std::istream & operator>> (std::istream &_is, Tag &_val)
- std::istream & operator>> (std::istream &in, ignore_char const &ic)
- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)
- template<typename T >
  static int Round (T x)
- static int roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float >
  static void x16printf (char *buf, int size, Float f)

Variables

- static Global GlobalInstance

9.1.1 Detailed Description

This header defines the classes for the AA Actions, Association Abort Related Actions (Table 9-9 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AE Actions, Association Establishment Related Actions (Table 9-6 of ps 3.↩ 8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AR Actions, Association Release Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the DT Actions, Data Transfer Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

9.1.2 Typedef Documentation

9.1.2.1 AEComp

```
typedef String<'\\',16> gdcm::AEComp
```

9.1.2.2 ASComp

```
typedef String<'\\',64> gdcm::ASComp
```

9.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER

```
typedef bool(* gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File *, File *)
```

9.1.2.4 CSComp

```
typedef String<'\\',16> gdcm::CSComp
```

9.1.2.5 DAComp

```
typedef String<'\\',64> gdcm::DAComp
```

9.1.2.6 DTComp

```
typedef String<'\\',64> gdcm::DTComp
```

9.1.2.7 FileList

```
typedef std::vector< SmartPointer<FileWithName> > gdcm::FileList
```

9.1.2.8 IconImage

```
typedef Bitmap gdcm::IconImage
```

9.1.2.9 LOComp

```
typedef String<'\\',64> gdcm::LOComp
```

9.1.2.10 LTComp

```
typedef String<'\\',64> gdcm::LTComp
```

9.1.2.11 MacroEntry

```
typedef ModuleEntry gdcm::MacroEntry
```

9.1.2.12 NestedMacroEntries

```
typedef NestedModuleEntries gdcm::NestedMacroEntries
```

9.1.2.13 PNComp

```
typedef String<'\\',64> gdcm::PNComp
```

9.1.2.14 SHComp

```
typedef String<'\\',64> gdcm::SHComp
```

9.1.2.15 STComp

```
typedef String<'\\',64> gdcm::STComp
```

9.1.2.16 TMComp

```
typedef String<'\\',16> gdcm::TMComp
```

9.1.2.17 UCComp

```
typedef String<'\\',4294967294> gdcm::UCComp
```

9.1.2.18 UIComp

```
typedef String<'\\',64,0> gdcm::UIComp
```

9.1.2.19 URComp

```
typedef String<'\\',4294967294> gdcm::URComp
```

9.1.2.20 UTComp

```
typedef String<'\\',64> gdcm::UTComp
```

9.1.3 Enumeration Type Documentation

9.1.3.1 CompOperators

```
enum gdcm::CompOperators
```

Enumerator

GDCM_EQUAL	
GDCM_DIFFERENT	
GDCM_GREATER	
GDCM_GREATEROREQUAL	
GDCM_LESS	
GDCM_LESSOREQUAL	

9.1.3.2 ECharSet

```
enum gdcm::ECharSet
```

The character sets enumerated in PS 3.3 2009 Annex C, section C.12.1.1.2 The resulting character set is stored in 0008,0005 The conversion to the data element is performed by the QueryFactory itself

Enumerator

eLatin1	
eLatin2	
eLatin3	
eLatin4	
eCyrillic	
eArabic	
eGreek	
eHebrew	
eLatin5	
eJapanese	
eThai	
eJapaneseKanjiMultibyte	
eJapaneseSupplementaryKanjiMultibyte	
eKoreanHangulHanjaMultibyte	
eUTF8	
eGB18030	

9.1.3.3 ENQueryType

`enum gdcm::ENQueryType`

Enumerator

eCreateMMPS	
eSetMMPS	

9.1.3.4 EQueryLevel

`enum gdcm::EQueryLevel`

Enumerator

ePatient	
eStudy	
eSeries	
eImage	

9.1.3.5 EQueryType

`enum gdcm::EQueryType`

Enumerator

eFind	
eMove	
eWLMFind	

9.1.3.6 ERootType

```
enum gdcm::ERootType
```

Enumerator

ePatientRootType	
eStudyRootType	

9.1.3.7 LodModeType

```
enum gdcm::LodModeType
```

Enumerator

LD_ALL	
LD_NOSEQ	
LD_NOSHADOW	
LD_NOSHADOWSEQ	

9.1.4 Function Documentation

9.1.4.1 add1()

```
static int gdcm::add1 (
            char * buf,
            int n )  [static]
```

References add1().

Referenced by add1(), and doround().

9.1.4.2 backslash()

```
ignore_char const gdcm::backslash (
            '\\'  )
```

References backslash().

Referenced by backslash(), and gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength().

9.1.4.3 Clamp()

```
template<typename T >
static T gdcm::Clamp (
            int v )  [inline], [static]
```

9.1.4.4 clean()

```
static void gdcm::clean (
            char * mant )  [inline], [static]
```

References clean().

Referenced by clean(), and x16printf().

9.1.4.5 doround()

```
static int gdcm::doround (
            char * buf,
            unsigned int n )  [static]
```

References add1(), and doround().

Referenced by doround(), and roundat().

9.1.4.6 GetVRFromTag()

```
VR::VRType gdcm::GetVRFromTag (
            Tag const & tag )
```

9.1.4.7 operator"!=() [1/2]

```
bool gdcm::operator!= (
            const CodeString & ref,
            const CodeString & cs )  [inline]
```

Referenced by operator!=().

9.1.4.8 operator"!=() [2/2]

```
bool gdcm::operator!= (
            const DataElement & lhs,
            const DataElement & rhs )  [inline]
```

References operator!=().

9.1.4.9 operator<<() [1/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const GroupDict & _val )  [inline]
```

9.1.4.10 operator<<() [2/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IOD & _val )  [inline]
```

9.1.4.11 operator<<() [3/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODEntry & _val )  [inline]
```

9.1.4.12 operator<<() [4/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODs & _val )  [inline]
```

9.1.4.13 operator<<() [5/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macro & _val )  [inline]
```

9.1.4.14 operator<<() [6/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macros & _val )  [inline]
```

9.1.4.15 operator<<() [7/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const MediaStorage & ms )  [inline]
```

9.1.4.16 operator<<() [8/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Module & _val )  [inline]
```

9.1.4.17 operator<<() [9/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const ModuleEntry & _val )  [inline]
```

9.1.4.18 operator<<() [10/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Modules & _val )  [inline]
```

9.1.4.19 operator<<() [11/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val )  [inline]
```

9.1.4.20 operator<<() [12/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Tag & _val )  [inline]
```

9.1.4.21 operator<<() [13/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const TransferSyntax & ts )  [inline]
```

9.1.4.22 operator<<() [14/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Type & val )  [inline]
```

9.1.4.23 operator<<() [15/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UI & _val )  [inline]
```

9.1.4.24 operator<<() [16/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UIDs & uid )  [inline]
```

References gdcm::UIDs::GetName(), and gdcm::UIDs::GetString().

9.1.4.25 operator<<() [17/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Usage & val )  [inline]
```

9.1.4.26 operator<<() [18/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VM & _val )  [inline]
```

9.1.4.27 operator<<() [19/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VR & val )  [inline]
```

9.1.4.28 operator<<() [20/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const BasicOffsetTable & val )  [inline]
```

9.1.4.29 operator<<() [21/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CodeString & str )  [inline]
```

9.1.4.30 operator<<() [22/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CommandDataSet & val )  [inline]
```

9.1.4.31 operator<<() [23/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAElement & val )  [inline]
```

9.1.4.32 operator<<() [24/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeader & d )  [inline]
```

9.1.4.33 operator<<() [25/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDict & val )  [inline]
```

9.1.4.34 operator<<() [26/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDictEntry & val )  [inline]
```

9.1.4.35 operator<<() [27/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataElement & val )  [inline]
```

9.1.4.36 operator<<() [28/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataSet & val )  [inline]
```

9.1.4.37 operator<<() [29/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dict & val )  [inline]
```

9.1.4.38 operator<<() [30/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DictEntry & val )  [inline]
```

9.1.4.39 operator<<() [31/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dicts & d )  [inline]
```

9.1.4.40 operator<<() [32/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Directory & d )  [inline]
```

Referenced by gdcm::CSAHeaderDict::CSAHeaderDict(), gdcm::Dict::Dict(), gdcm::IOD::IOD(), gdcm::IODs::IODs(), gdcm::Macro::Macro(), gdcm::Macros::Macros(), gdcm::Module::Module(), gdcm::Modules::Modules(), gdcm::PDBElement::PDBElement(gdcm::CommandDataSet::~CommandDataSet(), gdcm::File::~File(), gdcm::FileMetaInformation::~FileMetaInformation(), gdcm::GroupDict::~GroupDict(), gdcm::ModuleEntry::~ModuleEntry(), gdcm::Preamble::~Preamble(), gdcm::DataSet::ComputeDataEle gdcm::VM::GetLength(), gdcm::PhotometricInterpretation::GetSamplesPerPixel(), gdcm::SwapCode::GetSwapCodeString(), and gdcm::MediaStorage::GuessFromModality().

9.1.4.41 operator<<() [33/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DPath & val )  [inline]
```

9.1.4.42 operator<<() [34/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Event & e )  [inline]
```

Generic inserter operator for Event and its subclasses.

References gdcm::Event::Print().

9.1.4.43 operator<<() [35/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const File & val )  [inline]
```

9.1.4.44 operator<<() [36/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileMetaInformation & val )  [inline]
```

9.1.4.45 operator<<() [37/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileSet & f )  [inline]
```

9.1.4.46 operator<<() [38/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Fragment & val )  [inline]
```

9.1.4.47 operator<<() [39/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Global & g )  [inline]
```

9.1.4.48 operator<<() [40/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Item & val )  [inline]
```

9.1.4.49 operator<<() [41/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const MrProtocol & d )  [inline]
```

9.1.4.50 operator<<() [42/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Object & obj )  [inline]
```

9.1.4.51 operator<<() [43/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Orientation & o )  [inline]
```

9.1.4.52 operator<<() [44/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBElement & val )  [inline]
```

9.1.4.53 operator<<() [45/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBHeader & d )  [inline]
```

9.1.4.54 operator<<() [46/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PhotometricInterpretation & val )  [inline]
```

9.1.4.55 operator<<() [47/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PixelFormat & pf )  [inline]
```

9.1.4.56 operator<<() [48/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Preamble & val )  [inline]
```

9.1.4.57 operator<<() [49/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateDict & val )  [inline]
```

9.1.4.58 operator<<() [50/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateTag & val )  [inline]
```

9.1.4.59 operator<<() [51/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Region & r )  [inline]
```

References gdcm::Region::Print().

9.1.4.60 operator<<() [52/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner & s )  [inline]
```

9.1.4.61 operator<<() [53/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner2 & s )  [inline]
```

9.1.4.62 operator<<() [54/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Sorter & s )  [inline]
```

9.1.4.63 operator<<() [55/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner & s )  [inline]
```

9.1.4.64 operator<<() [56/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner2 & s )  [inline]
```

9.1.4.65 operator<<() [57/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const SwapCode & sc )  [inline]
```

9.1.4.66 operator<<() [58/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Version & v )  [inline]
```

9.1.4.67 operator<<() [59/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const VL & val )  [inline]
```

9.1.4.68 operator==()

```
bool gdcm::operator== (
            const CodeString & ref,
            const CodeString & cs )  [inline]
```

9.1.4.69 operator>>() [1/3]

```
std::istream & gdcm::operator>> (
            std::istream & _is,
            Tag & _val )  [inline]
```

9.1.4.70 operator>>() [2/3]

```
std::istream & gdcm::operator>> (
            std::istream & in,
            ignore_char const & ic )  [inline]
```

References gdcm::ignore_char::m_char.

9.1.4.71 operator>>() [3/3]

```
template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
std::istream & gdcm::operator>> (
            std::istream & is,
            String< TDelimiter, TMaxLength, TPadChar > & ms )  [inline]
```

9.1.4.72 Round()

```
template<typename T >
static int gdcm::Round (
            T x )  [inline], [static]
```

Referenced by gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), and gdcm::ImageChangePhotometricInterpretation::YBR2RG

9.1.4.73 roundat()

```
static int gdcm::roundat (
            char * buf,
            size_t bufLen,
            unsigned int i,
            int iexp )  [static]
```

References doround(), and roundat().

Referenced by roundat(), and x16printf().

9.1.4.74 x16printf()

```
template<typename Float >
static void gdcm::x16printf (
            char * buf,
            int size,
            Float f )  [static]
```

References clean(), roundat(), and x16printf().

Referenced by gdcm::EncodingImplementation< VR::VRASCII >::Write(), and x16printf().

9.1.5 Variable Documentation

9.1.5.1 GlobalInstance

```
Global gdcm::GlobalInstance  [static]
```

9.2 gdcm::network Namespace Reference

Classes

- class AAbortPDU

  AAbortPDU.
- class AAssociateACPDU

  AAssociateACPDU.
- class AAssociateRJPDU

  AAssociateRJPDU.
- class AAssociateRQPDU

  AAssociateRQPDU.
- class AbstractSyntax

  AbstractSyntax.
- class ApplicationContext

  ApplicationContext.
- class AReleaseRPPDU

  AReleaseRPPDU.
- class AReleaseRQPDU

  AReleaseRQPDU.
- class ARTIMTimer

  ARTIMTimer.
- class AsynchronousOperationsWindowSub

  AsynchronousOperationsWindowSub.
- class BaseCompositeMessage

  BaseCompositeMessage.
- class BaseNormalizedMessage

  BaseNormalizedMessage.
- class BasePDU

  BasePDU.
- class CEchoRQ

  CEchoRQ.
- class CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class CFind
- class CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class CFindRQ

  CFindRQ.
- class CFindRSP

  CFindRSP this file defines the messages for the cfind action.
- class CMoveCancelRq
- class CMoveRQ

  CMoveRQ.
- class CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.
- class CompositeMessageFactory

CompositeMessageFactory.

- class CStoreRQ

  CStoreRQ.
- class CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.
- class DIMSE

  DIMSE.
- class ImplementationClassUIDSub

  ImplementationClassUIDSub.
- class ImplementationUIDSub

  ImplementationUIDSub.
- class ImplementationVersionNameSub

  ImplementationVersionNameSub.
- class MaximumLengthSub

  MaximumLengthSub.
- class NActionRQ

  NActionRQ.
- class NActionRSP

  NActionRSP this file defines the messages for the NAction action.
- class NCreateRQ

  NCreateRQ.
- class NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.
- class NDeleteRQ

  NDeleteRQ.
- class NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.
- class NEventReportRQ

  NEventReportRQ.
- class NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.
- class NGetRQ

  NGetRQ.
- class NGetRSP

  NGetRSP this file defines the messages for the nget action.
- class NormalizedMessageFactory
- class NSetRQ

  NSetRQ.
- class NSetRSP

  NSetRSP this file defines the messages for the nset action.
- class PDataTFPDU

  PDataTFPDU.
- class PDUFactory

  PDUFactory basically, given an initial byte, construct the.
- class PresentationContextAC

  PresentationContextAC.
- class PresentationContextRQ

PresentationContextRQ.

- class PresentationDataValue

  PresentationDataValue.
- class RoleSelectionSub

  RoleSelectionSub.
- class ServiceClassApplicationInformation
- class SOPClassExtendedNegociationSub

  SOPClassExtendedNegociationSub.
- class TableRow
- class TransferSyntaxSub

  TransferSyntaxSub.
- struct Transition
- class ULAction

  ULAction.
- class ULActionAA1
- class ULActionAA2
- class ULActionAA3
- class ULActionAA4
- class ULActionAA5
- class ULActionAA6
- class ULActionAA7
- class ULActionAA8
- class ULActionAE1
- class ULActionAE2
- class ULActionAE3
- class ULActionAE4
- class ULActionAE5
- class ULActionAE6
- class ULActionAE7
- class ULActionAE8
- class ULActionAR1
- class ULActionAR10
- class ULActionAR2
- class ULActionAR3
- class ULActionAR4
- class ULActionAR5
- class ULActionAR6
- class ULActionAR7
- class ULActionAR8
- class ULActionAR9
- class ULActionDT1
- class ULActionDT2
- class ULBasicCallback

  ULBasicCallback.
- class ULConnection

  ULConnection.
- class ULConnectionCallback
- class ULConnectionInfo

  ULConnectionInfo.

- class ULConnectionManager

  ULConnectionManager.
- class ULEvent

  ULEvent.
- class ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.
- class ULWritingCallback
- class UserInformation

  UserInformation.

Enumerations

- enum EEventID {
  eAASSOCIATERequestLocalUser = 0 ,
  eTransportConnConfirmLocal ,
  eASSOCIATE_ACPDUreceived ,
  eASSOCIATE_RJPDUreceived ,
  eTransportConnIndicLocal ,
  eAASSOCIATE_RQPDUreceived ,
  eAASSOCIATEresponseAccept ,
  eAASSOCIATEresponseReject ,
  ePDATArequest ,
  ePDATATFPDU ,
  eARELEASERequest ,
  eARELEASE_RQPDUReceivedOpen ,
  eARELEASE_RPPDUReceived ,
  eARELEASEResponse ,
  eAABORTRequest ,
  eAABORTPDUReceivedOpen ,
  eTransportConnectionClosed ,
  eARTIMTimerExpired ,
  eUnrecognizedPDUReceived ,
  eEventDoesNotExist }
- enum EStateID {
  eStaDoesNotExist = 0 ,
  eSta1Idle = 1 ,
  eSta2Open = 2 ,
  eSta3WaitLocalAssoc = 4 ,
  eSta4LocalAssocDone = 8 ,
  eSta5WaitRemoteAssoc = 16 ,
  eSta6TransferReady = 32 ,
  eSta7WaitRelease = 64 ,
  eSta8WaitLocalRelease = 128 ,
  eSta9ReleaseCollisionRqLocal = 256 ,
  eSta10ReleaseCollisionAc = 512 ,
  eSta11ReleaseCollisionRq = 1024 ,
  eSta12ReleaseCollisionAcLocal = 2048 ,
  eSta13AwaitingClose = 4096 }

Functions

- int GetStateIndex (EStateID inState)

Variables

- const int cMaxEventID = eEventDoesNotExist
- const int cMaxStateID = 13

9.2.1 Enumeration Type Documentation

9.2.1.1 EEventID

`enum gdcm::network::EEventID`

Enumerator

eAASSOCIATERequestLocalUser	
eTransportConnConfirmLocal	
eASSOCIATE_ACPDUreceived	
eASSOCIATE_RJPDUreceived	
eTransportConnIndicLocal	
eAASSOCIATE_RQPDUreceived	
eAASSOCIATEresponseAccept	
eAASSOCIATEresponseReject	
ePDATArequest	
ePDATATFPDU	
eARELEASERequest	
eARELEASE_RQPDUReceivedOpen	
eARELEASE_RPPDUReceived	
eARELEASEResponse	
eAABORTRequest	
eAABORTPDUReceivedOpen	
eTransportConnectionClosed	
eARTIMTimerExpired	
eUnrecognizedPDUReceived	
eEventDoesNotExist	

9.2.1.2 EStateID

`enum gdcm::network::EStateID`

Each network connection will be in a particular state at any given time. Those states have IDs as described in the standard ps3.8-2009, roughly 1-13. This enumeration lists those states. The actual ULState class will contain more information about transitions to other states.

name and date: 16 sept 2010 mmr

Enumerator

eStaDoesNotExist	
eSta1Idle	
eSta2Open	
eSta3WaitLocalAssoc	
eSta4LocalAssocDone	
eSta5WaitRemoteAssoc	
eSta6TransferReady	
eSta7WaitRelease	
eSta8WaitLocalRelease	
eSta9ReleaseCollisionRqLocal	
eSta10ReleaseCollisionAc	
eSta11ReleaseCollisionRq	
eSta12ReleaseCollisionAcLocal	
eSta13AwaitingClose	

9.2.2 Function Documentation

9.2.2.1 GetStateIndex()

```
int gdcm::network::GetStateIndex (
            EStateID inState )  [inline]
```

References eSta10ReleaseCollisionAc, eSta11ReleaseCollisionRq, eSta12ReleaseCollisionAcLocal, eSta13AwaitingClose, eSta1Idle, eSta2Open, eSta3WaitLocalAssoc, eSta4LocalAssocDone, eSta5WaitRemoteAssoc, eSta6TransferReady, eSta7WaitRelease, eSta8WaitLocalRelease, eSta9ReleaseCollisionRqLocal, and eStaDoesNotExist.

9.2.3 Variable Documentation

9.2.3.1 cMaxEventID

```
const int gdcm::network::cMaxEventID = eEventDoesNotExist
```

9.2.3.2 cMaxStateID

```
const int gdcm::network::cMaxStateID = 13
```

Referenced by gdcm::network::TableRow::TableRow(), and gdcm::network::TableRow::~TableRow().

9.3 gdcm::SegmentHelper Namespace Reference

Classes

- struct BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

9.4 gdcm::terminal Namespace Reference

Class for Terminal.

Enumerations

- enum Attribute {
  reset = 0 ,
  bright = 1 ,
  dim = 2 ,
  underline = 3 ,
  blink = 5 ,
  reverse = 7 ,
  hidden = 8 }
- enum Color {
  black = 0 ,
  red ,
  green ,
  yellow ,
  blue ,
  magenta ,
  cyan ,
  white }
- enum Mode {
  CONSOLE = 0 ,
  VT100 }

Functions

- GDCM_EXPORT std::string setattribute (Attribute att)
- GDCM_EXPORT std::string setbgcolor (Color c)
- GDCM_EXPORT std::string setfgcolor (Color c)
- GDCM_EXPORT void setmode (Mode m)

9.4.1 Detailed Description

Class for Terminal.

Allow one to print in color in a shell

- support VT100 compatible shell
- win32 console

9.4.2 Enumeration Type Documentation

9.4.2.1 Attribute

`enum gdcm::terminal::Attribute`

Enumerator

reset	
bright	
dim	
underline	
blink	
reverse	
hidden	

9.4.2.2 Color

`enum gdcm::terminal::Color`

Enumerator

black	
red	
green	
yellow	
blue	
magenta	
cyan	
white	

9.4.2.3 Mode

`enum gdcm::terminal::Mode`

Enumerator

CONSOLE	
VT100	

9.4.3 Function Documentation

9.4.3.1 setattribute()

```
GDCM_EXPORT std::string gdcm::terminal::setattribute (
            Attribute att )
```

9.4.3.2 setbgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setbgcolor (
            Color c )
```

9.4.3.3 setfgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setfgcolor (
            Color c )
```

9.4.3.4 setmode()

```
GDCM_EXPORT void gdcm::terminal::setmode (
            Mode m )
```

Chapter 10

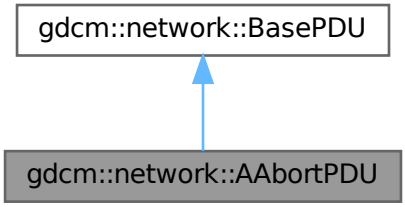
Class Documentation

10.1 gdcm::network::AAbortPDU Class Reference

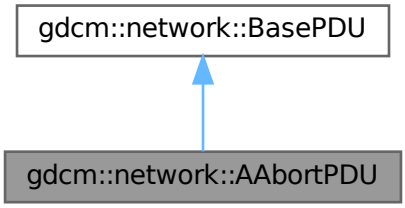
AAbortPDU.

```
#include <gdcmAAbortPDU.h>
```

Inheritance diagram for gdcm::network::AAbortPDU:



Collaboration diagram for gdcm::network::AAbortPDU:



Public Member Functions

- AAbortPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetReason (const uint8_t r)
- void SetSource (const uint8_t s)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

10.1.1 Detailed Description

AAbortPDU.

Table 9-26 A-ABORT PDU FIELDS

10.1.2 Constructor & Destructor Documentation

10.1.2.1 AAbortPDU()

```
gdcm::network::AAbortPDU::AAbortPDU ( )
```

10.1.3 Member Function Documentation

10.1.3.1 IsLastFragment()

```
bool gdcm::network::AAbortPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.1.3.2 Print()

```
void gdcm::network::AAbortPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.1.3.3 Read()

```
std::istream & gdcm::network::AAbortPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.1.3.4 SetReason()

```
void gdcm::network::AAbortPDU::SetReason (
            const uint8_t r )
```

10.1.3.5 SetSource()

```
void gdcm::network::AAbortPDU::SetSource (
            const uint8_t s )
```

10.1.3.6 Size()

```
size_t gdcm::network::AAbortPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.1.3.7 Write()

```
const std::ostream & gdcm::network::AAbortPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

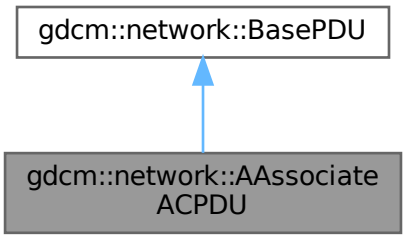
- gdcmAAbortPDU.h

10.2 gdcm::network::AAssociateACPDU Class Reference

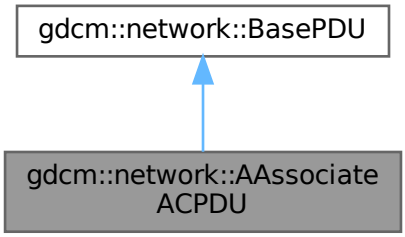
AAssociateACPDU.

```
#include <gdcmAAssociateACPDU.h>
```

Inheritance diagram for gdcm::network::AAssociateACPDU:



Collaboration diagram for gdcm::network::AAssociateACPDU:



Public Types

- typedef std::vector< PresentationContextAC >::size_type SizeType

Public Member Functions

- AAssociateACPDU ()
- void AddPresentationContextAC (PresentationContextAC const &pcac)
- SizeType GetNumberOfPresentationContextAC () const
- const PresentationContextAC & GetPresentationContextAC (SizeType i)
- const UserInformation & GetUserInformation () const
- void InitFromRQ (AAssociateRQPDU const &rqpdu)
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- SizeType Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- void SetCalledAETitle (const char calledaetitle[16])
- void SetCallingAETitle (const char callingaetitle[16])

Friends

- class AAssociateRQPDU

10.2.1 Detailed Description

AAssociateACPDU.

Table 9-17 ASSOCIATE-AC PDU fields

10.2.2 Member Typedef Documentation

10.2.2.1 SizeType

```
typedef std::vector<PresentationContextAC>::size_type gdcm::network::AAssociateACPDU::SizeType
```

10.2.3 Constructor & Destructor Documentation

10.2.3.1 AAssociateACPDU()

```
gdcm::network::AAssociateACPDU::AAssociateACPDU ( )
```

10.2.4 Member Function Documentation

10.2.4.1 AddPresentationContextAC()

```
void gdcm::network::AAssociateACPDU::AddPresentationContextAC (
            PresentationContextAC const & pcac )
```

10.2.4.2 GetNumberOfPresentationContextAC()

```
SizeType gdcm::network::AAssociateACPDU::GetNumberOfPresentationContextAC ( ) const  [inline]
```

10.2.4.3 GetPresentationContextAC()

```
const PresentationContextAC & gdcm::network::AAssociateACPDU::GetPresentationContextAC (
            SizeType i )  [inline]
```

10.2.4.4 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateACPDU::GetUserInformation ( ) const  [inline]
```

10.2.4.5 InitFromRQ()

```
void gdcm::network::AAssociateACPDU::InitFromRQ (
            AAssociateRQPDU const & rqpdu )
```

10.2.4.6 IsLastFragment()

```
bool gdcm::network::AAssociateACPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.2.4.7 Print()

```
void gdcm::network::AAssociateACPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.2.4.8 Read()

```
std::istream & gdcm::network::AAssociateACPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.2.4.9 SetCalledAETitle()

```
void gdcm::network::AAssociateACPDU::SetCalledAETitle (
            const char calledaetitle[16] )  [protected]
```

10.2.4.10 SetCallingAETitle()

```
void gdcm::network::AAssociateACPDU::SetCallingAETitle (
            const char callingaetitle[16] )  [protected]
```

10.2.4.11 Size()

```
SizeType gdcm::network::AAssociateACPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.2.4.12 Write()

```
const std::ostream & gdcm::network::AAssociateACPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.2.5 Friends And Related Symbol Documentation

10.2.5.1 AAssociateRQPDU

```
friend class AAssociateRQPDU  [friend]
```

The documentation for this class was generated from the following file:

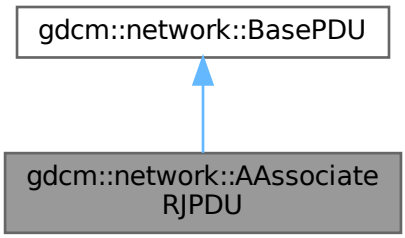
- gdcmAAssociateACPDU.h

10.3 gdcm::network::AAssociateRJPDU Class Reference

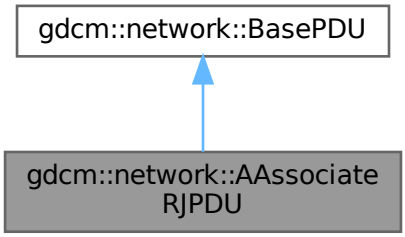
AAssociateRJPDU.

```
#include <gdcmAAssociateRJPDU.h>
```

Inheritance diagram for gdcm::network::AAssociateRJPDU:



Collaboration diagram for gdcm::network::AAssociateRJPDU:



Public Member Functions

- AAssociateRJPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

10.3.1 Detailed Description

AAssociateRJPDU.

Table 9-21 ASSOCIATE-RJ PDU FIELDS

10.3.2 Constructor & Destructor Documentation

10.3.2.1 AAssociateRJPDU()

```
gdcm::network::AAssociateRJPDU::AAssociateRJPDU ( )
```

10.3.3 Member Function Documentation

10.3.3.1 IsLastFragment()

```
bool gdcm::network::AAssociateRJPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.3.3.2 Print()

```
void gdcm::network::AAssociateRJPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.3.3.3 Read()

```
std::istream & gdcm::network::AAssociateRJPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.3.3.4 Size()

```
size_t gdcm::network::AAssociateRJPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.3.3.5 Write()

```
const std::ostream & gdcm::network::AAssociateRJPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

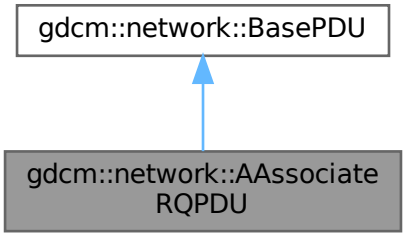
- gdcmAAssociateRJPDU.h

10.4 gdcm::network::AAssociateRQPDU Class Reference

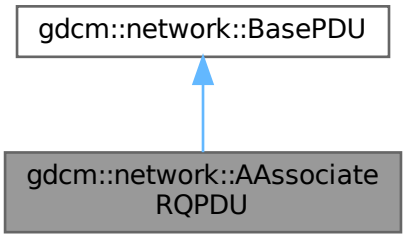
AAssociateRQPDU.

```
#include <gdcmAAssociateRQPDU.h>
```

Inheritance diagram for gdcm::network::AAssociateRQPDU:



Collaboration diagram for gdcm::network::AAssociateRQPDU:



Public Types

- typedef std::vector< PresentationContextRQ > PresentationContextArrayType
- typedef std::vector< PresentationContextRQ >::size_type SizeType

Public Member Functions

- AAssociateRQPDU ()
- AAssociateRQPDU (const AAssociateRQPDU &pdu)
- void AddPresentationContext (PresentationContextRQ const &pc)
- std::string GetCalledAETitle () const
- std::string GetCallingAETitle () const
- SizeType GetNumberOfPresentationContext () const
- PresentationContextRQ const & GetPresentationContext (SizeType i) const
- const PresentationContextRQ * GetPresentationContextByAbstractSyntax (AbstractSyntax const &absyn) const
- const PresentationContextRQ * GetPresentationContextByID (uint8_t i) const
- PresentationContextArrayType const & GetPresentationContexts ()
- const UserInformation & GetUserInformation () const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetCalledAETitle (const char calledaetitle[16])

  Set the Called AE Title.
- void SetCallingAETitle (const char callingaetitle[16])

  Set the Calling AE Title.
- void SetUserInformation (UserInformation const &ui)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Static Public Member Functions

- static bool IsAETitleValid (const char title[16])

  Check whether or not the.

Protected Member Functions

- std::string GetReserved43_74 () const

Friends

- class AAssociateACPDU

10.4.1 Detailed Description

AAssociateRQPDU.

Table 9-11 ASSOCIATE-RQ PDU fields

10.4.2 Member Typedef Documentation

10.4.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContextRQ> gdcm::network::AAssociateRQPDU::PresentationContextArrayType
```

10.4.2.2 SizeType

```
typedef std::vector<PresentationContextRQ>::size_type gdcm::network::AAssociateRQPDU::SizeType
```

10.4.3 Constructor & Destructor Documentation

10.4.3.1 AAssociateRQPDU() [1/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU ( )
```

10.4.3.2 AAssociateRQPDU() [2/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU (
            const AAssociateRQPDU & pdu )  [inline]
```

10.4.4 Member Function Documentation

10.4.4.1 AddPresentationContext()

```
void gdcm::network::AAssociateRQPDU::AddPresentationContext (
            PresentationContextRQ const & pc )
```

10.4.4.2 GetCalledAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCalledAETitle ( ) const  [inline]
```

10.4.4.3 GetCallingAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCallingAETitle ( ) const  [inline]
```

10.4.4.4 GetNumberOfPresentationContext()

```
SizeType gdcm::network::AAssociateRQPDU::GetNumberOfPresentationContext ( ) const  [inline]
```

10.4.4.5 GetPresentationContext()

```
PresentationContextRQ const & gdcm::network::AAssociateRQPDU::GetPresentationContext (
            SizeType i ) const  [inline]
```

10.4.4.6 GetPresentationContextByAbstractSyntax()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByAbstract↩
Syntax (
            AbstractSyntax const & absyn ) const
```

10.4.4.7 GetPresentationContextByID()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByID (
            uint8_t i ) const
```

10.4.4.8 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::network::AAssociateRQPDU::GetPresentationContexts ( )
[inline]
```

10.4.4.9 GetReserved43_74()

```
std::string gdcm::network::AAssociateRQPDU::GetReserved43_74 ( ) const  [protected]
```

10.4.4.10 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateRQPDU::GetUserInformation ( ) const  [inline]
```

10.4.4.11 IsAETitleValid()

```
static bool gdcm::network::AAssociateRQPDU::IsAETitleValid (
            const char title[16] )  [static]
```

Check whether or not the.

Parameters

title	is a valid AE title

10.4.4.12 IsLastFragment()

```
bool gdcm::network::AAssociateRQPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.4.4.13 Print()

```
void gdcm::network::AAssociateRQPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

This function will initialize an AAssociateACPDU from the fields in the AAssociateRQPDU structure

Implements gdcm::network::BasePDU.

10.4.4.14 Read()

```
std::istream & gdcm::network::AAssociateRQPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.4.4.15 SetCalledAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCalledAETitle (
            const char calledaetitle[16] )
```

Set the Called AE Title.

10.4.4.16 SetCallingAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCallingAETitle (
            const char callingaetitle[16] )
```

Set the Calling AE Title.

10.4.4.17 SetUserInformation()

```
void gdcm::network::AAssociateRQPDU::SetUserInformation (
            UserInformation const & ui )
```

10.4.4.18 Size()

```
size_t gdcm::network::AAssociateRQPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.4.4.19 Write()

```
const std::ostream & gdcm::network::AAssociateRQPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.4.5 Friends And Related Symbol Documentation

10.4.5.1 AAssociateACPDU

```
friend class AAssociateACPDU  [friend]
```

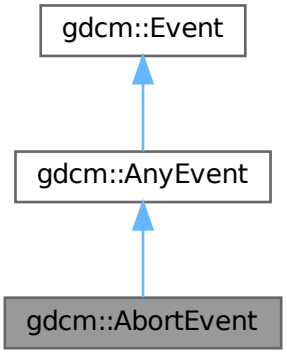
The documentation for this class was generated from the following file:

- gdcmAAssociateRQPDU.h

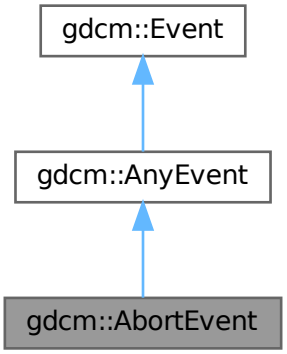
10.5 gdcm::AbortEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::AbortEvent:



Collaboration diagram for gdcm::AbortEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.6 gdcm::network::AbstractSyntax Class Reference

AbstractSyntax.

```
#include <gdcmAbstractSyntax.h>
```

Public Member Functions

- AbstractSyntax ()
- DataElement GetAsDataElement () const
- const char * GetName () const
- bool operator== (const AbstractSyntax &as) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.6.1 Detailed Description

AbstractSyntax.

Table 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS

10.6.2 Constructor & Destructor Documentation

10.6.2.1 AbstractSyntax()

```
gdcm::network::AbstractSyntax::AbstractSyntax ( )
```

10.6.3 Member Function Documentation

10.6.3.1 GetAsDataElement()

```
DataElement gdcm::network::AbstractSyntax::GetAsDataElement ( ) const
```

10.6.3.2 GetName()

```
const char * gdcm::network::AbstractSyntax::GetName ( ) const  [inline]
```

10.6.3.3 operator==()

```
bool gdcm::network::AbstractSyntax::operator== (
            const AbstractSyntax & as ) const  [inline]
```

10.6.3.4 Print()

```
void gdcm::network::AbstractSyntax::Print (
            std::ostream & os ) const
```

10.6.3.5 Read()

```
std::istream & gdcm::network::AbstractSyntax::Read (
            std::istream & is )
```

10.6.3.6 SetName()

```
void gdcm::network::AbstractSyntax::SetName (
            const char * name )  [inline]
```

10.6.3.7 SetNameFromUID()

```
void gdcm::network::AbstractSyntax::SetNameFromUID (
            UIDs::TSName tsname )
```

10.6.3.8 Size()

```
size_t gdcm::network::AbstractSyntax::Size ( ) const
```

10.6.3.9 Write()

```
const std::ostream & gdcm::network::AbstractSyntax::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

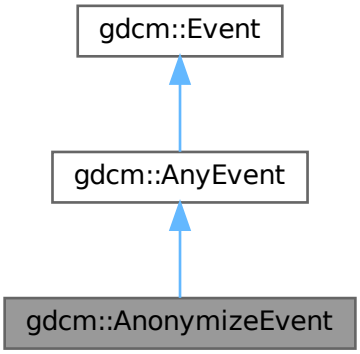
- gdcmAbstractSyntax.h

10.7 gdcm::AnonymizeEvent Class Reference

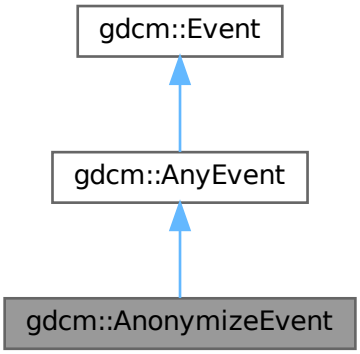
AnonymizeEvent.

```
#include <gdcmAnonymizeEvent.h>
```

Inheritance diagram for gdcm::AnonymizeEvent:



Collaboration diagram for gdcm::AnonymizeEvent:



Public Types

- typedef AnonymizeEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- AnonymizeEvent (const Self &s)
- AnonymizeEvent (Tag const &tag=0)
- ~AnonymizeEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- Tag const & GetTag () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetTag (const Tag &t)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.7.1 Detailed Description

AnonymizeEvent.

Special type of event triggered during the Anonymization process

See also

Anonymizer

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.7.2 Member Typedef Documentation

10.7.2.1 Self

```
typedef AnonymizeEvent gdcm::AnonymizeEvent::Self
```

10.7.2.2 Superclass

```
typedef AnyEvent gdcm::AnonymizeEvent::Superclass
```

10.7.3 Constructor & Destructor Documentation

10.7.3.1 AnonymizeEvent() [1/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            Tag const & tag = 0 )  [inline]
```

10.7.3.2 ~AnonymizeEvent()

```
gdcm::AnonymizeEvent::~AnonymizeEvent ( )  [override], [default]
```

10.7.3.3 AnonymizeEvent() [2/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            const Self & s )  [inline]
```

10.7.4 Member Function Documentation

10.7.4.1 CheckEvent()

```
bool gdcm::AnonymizeEvent::CheckEvent (
            const ::gdcm::Event * e ) const  [inline], [override]
```

10.7.4.2 GetEventName()

```
const char * gdcm::AnonymizeEvent::GetEventName ( ) const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

10.7.4.3 GetTag()

```
Tag const & gdcm::AnonymizeEvent::GetTag ( ) const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.7.4.4 MakeObject()

```
::gdcm::Event * gdcm::AnonymizeEvent::MakeObject ( ) const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

10.7.4.5 operator=()

```
void gdcm::AnonymizeEvent::operator= (
            const Self &  )  [delete]
```

10.7.4.6 SetTag()

```
void gdcm::AnonymizeEvent::SetTag (
            const Tag & t )  [inline]
```

The documentation for this class was generated from the following file:

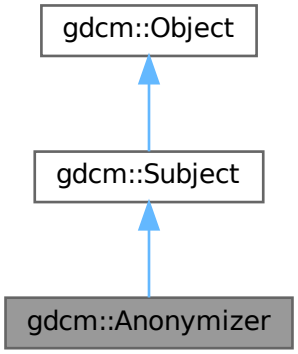
- gdcmAnonymizeEvent.h

10.8 gdcm::Anonymizer Class Reference

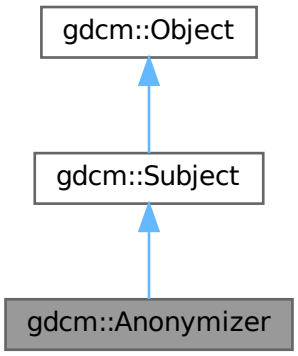
Anonymizer.

```
#include <gdcmAnonymizer.h>
```

Inheritance diagram for gdcm::Anonymizer:



Collaboration diagram for gdcm::Anonymizer:



Public Member Functions

- Anonymizer ()
- ~Anonymizer () override
- bool BasicApplicationLevelConfidentialityProfile (bool deidentify=true)
- bool Clear (PrivateTag const &pt)
- bool Clear (Tag const &t)

  Identical to 'Empty' except no action is done when tag is not present.
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)

  Make Tag t empty (if not found tag will be created)
- const CryptographicMessageSyntax * GetCryptographicMessageSyntax () const
- File & GetFile ()
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- bool RemoveGroupLength ()

  Main function that loop over all elements and remove group length.
- bool RemovePrivateTags ()

  Main function that loop over all elements and remove private tags.
- bool RemoveRetired ()

  Main function that loop over all elements and remove retired element.
- bool Replace (PrivateTag const &t, const char *value)
- bool Replace (PrivateTag const &t, const char *value, VL const &vl)
- bool Replace (Tag const &t, const char *value)
- bool Replace (Tag const &t, const char *value, VL const &vl)
- void SetCryptographicMessageSyntax (CryptographicMessageSyntax *cms)

  Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static void ClearInternalUIDs ()
- static std::vector< Tag > GetBasicApplicationLevelConfidentialityProfileAttributes ()

  Return the list of Tag that will be considered when anonymizing a DICOM file.
- static SmartPointer< Anonymizer > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- bool BALCPProtect (DataSet &ds, Tag const &tag, const IOD &iod)
- bool CanEmptyTag (Tag const &tag, const IOD &iod) const
- void RecurseDataSet (DataSet &ds)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.8.1 Detailed Description

Anonymizer.

This class is a multi purpose anonymizer. It can work in 2 mode:

- Full (irreversible) anonymizer (aka dumb mode)
- reversible de-identifier/re-identifier (aka smart mode). This implements the Basic Application Level Confidentiality Profile, DICOM PS 3.15-2009

1. dumb mode This is a dumb anonymizer implementation. All it allows user is simple operation such as:

Tag based functions:

- complete removal of DICOM attribute (Remove)
- make a tag empty, ie make it's length 0 (Empty)
- replace with another string-based value (Replace)

DataSet based functions:

- Remove all group length attribute from a DICOM dataset (Group Length element are deprecated, DICOM 2008)
- Remove all private attributes
- Remove all retired attributes

All function calls actually execute the user specified request. Previous implementation were calling a general Anonymize function but traversing a std::set is O(n) operation, while a simple user specified request is O(log(n)) operation. So 'm' user interaction is O(m∗log(n)) which is $<$ O(n) complexity.

1. smart mode this mode implements the Basic Application Level Confidentiality Profile (DICOM PS 3.15-2008) In this case, it is extremely important to use the same Anonymizer class when anonymizing a FileSet. Once the Anonymizer is destroyed its memory of known (already processed) UIDs will be lost. which will make the anonymizer behaves incorrectly for attributes such as Series UID Study UID where user want some consistency. When attribute is Type 1 / Type 1C, a dummy generator will take in the existing value and produce a dummy value (a sha1 representation). sha1 algorithm is considered to be cryptographically strong (compared to md5sum) so that we meet the following two conditions:
   - Produce the same dummy value for the same input value
   - do not provide an easy way to retrieve the original value from the sha1 generated value

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

See also

CryptographicMessageSyntax

Examples

BasicAnonymizer.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

10.8.2 Constructor & Destructor Documentation

10.8.2.1 Anonymizer()

```
gdcm::Anonymizer::Anonymizer ( ) [inline]
```

10.8.2.2 ~Anonymizer()

```
gdcm::Anonymizer::~Anonymizer ( ) [override]
```

10.8.3 Member Function Documentation

10.8.3.1 BALCPProtect()

```
bool gdcm::Anonymizer::BALCPProtect (
            DataSet & ds,
            Tag const & tag,
            const IOD & iod ) [protected]
```

10.8.3.2 BasicApplicationLevelConfidentialityProfile()

```
bool gdcm::Anonymizer::BasicApplicationLevelConfidentialityProfile (
            bool deidentify = true )
```

PS 3.15 / E.1.1 De-Identifier An Application may claim conformance to the Basic Application Level Confidentiality Profile as a deidentifier if it protects all Attributes that might be used by unauthorized entities to identify the patient. NOT THREAD SAFE

Examples

BasicAnonymizer.cs.

10.8.3.3 CanEmptyTag()

```
bool gdcm::Anonymizer::CanEmptyTag (
            Tag const & tag,
            const IOD & iod ) const [protected]
```

10.8.3.4 Clear() [1/2]

```
bool gdcm::Anonymizer::Clear (
            PrivateTag const & pt )
```

10.8.3.5 Clear() [2/2]

```
bool gdcm::Anonymizer::Clear (
            Tag const & t )
```

Identical to 'Empty' except no action is done when tag is not present.

10.8.3.6 ClearInternalUIDs()

```
static void gdcm::Anonymizer::ClearInternalUIDs ( ) [static]
```

Clear the internal mapping of real UIDs to generated UIDs

Warning

the mapping is definitely lost

10.8.3.7 Empty() [1/2]

```
bool gdcm::Anonymizer::Empty (
            PrivateTag const & pt )
```

Make PrivateTag pt empty (if not found tag will be created) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace.

10.8.3.8 Empty() [2/2]

```
bool gdcm::Anonymizer::Empty (
            Tag const & t )
```

Make Tag t empty (if not found tag will be created)

Examples

CreateJPIPDataSet.cxx.

10.8.3.9 GetBasicApplicationLevelConfidentialityProfileAttributes()

```
static std::vector< Tag > gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfile↩
Attributes ( ) [static]
```

Return the list of Tag that will be considered when anonymizing a DICOM file.

Examples

GenFakeIdentifyFile.cxx, and TraverseModules.cxx.

10.8.3.10 GetCryptographicMessageSyntax()

```
const CryptographicMessageSyntax * gdcm::Anonymizer::GetCryptographicMessageSyntax ( ) const
```

10.8.3.11 GetFile()

```
File & gdcm::Anonymizer::GetFile ( )  [inline]
```

Examples

BasicAnonymizer.cs, and ManipulateFile.cs.

10.8.3.12 New()

```
static SmartPointer< Anonymizer > gdcm::Anonymizer::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.8.3.13 RecurseDataSet()

```
void gdcm::Anonymizer::RecurseDataSet (
            DataSet & ds )  [protected]
```

10.8.3.14 Remove() [1/2]

```
bool gdcm::Anonymizer::Remove (
            PrivateTag const & pt )
```

remove a private tag (even a SQ can be removed) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace. When the private reservation becomes empty, no check is done to automatically remove the private creator

10.8.3.15 Remove() [2/2]

```
bool gdcm::Anonymizer::Remove (
            Tag const & t )
```

remove a tag (even a SQ can be removed)

10.8.3.16 RemoveGroupLength()

```
bool gdcm::Anonymizer::RemoveGroupLength ( )
```

Main function that loop over all elements and remove group length.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

10.8.3.17 RemovePrivateTags()

```
bool gdcm::Anonymizer::RemovePrivateTags ( )
```

Main function that loop over all elements and remove private tags.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

10.8.3.18 RemoveRetired()

```
bool gdcm::Anonymizer::RemoveRetired ( )
```

Main function that loop over all elements and remove retired element.

10.8.3.19 Replace() [1/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value )
```

10.8.3.20 Replace() [2/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value,
            VL const & vl )
```

10.8.3.21 Replace() [3/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value )
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII

Examples

ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

10.8.3.22 Replace() [4/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value,
            VL const & vl )
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

10.8.3.23 SetCryptographicMessageSyntax()

```
void gdcm::Anonymizer::SetCryptographicMessageSyntax (
            CryptographicMessageSyntax * cms )
```

Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.8.3.24 SetFile()

```
void gdcm::Anonymizer::SetFile (
            const File & f )  [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

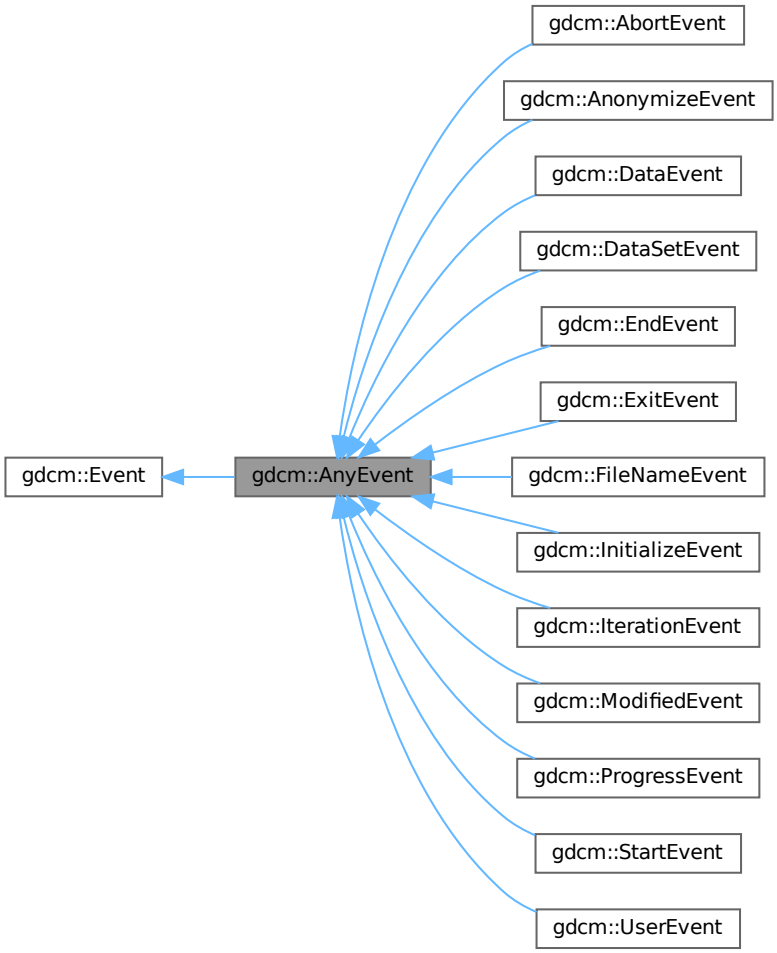
The documentation for this class was generated from the following file:

- gdcmAnonymizer.h

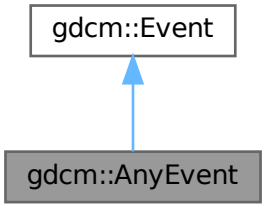
10.9 gdcm::AnyEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::AnyEvent:



Collaboration diagram for gdcm::AnyEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.10 gdcm::network::ApplicationContext Class Reference

ApplicationContext.

```
#include <gdcmApplicationContext.h>
```

Public Member Functions

- ApplicationContext ()
- const char * GetName () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.10.1 Detailed Description

ApplicationContext.

Table 9-12 APPLICATION CONTEXT ITEM FIELDS

Todo Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

10.10.2 Constructor & Destructor Documentation

10.10.2.1 ApplicationContext()

```
gdcm::network::ApplicationContext::ApplicationContext ( )
```

10.10.3 Member Function Documentation

10.10.3.1 GetName()

```
const char * gdcm::network::ApplicationContext::GetName ( ) const  [inline]
```

10.10.3.2 Print()

```
void gdcm::network::ApplicationContext::Print (
            std::ostream & os ) const
```

10.10.3.3 Read()

```
std::istream & gdcm::network::ApplicationContext::Read (
            std::istream & is )
```

10.10.3.4 SetName()

```
void gdcm::network::ApplicationContext::SetName (
            const char * name )  [inline]
```

10.10.3.5 Size()

```
size_t gdcm::network::ApplicationContext::Size ( ) const
```

10.10.3.6 Write()

```
const std::ostream & gdcm::network::ApplicationContext::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

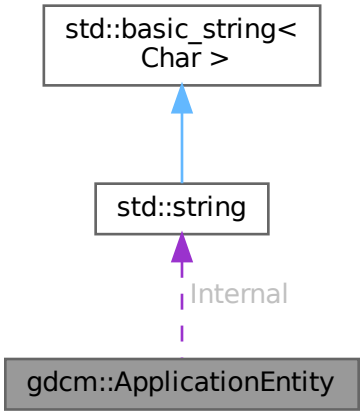
- gdcmApplicationContext.h

10.11 gdcm::ApplicationEntity Class Reference

ApplicationEntity.

```
#include <gdcmApplicationEntity.h>
```

Collaboration diagram for gdcm::ApplicationEntity:



Public Member Functions

- bool IsValid () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void Squeeze ()

Public Attributes

- std::string Internal

Static Public Attributes

- static const unsigned int MaxLength = 16
- static const unsigned int MaxNumberOfComponents = 1
- static const char Padding = ' '
- static const char Separator = ' '

10.11.1 Detailed Description

ApplicationEntity.

- AE Application Entity
- A string of characters that identifies an Application Entity with leading and trailing spaces (20H) being non-significant. A value consisting solely of spaces shall not be used.
- Default Character Repertoire excluding character code 5CH (the BACKSLASH \ in ISO-IR 6), and control characters LF, FF, CR and ESC.
- 16 bytes maximum

10.11.2 Member Function Documentation

10.11.2.1 IsValid()

```
bool gdcm::ApplicationEntity::IsValid ( ) const  [inline]
```

10.11.2.2 Print()

```
void gdcm::ApplicationEntity::Print (
            std::ostream & os ) const  [inline]
```

10.11.2.3 SetBlob()

```
void gdcm::ApplicationEntity::SetBlob (
            const std::vector< char > & v )  [inline]
```

10.11.2.4 Squeeze()

```
void gdcm::ApplicationEntity::Squeeze ( )  [inline]
```

10.11.3 Member Data Documentation

10.11.3.1 Internal

```
std::string gdcm::ApplicationEntity::Internal
```

10.11.3.2 MaxLength

```
const unsigned int gdcm::ApplicationEntity::MaxLength = 16  [static]
```

10.11.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::ApplicationEntity::MaxNumberOfComponents = 1  [static]
```

10.11.3.4 Padding

```
const char gdcm::ApplicationEntity::Padding = ' '  [static]
```

10.11.3.5 Separator

```
const char gdcm::ApplicationEntity::Separator = ' '  [static]
```

The documentation for this class was generated from the following file:

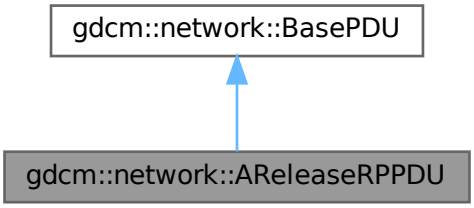
- gdcmApplicationEntity.h

10.12 gdcm::network::AReleaseRPPDU Class Reference

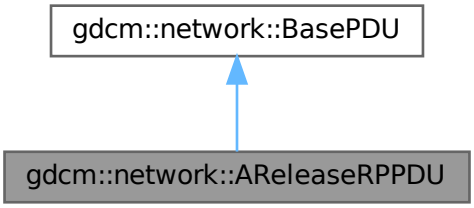
AReleaseRPPDU.

```
#include <gdcmAReleaseRPPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRPPDU:



Collaboration diagram for gdcm::network::AReleaseRPPDU:



Public Member Functions

- AReleaseRPPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

10.12.1 Detailed Description

AReleaseRPPDU.

Table 9-25 A-RELEASE-RP PDU fields

10.12.2 Constructor & Destructor Documentation

10.12.2.1 AReleaseRPPDU()

```
gdcm::network::AReleaseRPPDU::AReleaseRPPDU ( )
```

10.12.3 Member Function Documentation

10.12.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRPPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.12.3.2 Print()

```
void gdcm::network::AReleaseRPPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.12.3.3 Read()

```
std::istream & gdcm::network::AReleaseRPPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.12.3.4 Size()

```
size_t gdcm::network::AReleaseRPPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.12.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRPPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

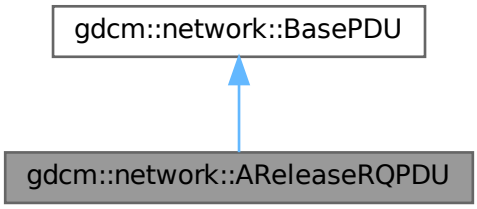
- gdcmAReleaseRPPDU.h

10.13 gdcm::network::AReleaseRQPDU Class Reference

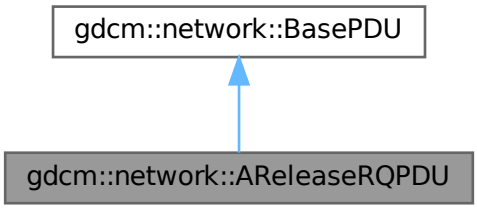
AReleaseRQPDU.

```
#include <gdcmAReleaseRQPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRQPDU:



Collaboration diagram for gdcm::network::AReleaseRQPDU:



Public Member Functions

- AReleaseRQPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

10.13.1 Detailed Description

AReleaseRQPDU.

Table 9-24 A-RELEASE-RQ PDU FIELDS

10.13.2 Constructor & Destructor Documentation

10.13.2.1 AReleaseRQPDU()

```
gdcm::network::AReleaseRQPDU::AReleaseRQPDU ( )
```

10.13.3 Member Function Documentation

10.13.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRQPDU::IsLastFragment ( ) const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.13.3.2 Print()

```
void gdcm::network::AReleaseRQPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.13.3.3 Read()

```
std::istream & gdcm::network::AReleaseRQPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.13.3.4 Size()

```
size_t gdcm::network::AReleaseRQPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.13.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRQPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

- gdcmAReleaseRQPDU.h

10.14 gdcm::network::ARTIMTimer Class Reference

ARTIMTimer.

```
#include <gdcmARTIMTimer.h>
```

Public Member Functions

- ARTIMTimer ()
- double GetElapsedTime () const
- bool GetHasExpired () const
- double GetTimeout () const
- void SetTimeout (double inTimeout)
- void Start ()
- void Stop ()

10.14.1 Detailed Description

ARTIMTimer.

This file contains the code for the ARTIM timer.

Basically, the ARTIM timer will just get the wall time when it's started, and then can be queried for the current time, and then can be stopped (ie, the start time reset).

Because we're trying to do this without threading, we should be able to 'start' the ARTIM timer by this mechanism, and then when waiting for a particular response, tight loop that with sleep calls and determinations of when the ARTIM timer has reached its peak. As such, this isn't a strict 'timer' in the traditional sense of the word, but more of a time keeper.

There can be only one ARTIM timer per connection.

10.14.2 Constructor & Destructor Documentation

10.14.2.1 ARTIMTimer()

```
gdcm::network::ARTIMTimer::ARTIMTimer ( )
```

10.14.3 Member Function Documentation

10.14.3.1 GetElapsedTime()

```
double gdcm::network::ARTIMTimer::GetElapsedTime ( ) const
```

10.14.3.2 GetHasExpired()

```
bool gdcm::network::ARTIMTimer::GetHasExpired ( ) const
```

10.14.3.3 GetTimeout()

```
double gdcm::network::ARTIMTimer::GetTimeout ( ) const
```

10.14.3.4 SetTimeout()

```
void gdcm::network::ARTIMTimer::SetTimeout (
            double inTimeout )
```

10.14.3.5 Start()

```
void gdcm::network::ARTIMTimer::Start ( )
```

10.14.3.6 Stop()

```
void gdcm::network::ARTIMTimer::Stop ( )
```

The documentation for this class was generated from the following file:

- gdcmARTIMTimer.h

10.15 gdcm::ASN1 Class Reference

Class for ASN1.

```
#include <gdcmASN1.h>
```

Public Member Functions

- ASN1 ()
- ASN1 (const ASN1 &)=delete
- ∼ASN1 ()
- void operator= (const ASN1 &)=delete

Static Public Member Functions

- static bool ParseDump (const char ∗array, size_t length)
- static bool ParseDumpFile (const char ∗filename)

Protected Member Functions

- int TestPBKDF2 ()

10.15.1 Detailed Description

Class for ASN1.

10.15.2 Constructor & Destructor Documentation

10.15.2.1 ASN1() [1/2]

```
gdcm::ASN1::ASN1 ( )
```

10.15.2.2 ∼ASN1()

```
gdcm::ASN1::∼ASN1 ( )
```

10.15.2.3 ASN1() [2/2]

```
gdcm::ASN1::ASN1 (
            const ASN1 &  )  [delete]
```

10.15.3 Member Function Documentation

10.15.3.1 operator=()

```
void gdcm::ASN1::operator= (
            const ASN1 &  )  [delete]
```

10.15.3.2 ParseDump()

```
static bool gdcm::ASN1::ParseDump (
            const char * array,
            size_t length )  [static]
```

10.15.3.3 ParseDumpFile()

```
static bool gdcm::ASN1::ParseDumpFile (
            const char * filename )  [static]
```

10.15.3.4 TestPBKDF2()

```
int gdcm::ASN1::TestPBKDF2 ( )  [protected]
```

The documentation for this class was generated from the following file:

- gdcmASN1.h

10.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference

AsynchronousOperationsWindowSub.

```
#include <gdcmAsynchronousOperationsWindowSub.h>
```

Public Member Functions

- AsynchronousOperationsWindowSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.16.1 Detailed Description

AsynchronousOperationsWindowSub.

PS 3.7 Table D.3-7 ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.16.2 Constructor & Destructor Documentation

10.16.2.1 AsynchronousOperationsWindowSub()

```
gdcm::network::AsynchronousOperationsWindowSub::AsynchronousOperationsWindowSub ( )
```

10.16.3 Member Function Documentation

10.16.3.1 Print()

```
void gdcm::network::AsynchronousOperationsWindowSub::Print (
            std::ostream & os ) const
```

10.16.3.2 Read()

```
std::istream & gdcm::network::AsynchronousOperationsWindowSub::Read (
            std::istream & is )
```

10.16.3.3 Size()

```
size_t gdcm::network::AsynchronousOperationsWindowSub::Size ( ) const
```

10.16.3.4 Write()

```
const std::ostream & gdcm::network::AsynchronousOperationsWindowSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

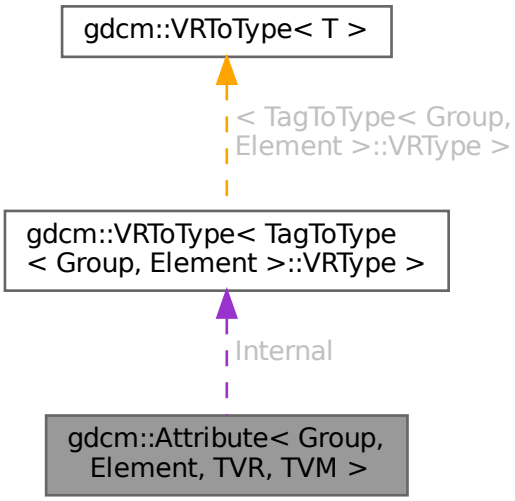
- gdcmAsynchronousOperationsWindowSub.h

10.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference

Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

```
#include <gdcmAttribute.h>
```

Collaboration diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Public Types

- enum { VMType = VMToLength<TVM>::Length }
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const

- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

10.17.1 Detailed Description

template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType>
class gdcm::Attribute< Group, Element, TVR, TVM >

Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

Typical example that compile is: Attribute<0x0008,0x9007> a = {"ORIGINAL","PRIMARY","T1","NONE"};

Examples that will NOT compile are:

Attribute<0x0018,0x1182, VR::IS, VM::VM1> fd1 = {}; // not enough parameters Attribute<0x0018,0x1182, VR::IS, VM::VM2> fd2 = {0,1,2}; // too many initializers Attribute<0x0018,0x1182, VR::IS, VM::VM3> fd3 = {0,1,2}; // VM3 is not valid Attribute<0x0018,0x1182, VR::UL, VM::VM2> fd3 = {0,1}; // UL is not valid VR

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_In FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSequenceUltrasound.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, SortImage.cxx, StreamImageReaderTest.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.17.2 Member Typedef Documentation

10.17.2.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

10.17.3 Member Enumeration Documentation

10.17.3.1 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
anonymous enum
```

Enumerator

VMType	

10.17.4 Member Function Documentation

10.17.4.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR
&VR::VR_VM1))  )
```

10.17.4.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType))  )
```

10.17.4.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType))  )
```

10.17.4.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement ( ) const  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, and StreamImageReaderTest.cxx.

References gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), and gdcm::DataElement::SetVR().

10.17.4.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
static VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ( )  [inline], [static]
```

10.17.4.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
static VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ( )  [inline], [static]
```

10.17.4.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues ( ) const  [inline]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::operator<(), and gdcm::Attribute< Group, Element, TVR, VM::VM1 >::o

10.17.4.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
static Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ( )  [inline], [static]
```

Examples

PatchFile.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.17.4.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0 )  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, GetSequenceUltrasound.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.17.4.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0 ) const  [inline]
```

10.17.4.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues ( ) const  [inline]
```

Examples

FixOrientation.cxx, LargeVRDSExplicit.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::operator!=(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::opera
gdcm::Attribute< Group, Element, TVR, TVM >::operator<(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator<(),
gdcm::Attribute< Group, Element, TVR, TVM >::operator==(), and gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator==().

10.17.4.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
static VM gdcm::Attribute< Group, Element, TVR, TVM >::GetVM ( )  [inline], [static]
```

10.17.4.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
static VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ( )  [inline], [static]
```

10.17.4.14 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, TVM > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetValues().

10.17.4.15 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, TVM > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues(), and gdcm::Attribute< Group, Element, TVR, TVM >

10.17.4.16 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, TVM > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetValues().

10.17.4.17 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx )  [inline]
```

10.17.4.18 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx ) const  [inline]
```

10.17.4.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os ) const  [inline]
```

10.17.4.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds )  [inline]
```

Examples

LargeVRDSExplicit.cxx, SortImage.cxx, and VolumeSorter.cxx.

References gdcm::DataSet::GetDataElement().

10.17.4.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.17.4.22 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.17.4.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de )  [inline]
```

Examples

GetSequenceUltrasound.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVR(), and gdcm::DataElement::IsEmpty().

10.17.4.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds )  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, ReadAndPrintAttributes.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcm::DataSet::FindDataElement(), and gdcm::DataSet::GetDataElement().

10.17.4.25 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0 )  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, FixOrientation.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, and PatchFile.cxx.

10.17.4.26 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType )  [inline]
```

Examples

FixOrientation.cxx, and LargeVRDSExplicit.cxx.

10.17.5 Member Data Documentation

10.17.5.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

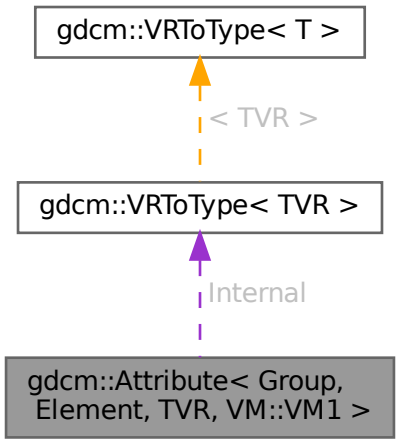
The documentation for this class was generated from the following file:

- gdcmAttribute.h

10.18 gdcm::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference

`#include <gdcmAttribute.h>`

Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1 >:



Public Types

- enum { VMType = VMToLength<VM::VM1>::Length }
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT (VMToLength< VM::VM1 >::Length==1)
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue ()
- ArrayType const & GetValue () const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

10.18.1 Member Typedef Documentation

10.18.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1 >::ArrayType
```

10.18.2 Member Enumeration Documentation

10.18.2.1 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR>
anonymous enum
```

Enumerator

VMType	

10.18.3 Member Function Documentation

10.18.3.1 GDCM_STATIC_ASSERT() [1/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
            ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType)
TVR &VR::VR_VM1))  )
```

10.18.3.2 GDCM_STATIC_ASSERT() [2/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
            ((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType))  )
```

10.18.3.3 GDCM_STATIC_ASSERT() [3/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType))  )
```

10.18.3.4 GDCM_STATIC_ASSERT() [4/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
            VMToLength< VM::VM1 >::Length  = =1 )
```

10.18.3.5 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement ( ) const  [inline]
```

References gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), and gdcm::DataElement::SetVR().

10.18.3.6 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVM ( )  [inline], [static]
```

10.18.3.7 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVR ( )  [inline], [static]
```

10.18.3.8 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetNumberOfValues ( ) const  [inline]
```

10.18.3.9 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static Tag gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetTag ( )  [inline], [static]
```

10.18.3.10 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue ( )  [inline]
```

10.18.3.11 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue ( ) const  [inline]
```

10.18.3.12 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValues ( ) const  [inline]
```

10.18.3.13 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVM ( )  [inline], [static]
```

10.18.3.14 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVR ( )  [inline], [static]
```

10.18.3.15 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1 > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetValues().

10.18.3.16 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1 > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues(), and gdcm::Attribute< Group, Element, TVR, TVM >

10.18.3.17 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1 > & att ) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetValues().

10.18.3.18 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Print (
            std::ostream & os ) const  [inline]
```

10.18.3.19 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set (
            DataSet const & ds )  [inline]
```

References gdcm::DataSet::GetDataElement().

10.18.3.20 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue (
            const ByteValue * bv )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.18.3.21 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap (
            const ByteValue * bv )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.18.3.22 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement (
            DataElement const & de )  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVR(), and gdcm::DataElement::IsEmpty().

10.18.3.23 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet (
            DataSet const & ds )  [inline]
```

References gdcm::DataSet::FindDataElement(), and gdcm::DataSet::GetDataElement().

10.18.3.24 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetValue (
            ArrayType v )  [inline]
```

10.18.4 Member Data Documentation

10.18.4.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Internal
```

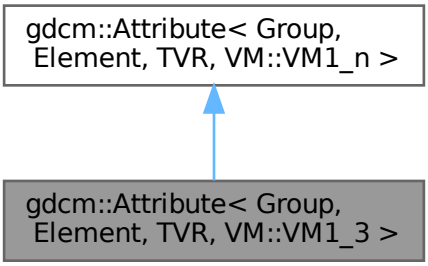
The documentation for this class was generated from the following file:

- gdcmAttribute.h

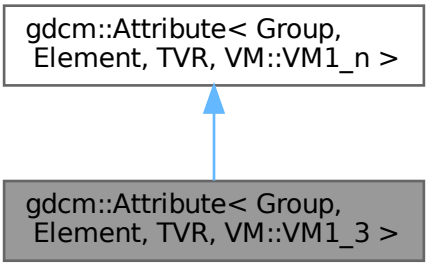
10.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Public Member Functions

- VM GetVM () const

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[] (unsigned int idx)
- ArrayType const & operator[] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.19.1 Member Function Documentation

10.19.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >::GetVM ( ) const  [inline]
```

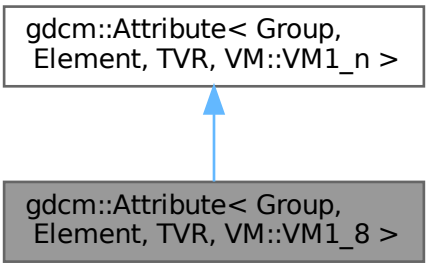
The documentation for this class was generated from the following file:

- gdcmAttribute.h

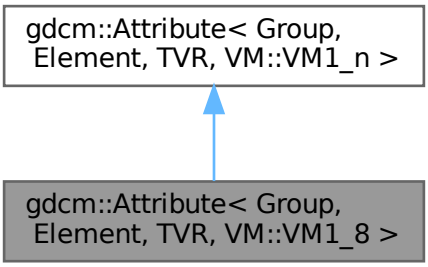
10.20 gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:



Public Member Functions

- VM GetVM () const

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[] (unsigned int idx)
- ArrayType const & operator[] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.20.1 Member Function Documentation

10.20.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >::GetVM ( ) const  [inline]
```

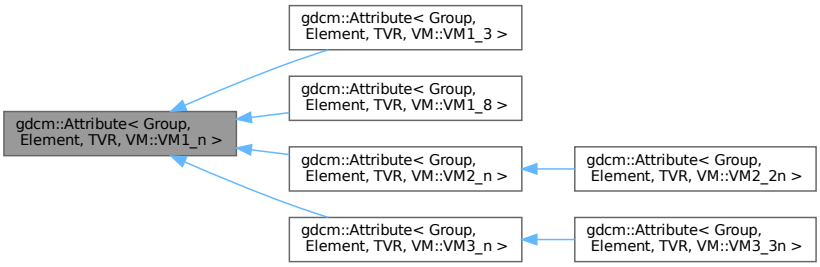
The documentation for this class was generated from the following file:

- gdcmAttribute.h

10.21 gdcm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_n >:



Public Types

- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)

- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetByteValue (const ByteValue *bv)

10.21.1 Member Typedef Documentation

10.21.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::ArrayType
```

10.21.2 Constructor & Destructor Documentation

10.21.2.1 Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Attribute ( )  [inline], [explicit]
```

10.21.2.2 ~Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::~Attribute ( )  [inline]
```

10.21.3 Member Function Documentation

10.21.3.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
            ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::↩
VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1))  )
```

10.21.3.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType))  )
```

10.21.3.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
            (VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType))  )
```

10.21.3.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement ( ) const  [inline]
```

References gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), and gdcm::DataElement::SetVR().

10.21.3.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVM ( )  [inline], [static]
```

10.21.3.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVR ( )  [inline], [static]
```

10.21.3.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetNumberOfValues ( ) const  [inline]
```

10.21.3.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static Tag gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetTag ( )  [inline], [static]
```

10.21.3.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0 )  [inline]
```

10.21.3.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0 ) const  [inline]
```

10.21.3.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValues ( ) const  [inline]
```

10.21.3.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVM ( )  [inline], [static]
```

10.21.3.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVR ( )  [inline], [static]
```

10.21.3.14 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx )  [inline]
```

10.21.3.15 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx ) const  [inline]
```

10.21.3.16 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Print (
            std::ostream & os ) const  [inline]
```

10.21.3.17 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set (
            DataSet const & ds )  [inline]
```

References gdcm::DataSet::GetDataElement().

10.21.3.18 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue (
            const ByteValue * bv )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.21.3.19 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement (
            DataElement const & de )  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVR(), and gdcm::DataElement::IsEmpty().

10.21.3.20 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet (
            DataSet const & ds )  [inline]
```

References gdcm::DataSet::FindDataElement(), and gdcm::DataSet::GetDataElement().

10.21.3.21 SetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetNumberOfValues (
            unsigned int numel )  [inline]
```

10.21.3.22 SetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            ArrayType v )  [inline]
```

References SetValue().

Referenced by SetValue().

10.21.3.23 SetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            unsigned int idx,
            ArrayType v )  [inline]
```

10.21.3.24 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValues (
            const ArrayType * array,
            unsigned int numel,
            bool own = false )  [inline]
```

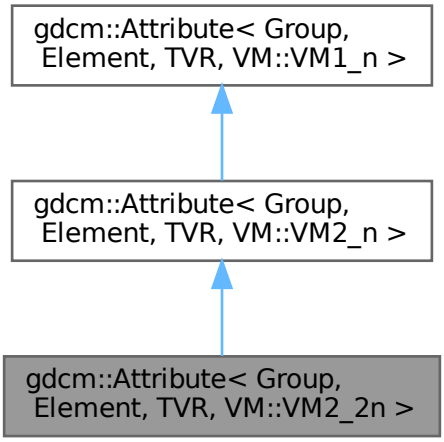
The documentation for this class was generated from the following file:

- gdcmAttribute.h

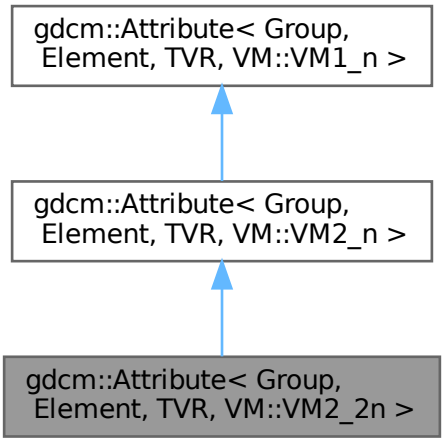
10.22 gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Static Public Member Functions

- static VM GetVM ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- VM GetVM () const

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[] (unsigned int idx)
- ArrayType const & operator[] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.22.1 Member Function Documentation

10.22.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >::GetVM ( )  [inline], [static]
```

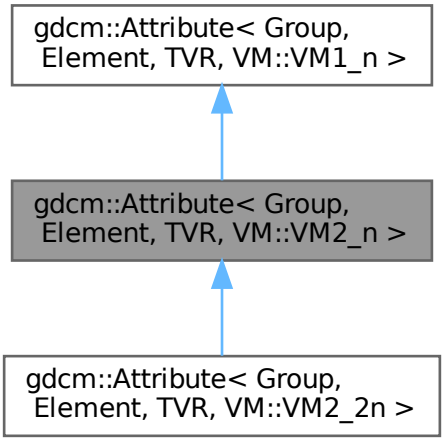
The documentation for this class was generated from the following file:

- gdcmAttribute.h

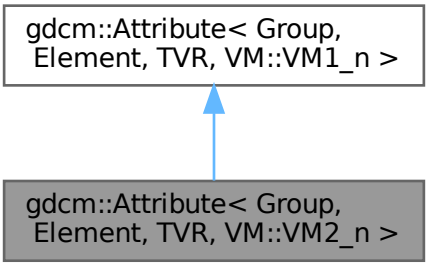
10.23 gdcm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Public Member Functions

- VM GetVM () const

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[] (unsigned int idx)
- ArrayType const & operator[] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.23.1 Member Function Documentation

10.23.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM2_n >::GetVM ( ) const  [inline]
```

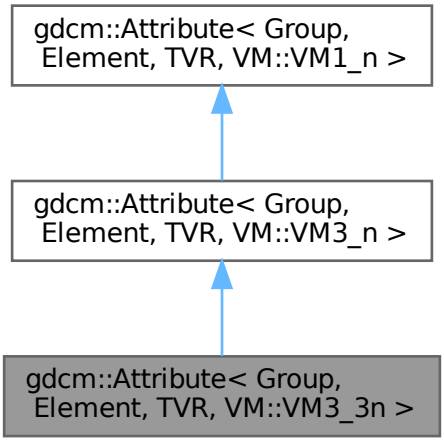
The documentation for this class was generated from the following file:

- gdcmAttribute.h

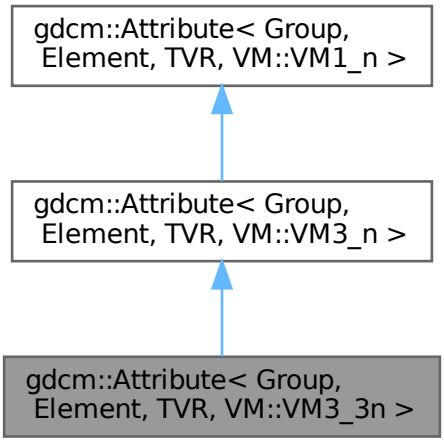
10.24 gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:



Static Public Member Functions

- static VM GetVM ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- static VM GetVM ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[] (unsigned int idx)
- ArrayType const & operator[] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.24.1 Member Function Documentation

10.24.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >::GetVM ( )  [inline], [static]
```

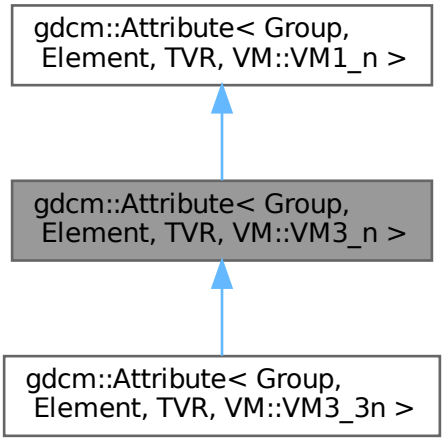
The documentation for this class was generated from the following file:

- gdcmAttribute.h

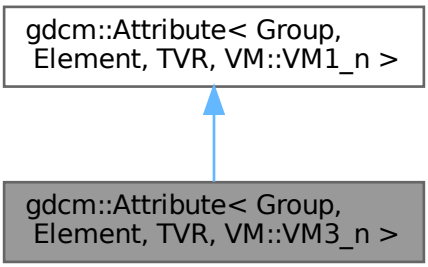
10.25 gdcm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:



Static Public Member Functions

- static VM GetVM ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Additional Inherited Members

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type ArrayType

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const

- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)

10.25.1 Member Function Documentation

10.25.1.1 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
static VM gdcm::Attribute< Group, Element, TVR, VM::VM3_n >::GetVM ( )  [inline], [static]
```

The documentation for this class was generated from the following file:

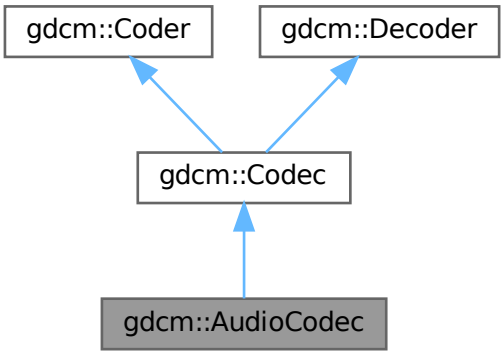
- gdcmAttribute.h

10.26 gdcm::AudioCodec Class Reference

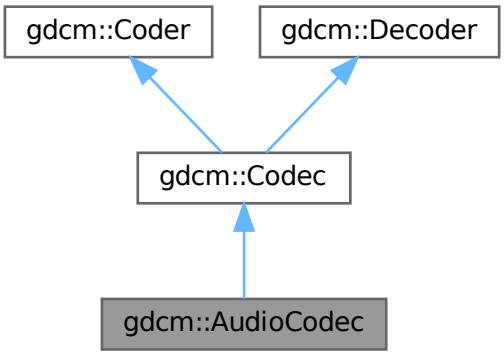
AudioCodec.

```
#include <gdcmAudioCodec.h>
```

Inheritance diagram for gdcm::AudioCodec:



Collaboration diagram for gdcm::AudioCodec:



Public Member Functions

- AudioCodec ()
- ~AudioCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it)
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

10.26.1 Detailed Description

AudioCodec.

10.26.2 Constructor & Destructor Documentation

10.26.2.1 AudioCodec()

```
gdcm::AudioCodec::AudioCodec ( )
```

10.26.2.2 ~AudioCodec()

```
gdcm::AudioCodec::~AudioCodec ( )  [override]
```

10.26.3 Member Function Documentation

10.26.3.1 CanCode()

```
bool gdcm::AudioCodec::CanCode (
            TransferSyntax const &  ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Implements gdcm::Coder.

10.26.3.2 CanDecode()

```
bool gdcm::AudioCodec::CanDecode (
            TransferSyntax const & ) const [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Implements gdcm::Decoder.

10.26.3.3 Decode()

```
bool gdcm::AudioCodec::Decode (
            DataElement const & ,
            DataElement & ) [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmAudioCodec.h

10.27 gdcm::Base64 Class Reference

Class for Base64.

```
#include <gdcmBase64.h>
```

Public Member Functions

- Base64 (const Base64 &)=delete
- void operator= (const Base64 &)=delete

Static Public Member Functions

- static size_t Decode (char ∗dst, size_t dlen, const char ∗src, size_t slen)

  Decode a base64-formatted buffer.
- static size_t Encode (char ∗dst, size_t dlen, const char ∗src, size_t slen)

  Encode a buffer into base64 format.
- static size_t GetDecodeLength (const char ∗src, size_t len)
- static size_t GetEncodeLength (const char ∗src, size_t srclen)

10.27.1 Detailed Description

Class for Base64.

10.27.2 Constructor & Destructor Documentation

10.27.2.1 Base64()

```
gdcm::Base64::Base64 (
            const Base64 &  )  [delete]
```

10.27.3 Member Function Documentation

10.27.3.1 Decode()

```
static size_t gdcm::Base64::Decode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen )  [static]
```

Decode a base64-formatted buffer.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be decoded

Returns

0 if not successful, size of decoded otherwise

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

10.27.3.2 Encode()

```
static size_t gdcm::Base64::Encode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen )  [static]
```

Encode a buffer into base64 format.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be encoded

Returns

0 if not successful, size of encoded otherwise

10.27.3.3 GetDecodeLength()

```
static size_t gdcm::Base64::GetDecodeLength (
            const char * src,
            size_t len )  [static]
```

Call this function to obtain the required buffer size

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

10.27.3.4 GetEncodeLength()

```
static size_t gdcm::Base64::GetEncodeLength (
            const char * src,
            size_t srclen )  [static]
```

Call this function to obtain the required buffer size

10.27.3.5 operator=()

```
void gdcm::Base64::operator= (
            const Base64 &  )  [delete]
```

The documentation for this class was generated from the following file:

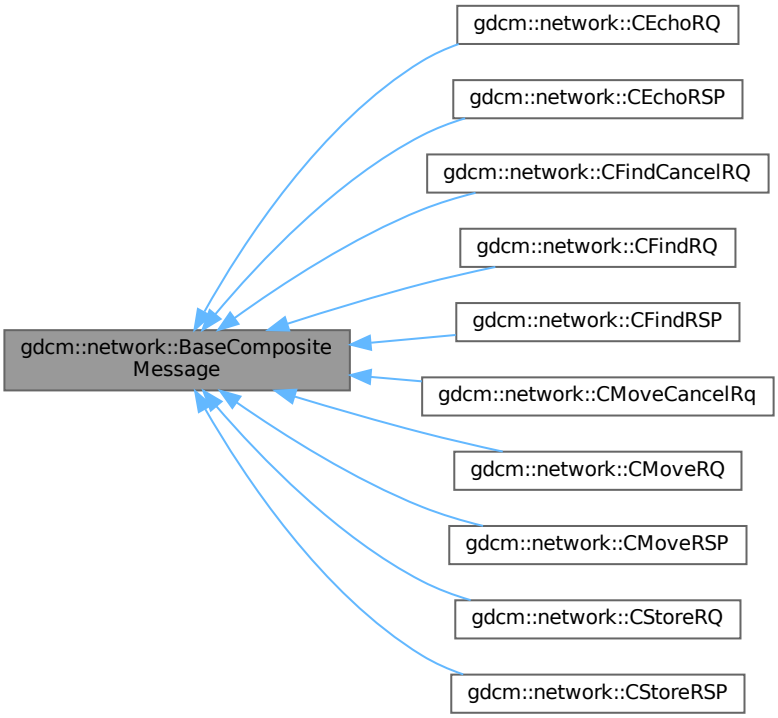
- gdcmBase64.h

10.28 gdcm::network::BaseCompositeMessage Class Reference

BaseCompositeMessage.

```
#include <gdcmBaseCompositeMessage.h>
```

Inheritance diagram for gdcm::network::BaseCompositeMessage:



Public Member Functions

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.28.1 Detailed Description

BaseCompositeMessage.

The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

So, for the five composites:

- C-ECHO
- C-FIND
- C-MOVE
- C-GET
- C-STORE there are a series of messages. However, all of these messages are obtained as part of a PDataPDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmComposite↩PDUFactory.

This is an abstract class. It cannot be instantiated on its own.

10.28.2 Constructor & Destructor Documentation

10.28.2.1 ~BaseCompositeMessage()

```
virtual gdcm::network::BaseCompositeMessage::~BaseCompositeMessage ( )  [virtual], [default]
```

10.28.3 Member Function Documentation

10.28.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseCompositeMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [pure virtual]
```

Implemented in gdcm::network::CEchoRQ, gdcm::network::CFindRQ, and gdcm::network::CMoveRQ.

The documentation for this class was generated from the following file:

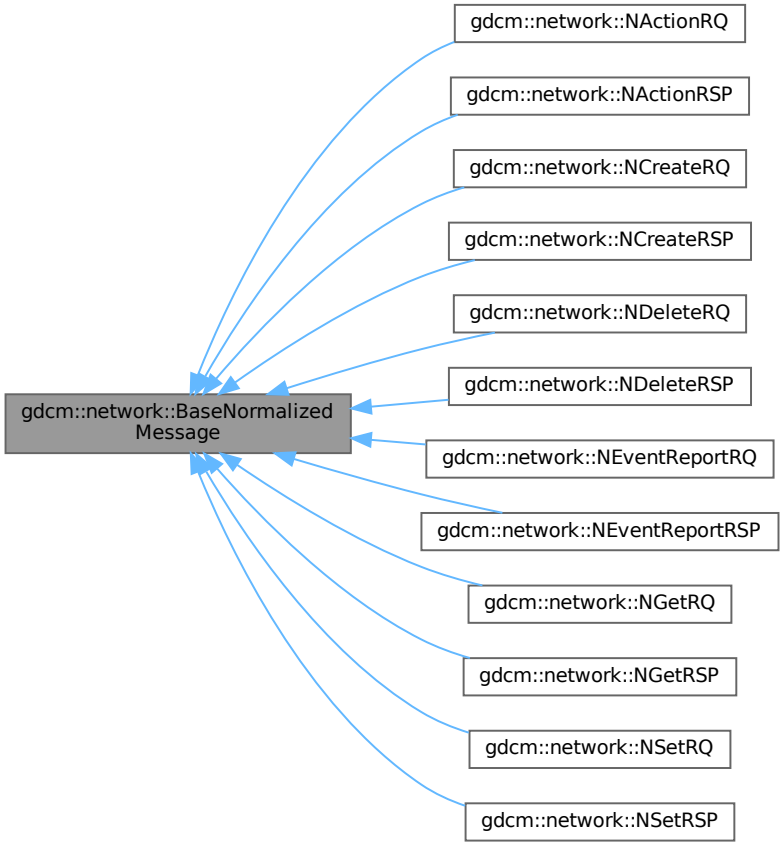
- gdcmBaseCompositeMessage.h

10.29 gdcm::network::BaseNormalizedMessage Class Reference

BaseNormalizedMessage.

```
#include <gdcmBaseNormalizedMessage.h>
```

Inheritance diagram for gdcm::network::BaseNormalizedMessage:



Public Member Functions

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.29.1 Detailed Description

BaseNormalizedMessage.

The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

So, for the five normalized:

- N-ACTION
- N-CREATE
- N-DELETE
- N-EVENT
- N-GET
- N-SET there are a series of messages. However, all of these messages are obtained as part of a PData↩ PDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmNormalizedMessageFactory.h.

This is an abstract class. It cannot be instantiated on its own.

10.29.2 Constructor & Destructor Documentation

10.29.2.1 ∼BaseNormalizedMessage()

```
virtual gdcm::network::BaseNormalizedMessage::~BaseNormalizedMessage ( ) [virtual], [default]
```

10.29.3 Member Function Documentation

10.29.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseNormalizedMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery ) [pure virtual]
```

Implemented in gdcm::network::NActionRQ, gdcm::network::NCreateRQ, gdcm::network::NDeleteRQ, gdcm::network::NEventReportRQ, gdcm::network::NGetRQ, and gdcm::network::NSetRQ.

The documentation for this class was generated from the following file:

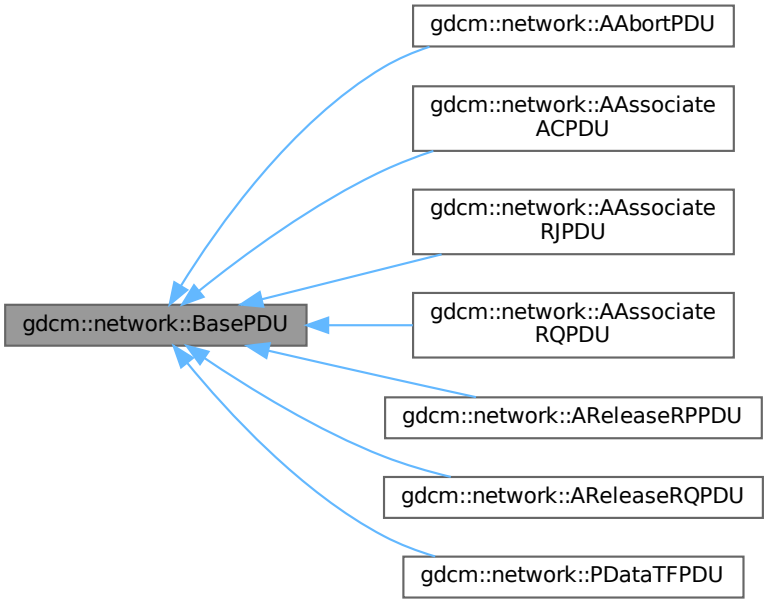
- gdcmBaseNormalizedMessage.h

10.30 gdcm::network::BasePDU Class Reference

BasePDU.

```
#include <gdcmBasePDU.h>
```

Inheritance diagram for gdcm::network::BasePDU:



Public Member Functions

- virtual ~BasePDU ()=default
- virtual bool IsLastFragment () const =0
- virtual void Print (std::ostream &os) const =0
- virtual std::istream & Read (std::istream &is)=0
- virtual size_t Size () const =0
- virtual const std::ostream & Write (std::ostream &os) const =0

10.30.1 Detailed Description

BasePDU.

base class for PDUs

all PDUs start with the first ten bytes as specified: 01 PDU type 02 reserved 3-6 PDU Length (unsigned) 7-10 variable

on some, 7-10 are split (7-8 as protocol version in Associate-RQ, for instance, while associate-rj splits those four bytes differently).

Also common to all the PDUs is their ability to read and write to a stream.

So, let's just get them all bunched together into one (abstract) class, shall we?

Why? 1) so that the ULEvent can have the PDU stored in it, since the event takes PDUs and not other class structures (other class structures get converted into PDUs) 2) to make reading PDUs in the event loop cleaner

10.30.2 Constructor & Destructor Documentation

10.30.2.1 ~BasePDU()

```
virtual gdcm::network::BasePDU::~BasePDU ( )  [virtual], [default]
```

10.30.3 Member Function Documentation

10.30.3.1 IsLastFragment()

```
virtual bool gdcm::network::BasePDU::IsLastFragment ( ) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

10.30.3.2 Print()

```
virtual void gdcm::network::BasePDU::Print (
            std::ostream & os ) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

10.30.3.3 Read()

```
virtual std::istream & gdcm::network::BasePDU::Read (
            std::istream & is )  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

10.30.3.4 Size()

```
virtual size_t gdcm::network::BasePDU::Size ( ) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

10.30.3.5 Write()

```
virtual const std::ostream & gdcm::network::BasePDU::Write (
            std::ostream & os ) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

The documentation for this class was generated from the following file:

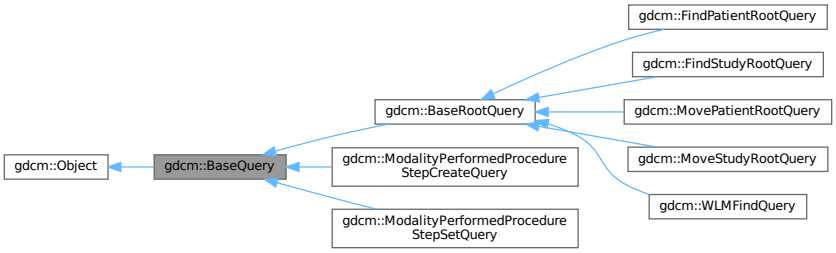
- gdcmBasePDU.h

10.31 gdcm::BaseQuery Class Reference

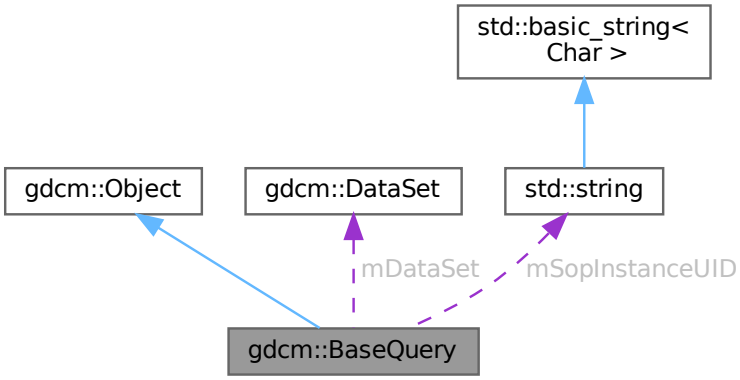
BaseQuery.

```
#include <gdcmBaseQuery.h>
```

Inheritance diagram for gdcm::BaseQuery:



Collaboration diagram for gdcm::BaseQuery:



Public Member Functions

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- virtual bool ValidateQuery (bool inStrict=true) const =0
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

10.31.1 Detailed Description

BaseQuery.

contains: a baseclass which will produce a dataset for all dimse messages

10.31.2 Constructor & Destructor Documentation

10.31.2.1 BaseQuery()

```
gdcm::BaseQuery::BaseQuery ( ) [protected]
```

10.31.2.2 ~BaseQuery()

```
gdcm::BaseQuery::~BaseQuery ( ) [override]
```

10.31.3 Member Function Documentation

10.31.3.1 AddQueryDataSet()

```
void gdcm::BaseQuery::AddQueryDataSet (
            const DataSet & ds )
```

10.31.3.2 GetAbstractSyntaxUID()

```
virtual UIDs::TSName gdcm::BaseQuery::GetAbstractSyntaxUID ( ) const [pure virtual]
```

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureStepCreateQuery, gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

10.31.3.3 GetQueryDataSet() [1/2]

```
DataSet & gdcm::BaseQuery::GetQueryDataSet ( )
```

10.31.3.4 GetQueryDataSet() [2/2]

```
DataSet const & gdcm::BaseQuery::GetQueryDataSet ( ) const
```

Set/Get the internal representation of the query as a DataSet.

10.31.3.5 GetSOPInstanceUID()

```
std::string gdcm::BaseQuery::GetSOPInstanceUID ( ) const  [inline]
```

10.31.3.6 Print()

```
void gdcm::BaseQuery::Print (
            std::ostream & os ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

10.31.3.7 SetSearchParameter() [1/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const std::string & inKeyword,
            const std::string & inValue )
```

10.31.3.8 SetSearchParameter() [2/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const DictEntry & inDictEntry,
            const std::string & inValue )  [protected]
```

10.31.3.9 SetSearchParameter() [3/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const std::string & inValue )
```

10.31.3.10 SetSOPInstanceUID()

```
void gdcm::BaseQuery::SetSOPInstanceUID (
            const std::string & iSopInstanceUID )  [inline]
```

10.31.3.11 ValidateQuery()

```
virtual bool gdcm::BaseQuery::ValidateQuery (
            bool inStrict = true ) const  [pure virtual]
```

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureStepCreateQuery, gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, gdcm::WLMFindQuery, and gdcm::BaseRootQuery.

10.31.3.12 ValidDataSet()

```
bool gdcm::BaseQuery::ValidDataSet (
            const DataSet & dataSetToValid,
            const DataSet & dataSetReference ) const  [protected]
```

10.31.3.13 WriteHelpFile()

```
const std::ostream & gdcm::BaseQuery::WriteHelpFile (
            std::ostream & os )
```

10.31.3.14 WriteQuery()

```
bool gdcm::BaseQuery::WriteQuery (
            const std::string & inFileName )
```

10.31.4 Friends And Related Symbol Documentation

10.31.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

10.31.5 Member Data Documentation

10.31.5.1 mDataSet

```
DataSet gdcm::BaseQuery::mDataSet  [protected]
```

10.31.5.2 mSopInstanceUID

```
std::string gdcm::BaseQuery::mSopInstanceUID  [protected]
```

The documentation for this class was generated from the following file:

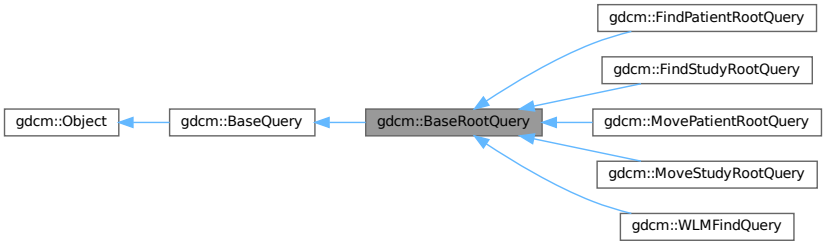
- gdcmBaseQuery.h

10.32 gdcm::BaseRootQuery Class Reference

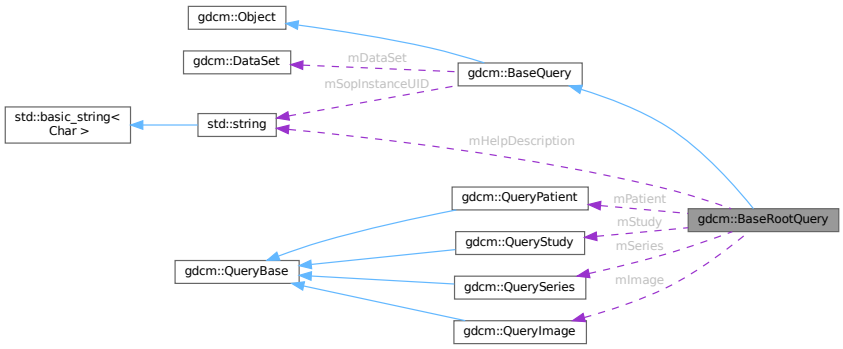
BaseRootQuery.

```
#include <gdcmBaseRootQuery.h>
```

Inheritance diagram for gdcm::BaseRootQuery:



Collaboration diagram for gdcm::BaseRootQuery:



Public Member Functions

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)
- virtual std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel)=0
- virtual void InitializeDataSet (const EQueryLevel &inQueryLevel)=0
- bool ValidateQuery (bool inStrict=true) const override=0

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

10.32.1 Detailed Description

BaseRootQuery.

contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root

This class contains the functionality used in patient c-find and c-move queries. PatientRootQuery and StudyRootQuery derive from this class.

Namely: 1) list all tags associated with a particular query type 2) produce a query dataset via tag association

Eventually, it can be used to validate a particular dataset type.

The dataset held by this object (or, really, one of its derivates) should be passed to a c-find or c-move query.

10.32.2 Constructor & Destructor Documentation

10.32.2.1 BaseRootQuery()

```
gdcm::BaseRootQuery::BaseRootQuery ( )  [protected]
```

10.32.2.2 ~BaseRootQuery()

```
gdcm::BaseRootQuery::~BaseRootQuery ( ) [override], [default]
```

10.32.3 Member Function Documentation

10.32.3.1 Construct()

```
static QueryBase * gdcm::BaseRootQuery::Construct (
            ERootType inRootType,
            EQueryLevel qlevel ) [static]
```

10.32.3.2 GetQueryLevelFromQueryRoot()

```
EQueryLevel gdcm::BaseRootQuery::GetQueryLevelFromQueryRoot (
            ERootType roottype )
```

10.32.3.3 GetQueryLevelFromString()

```
static int gdcm::BaseRootQuery::GetQueryLevelFromString (
            const char * str ) [static]
```

10.32.3.4 GetQueryLevelString()

```
static const char * gdcm::BaseRootQuery::GetQueryLevelString (
            EQueryLevel ql ) [static]
```

10.32.3.5 GetTagListByLevel()

```
virtual std::vector< Tag > gdcm::BaseRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel ) [pure virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

10.32.3.6 InitializeDataSet()

```
virtual void gdcm::BaseRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [pure virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

10.32.3.7 ValidateQuery()

```
bool gdcm::BaseRootQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [pure virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseQuery.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

10.32.4 Friends And Related Symbol Documentation

10.32.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

10.32.5 Member Data Documentation

10.32.5.1 mHelpDescription

```
std::string gdcm::BaseRootQuery::mHelpDescription  [protected]
```

10.32.5.2 mImage

```
QueryImage gdcm::BaseRootQuery::mImage  [protected]
```

10.32.5.3 mPatient

```
QueryPatient gdcm::BaseRootQuery::mPatient [protected]
```

10.32.5.4 mRootType

```
ERootType gdcm::BaseRootQuery::mRootType [protected]
```

10.32.5.5 mSeries

```
QuerySeries gdcm::BaseRootQuery::mSeries [protected]
```

10.32.5.6 mStudy

```
QueryStudy gdcm::BaseRootQuery::mStudy [protected]
```

The documentation for this class was generated from the following file:

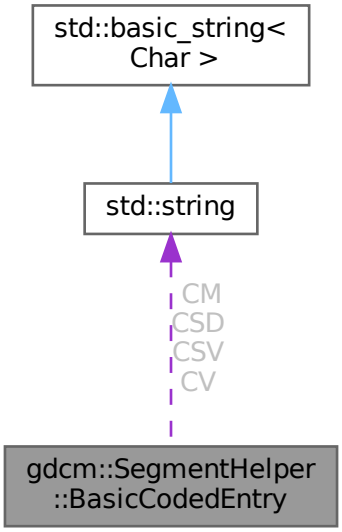
- gdcmBaseRootQuery.h

10.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference

This structure defines a basic coded entry with all of its attributes.

```
#include <gdcmSegmentHelper.h>
```

Collaboration diagram for gdcm::SegmentHelper::BasicCodedEntry:



Public Member Functions

- BasicCodedEntry ()

  Constructor.
- BasicCodedEntry (const char ∗a_CV, const char ∗a_CSD, const char ∗a_CM)

  constructor which defines type 1 attributes.
- BasicCodedEntry (const char ∗a_CV, const char ∗a_CSD, const char ∗a_CSV, const char ∗a_CM)

  constructor which defines attributes.
- bool IsEmpty (const bool checkOptionalAttributes=false) const

  Check if each attributes of the basic coded entry is defined.

Public Attributes

- std::string CM

  Coding Scheme Version attribute.
- std::string CSD

  Code Value attribute.
- std::string CSV

  Coding Scheme Designator attribute.
- std::string CV

10.33.1 Detailed Description

This structure defines a basic coded entry with all of its attributes.

See also

PS 3.3 section 8.8.

10.33.2 Constructor & Destructor Documentation

10.33.2.1 BasicCodedEntry() [1/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry ( ) [inline]
```

Constructor.

10.33.2.2 BasicCodedEntry() [2/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CM ) [inline]
```

constructor which defines type 1 attributes.

10.33.2.3 BasicCodedEntry() [3/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CSV,
            const char * a_CM )  [inline]
```

constructor which defines attributes.

10.33.3 Member Function Documentation

10.33.3.1 IsEmpty()

```
bool gdcm::SegmentHelper::BasicCodedEntry::IsEmpty (
            const bool checkOptionalAttributes = false ) const
```

Check if each attributes of the basic coded entry is defined.

Parameters

checkOptionalAttributes	Check also type 1C attributes.

10.33.4 Member Data Documentation

10.33.4.1 CM

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CM
```

Coding Scheme Version attribute.

10.33.4.2 CSD

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSD
```

Code Value attribute.

10.33.4.3 CSV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSV
```

Coding Scheme Designator attribute.

10.33.4.4 CV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CV
```

The documentation for this struct was generated from the following file:

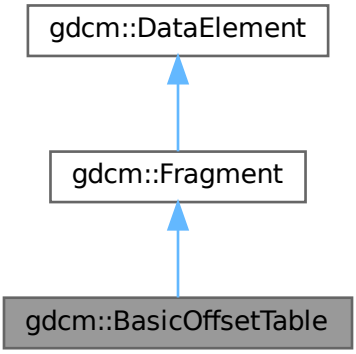
- gdcmSegmentHelper.h

10.34 gdcm::BasicOffsetTable Class Reference

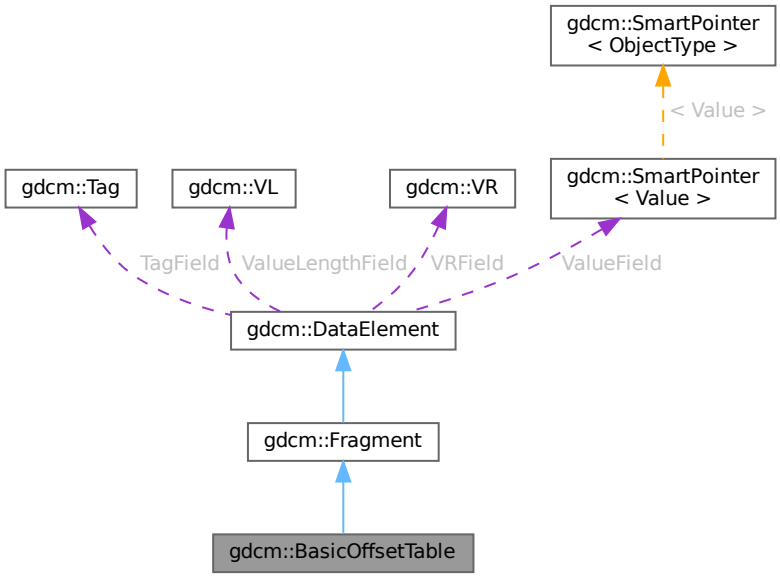
Class to represent a BasicOffsetTable.

```
#include <gdcmBasicOffsetTable.h>
```

Inheritance diagram for gdcm::BasicOffsetTable:



Collaboration diagram for gdcm::BasicOffsetTable:



Public Member Functions

- BasicOffsetTable ()
- template<typename TSwap >
  std::istream & Read (std::istream &is)

Public Member Functions inherited from gdcm::Fragment

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap >
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.34.1 Detailed Description

Class to represent a BasicOffsetTable.

10.34.2 Constructor & Destructor Documentation

10.34.2.1 BasicOffsetTable()

```
gdcm::BasicOffsetTable::BasicOffsetTable ( ) [inline]
```

10.34.3 Member Function Documentation

10.34.3.1 Read()

```
template<typename TSwap >
std::istream & gdcm::BasicOffsetTable::Read (
            std::istream & is ) [inline]
```

References gdcmAssertAlwaysMacro, and gdcm::ParseException::SetLastElement().

10.34.4 Friends And Related Symbol Documentation

10.34.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const BasicOffsetTable & val )  [friend]
```

The documentation for this class was generated from the following file:

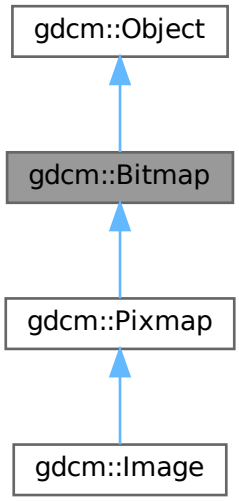
- gdcmBasicOffsetTable.h

10.35 gdcm::Bitmap Class Reference

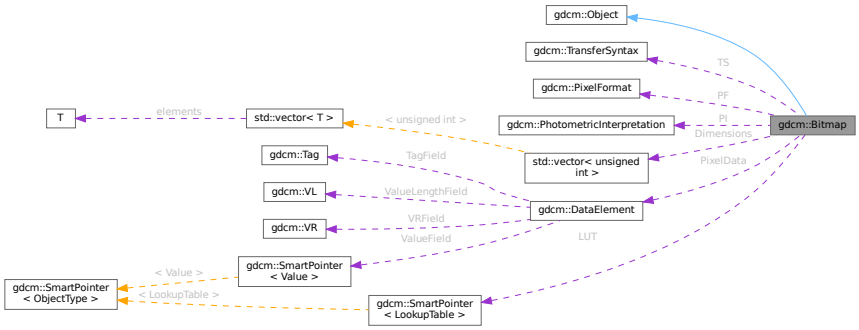
Bitmap class.

```
#include <gdcmBitmap.h>
```

Inheritance diagram for gdcm::Bitmap:



Collaboration diagram for gdcm::Bitmap:



Public Member Functions

- Bitmap ()
- ~Bitmap () override
- virtual bool AreOverlaysInPixelData () const
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.

- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void Print (std::ostream &) const override
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.
- virtual bool UnusedBitsPresentInPixelData () const

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Friends

- class ImageChangeTransferSyntax
- class PixmapReader

10.35.1 Detailed Description

Bitmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

Examples

ExtractIconFromFile.cxx.

10.35.2 Member Typedef Documentation

10.35.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::Bitmap::LUTPtr  [protected]
```

10.35.3 Constructor & Destructor Documentation

10.35.3.1 Bitmap()

```
gdcm::Bitmap::Bitmap ( )
```

10.35.3.2 ~Bitmap()

```
gdcm::Bitmap::~Bitmap ( ) [override]
```

10.35.4 Member Function Documentation

10.35.4.1 AreOverlaysInPixelData()

```
virtual bool gdcm::Bitmap::AreOverlaysInPixelData ( ) const [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

10.35.4.2 Clear()

```
void gdcm::Bitmap::Clear ( )
```

10.35.4.3 ComputeLossyFlag()

```
bool gdcm::Bitmap::ComputeLossyFlag ( ) [protected]
```

10.35.4.4 GetBuffer()

```
bool gdcm::Bitmap::GetBuffer (
            char * buffer ) const
```

Access the raw data.

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, ReadMultiTimesException.cxx, and threadgdcm.cxx.

10.35.4.5 GetBuffer2()

```
bool gdcm::Bitmap::GetBuffer2 (
            std::ostream & os ) const [protected]
```

10.35.4.6 GetBufferLength()

```
unsigned long gdcm::Bitmap::GetBufferLength ( ) const
```

Return the length of the image after decompression WARNING for palette color: It will NOT take into account the Palette Color thus you need to multiply this length by 3 if computing the size of equivalent RGB image

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, PatchFile.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

10.35.4.7 GetColumns()

```
unsigned int gdcm::Bitmap::GetColumns ( ) const  [inline]
```

10.35.4.8 GetDataElement() [1/2]

```
DataElement & gdcm::Bitmap::GetDataElement ( )  [inline]
```

10.35.4.9 GetDataElement() [2/2]

```
const DataElement & gdcm::Bitmap::GetDataElement ( ) const  [inline]
```

Examples

ExtractIconFromFile.cxx.

10.35.4.10 GetDimension()

```
unsigned int gdcm::Bitmap::GetDimension (
            unsigned int idx ) const
```

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, and GetArray.cs.

10.35.4.11 GetDimensions()

```
const unsigned int * gdcm::Bitmap::GetDimensions ( ) const
```

Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...

Examples

ConvertToQImage.cxx, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, HelloVizWorld.cxx, and threadgdcm.cxx.

10.35.4.12 GetLUT() [1/2]

```
LookupTable & gdcm::Bitmap::GetLUT ( )  [inline]
```

10.35.4.13 GetLUT() [2/2]

```
const LookupTable & gdcm::Bitmap::GetLUT ( ) const  [inline]
```

Examples

ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

10.35.4.14 GetNeedByteSwap()

```
bool gdcm::Bitmap::GetNeedByteSwap ( ) const  [inline]
```

INTERNAL do not use.

10.35.4.15 GetNumberOfDimensions()

```
unsigned int gdcm::Bitmap::GetNumberOfDimensions ( ) const
```

Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.

Examples

DecompressImage.cs, GetArray.cs, HelloVizWorld.cxx, and threadgdcm.cxx.

10.35.4.16 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::Bitmap::GetPhotometricInterpretation ( ) const
```

return the photometric interpretation

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, and HelloVizWorld.cxx.

10.35.4.17 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::Bitmap::GetPixelFormat ( )  [inline]
```

10.35.4.18 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::Bitmap::GetPixelFormat ( ) const  [inline]
```

Get/Set PixelFormat.

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

10.35.4.19 GetPlanarConfiguration()

```
unsigned int gdcm::Bitmap::GetPlanarConfiguration ( ) const
```

return the planar configuration

10.35.4.20 GetRows()

```
unsigned int gdcm::Bitmap::GetRows ( ) const  [inline]
```

10.35.4.21 GetTransferSyntax()

```
const TransferSyntax & gdcm::Bitmap::GetTransferSyntax ( ) const  [inline]
```

Examples

ExtractIconFromFile.cxx.

10.35.4.22 IsEmpty()

```
bool gdcm::Bitmap::IsEmpty ( ) const  [inline]
```

10.35.4.23 IsLossy()

```
bool gdcm::Bitmap::IsLossy ( ) const
```

Return whether or not the image was compressed using a lossy compressor or not.

10.35.4.24 IsTransferSyntaxCompatible()

```
bool gdcm::Bitmap::IsTransferSyntaxCompatible (
            TransferSyntax const & ts ) const
```

10.35.4.25 Print()

```
void gdcm::Bitmap::Print (
            std::ostream &  ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::Pixmap, and gdcm::Image.

Examples

ExtractIconFromFile.cxx.

10.35.4.26 SetColumns()

```
void gdcm::Bitmap::SetColumns (
            unsigned int col )  [inline]
```

10.35.4.27 SetDataElement()

```
void gdcm::Bitmap::SetDataElement (
            DataElement const & de )  [inline]
```

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.c DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

10.35.4.28 SetDimension()

```
void gdcm::Bitmap::SetDimension (
            unsigned int idx,
            unsigned int dim )
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

10.35.4.29 SetDimensions()

```
void gdcm::Bitmap::SetDimensions (
            const unsigned int dims[3] )
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, and DecompressImage.cs.

10.35.4.30 SetLossyFlag()

```
void gdcm::Bitmap::SetLossyFlag (
            bool f )  [inline]
```

Specifically set that the image was compressed using a lossy compression mechanism.

10.35.4.31 SetLUT()

```
void gdcm::Bitmap::SetLUT (
            LookupTable const & lut )  [inline]
```

Set/Get LUT.

10.35.4.32 SetNeedByteSwap()

```
void gdcm::Bitmap::SetNeedByteSwap (
            bool b )  [inline]
```

10.35.4.33 SetNumberOfDimensions()

```
void gdcm::Bitmap::SetNumberOfDimensions (
            unsigned int dim )
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

10.35.4.34 SetPhotometricInterpretation()

```
void gdcm::Bitmap::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi )
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

10.35.4.35 SetPixelFormat()

```
void gdcm::Bitmap::SetPixelFormat (
            PixelFormat const & pf )  [inline]
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

References gdcm::PixelFormat::Validate().

10.35.4.36 SetPlanarConfiguration()

```
void gdcm::Bitmap::SetPlanarConfiguration (
            unsigned int pc )
```

Warning

you need to call SetPixelFormat first (before SetPlanarConfiguration) for consistency checking

10.35.4.37 SetRows()

```
void gdcm::Bitmap::SetRows (
            unsigned int rows )  [inline]
```

10.35.4.38 SetTransferSyntax()

```
void gdcm::Bitmap::SetTransferSyntax (
            TransferSyntax const & ts )  [inline]
```

Transfer syntax.

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MergeTwoFiles.cxx, and MpegVideoInfo.cs.

10.35.4.39 TryJPEG2000Codec()

```
bool gdcm::Bitmap::TryJPEG2000Codec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.40 TryJPEG2000Codec2()

```
bool gdcm::Bitmap::TryJPEG2000Codec2 (
            std::ostream & os ) const  [protected]
```

10.35.4.41 TryJPEGCodec()

```
bool gdcm::Bitmap::TryJPEGCodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.42 TryJPEGCodec2()

```
bool gdcm::Bitmap::TryJPEGCodec2 (
            std::ostream & os ) const  [protected]
```

10.35.4.43 TryJPEGLSCodec()

```
bool gdcm::Bitmap::TryJPEGLSCodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.44 TryKAKADUCodec()

```
bool gdcm::Bitmap::TryKAKADUCodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.45 TryPVRGCodec()

```
bool gdcm::Bitmap::TryPVRGCodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.46 TryRAWCodec()

```
bool gdcm::Bitmap::TryRAWCodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.47 TryRLECodec()

```
bool gdcm::Bitmap::TryRLECodec (
            char * buffer,
            bool & lossyflag ) const  [protected]
```

10.35.4.48 UnusedBitsPresentInPixelData()

```
virtual bool gdcm::Bitmap::UnusedBitsPresentInPixelData ( ) const  [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

10.35.5 Friends And Related Symbol Documentation

10.35.5.1 ImageChangeTransferSyntax

```
friend class ImageChangeTransferSyntax  [friend]
```

10.35.5.2 PixmapReader

```
friend class PixmapReader  [friend]
```

10.35.6 Member Data Documentation

10.35.6.1 Dimensions

```
std::vector<unsigned int> gdcm::Bitmap::Dimensions [protected]
```

10.35.6.2 LossyFlag

```
bool gdcm::Bitmap::LossyFlag [protected]
```

10.35.6.3 LUT

```
LUTPtr gdcm::Bitmap::LUT [protected]
```

10.35.6.4 NeedByteSwap

```
bool gdcm::Bitmap::NeedByteSwap [protected]
```

10.35.6.5 NumberOfDimensions

```
unsigned int gdcm::Bitmap::NumberOfDimensions [protected]
```

10.35.6.6 PF

```
PixelFormat gdcm::Bitmap::PF [protected]
```

10.35.6.7 PI

```
PhotometricInterpretation gdcm::Bitmap::PI [protected]
```

10.35.6.8 PixelData

```
DataElement gdcm::Bitmap::PixelData [protected]
```

10.35.6.9 PlanarConfiguration

```
unsigned int gdcm::Bitmap::PlanarConfiguration [protected]
```

10.35.6.10 TS

```
TransferSyntax gdcm::Bitmap::TS  [protected]
```

The documentation for this class was generated from the following file:

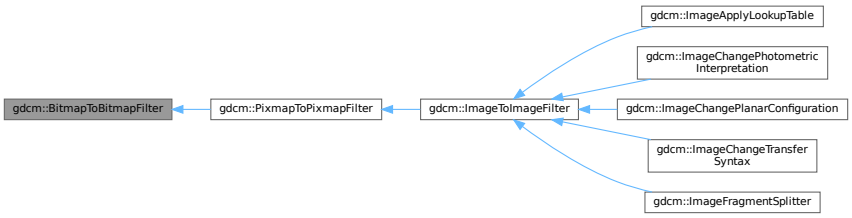
- gdcmBitmap.h

10.36 gdcm::BitmapToBitmapFilter Class Reference

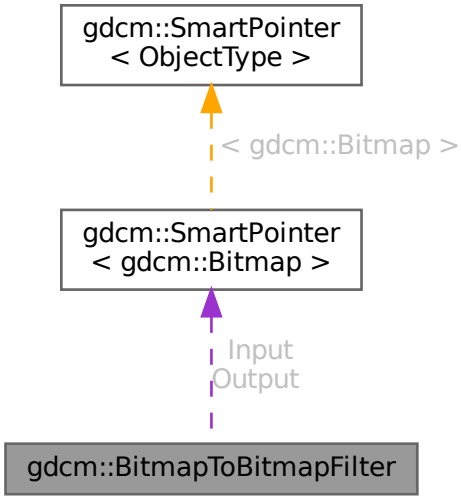
BitmapToBitmapFilter class.

```
#include <gdcmBitmapToBitmapFilter.h>
```

Inheritance diagram for gdcm::BitmapToBitmapFilter:



Collaboration diagram for gdcm::BitmapToBitmapFilter:



Public Member Functions

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Attributes

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.36.1 Detailed Description

BitmapToBitmapFilter class.

Super class for all filter taking an image and producing an output image

10.36.2 Constructor & Destructor Documentation

10.36.2.1 BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::BitmapToBitmapFilter ( )
```

10.36.2.2 ~BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::~BitmapToBitmapFilter ( )  [default]
```

10.36.3 Member Function Documentation

10.36.3.1 GetOutput()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutput ( ) const  [inline]
```

Get Output image.

10.36.3.2 GetOutputAsBitmap()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutputAsBitmap ( ) const
```

10.36.3.3 SetInput()

```
void gdcm::BitmapToBitmapFilter::SetInput (
            const Bitmap & image )
```

Set input image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

10.36.4 Member Data Documentation

10.36.4.1 Input

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Input  [protected]
```

10.36.4.2 Output

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Output  [protected]
```

The documentation for this class was generated from the following file:

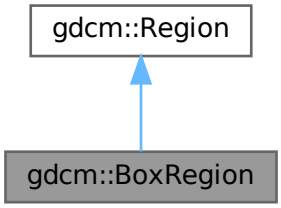
- gdcmBitmapToBitmapFilter.h

10.37 gdcm::BoxRegion Class Reference

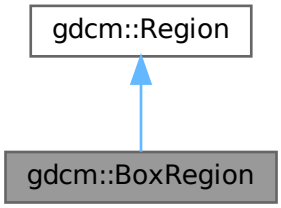
Class for manipulation box region.

```
#include <gdcmBoxRegion.h>
```

Inheritance diagram for gdcm::BoxRegion:



Collaboration diagram for gdcm::BoxRegion:



Public Member Functions

- BoxRegion ()
- BoxRegion (const BoxRegion &)

  copy/cstor and al.
- ~BoxRegion () override
- size_t Area () const override

  compute the area
- Region * Clone () const override
- BoxRegion ComputeBoundingBox () override

  Return the Axis-Aligned minimum bounding box for all regions.
- bool Empty () const override

  return whether this domain is empty:
- unsigned int GetXMax () const
- unsigned int GetXMin () const

  Get domain.
- unsigned int GetYMax () const
- unsigned int GetYMin () const
- unsigned int GetZMax () const
- unsigned int GetZMin () const
- bool IsValid () const override

  return whether this is valid domain
- void operator= (const BoxRegion &)
- void Print (std::ostream &os=std::cout) const override

  Print.
- void SetDomain (unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)

  Set domain.

Public Member Functions inherited from gdcm::Region

- Region ()
- virtual ~Region ()

Static Public Member Functions

- static BoxRegion BoundingBox (BoxRegion const &b1, BoxRegion const &b2)

  Helper class to compute the bounding box of two BoxRegion.

10.37.1 Detailed Description

Class for manipulation box region.

This is a very simple implementation of the Region class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

10.37.2 Constructor & Destructor Documentation

10.37.2.1 BoxRegion() [1/2]

```
gdcm::BoxRegion::BoxRegion ( )
```

10.37.2.2 ~BoxRegion()

```
gdcm::BoxRegion::~BoxRegion ( )  [override]
```

10.37.2.3 BoxRegion() [2/2]

```
gdcm::BoxRegion::BoxRegion (
            const BoxRegion &  )
```

copy/cstor and al.

10.37.3 Member Function Documentation

10.37.3.1 Area()

```
size_t gdcm::BoxRegion::Area ( ) const  [override], [virtual]
```

compute the area

Implements gdcm::Region.

10.37.3.2 BoundingBox()

```
static BoxRegion gdcm::BoxRegion::BoundingBox (
            BoxRegion const & b1,
            BoxRegion const & b2 )  [static]
```

Helper class to compute the bounding box of two BoxRegion.

10.37.3.3 Clone()

```
Region * gdcm::BoxRegion::Clone ( ) const  [override], [virtual]
```

Implements gdcm::Region.

10.37.3.4 ComputeBoundingBox()

```
BoxRegion gdcm::BoxRegion::ComputeBoundingBox ( )  [override], [virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implements gdcm::Region.

10.37.3.5 Empty()

```
bool gdcm::BoxRegion::Empty ( ) const  [override], [virtual]
```

return whether this domain is empty:

Implements gdcm::Region.

10.37.3.6 GetXMax()

```
unsigned int gdcm::BoxRegion::GetXMax ( ) const
```

10.37.3.7 GetXMin()

```
unsigned int gdcm::BoxRegion::GetXMin ( ) const
```

Get domain.

10.37.3.8 GetYMax()

```
unsigned int gdcm::BoxRegion::GetYMax ( ) const
```

10.37.3.9 GetYMin()

```
unsigned int gdcm::BoxRegion::GetYMin ( ) const
```

10.37.3.10 GetZMax()

```
unsigned int gdcm::BoxRegion::GetZMax ( ) const
```

10.37.3.11 GetZMin()

```
unsigned int gdcm::BoxRegion::GetZMin ( ) const
```

10.37.3.12 IsValid()

```
bool gdcm::BoxRegion::IsValid ( ) const  [override], [virtual]
```

return whether this is valid domain

Implements gdcm::Region.

10.37.3.13 operator=()

```
void gdcm::BoxRegion::operator= (
            const BoxRegion &  )
```

10.37.3.14 Print()

```
void gdcm::BoxRegion::Print (
            std::ostream & os = std::cout ) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Region.

10.37.3.15 SetDomain()

```
void gdcm::BoxRegion::SetDomain (
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax )
```

Set domain.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

- gdcmBoxRegion.h

10.38 gdcm::ByteBuffer Class Reference

ByteBuffer.

```
#include <gdcmByteBuffer.h>
```

Public Member Functions

- ByteBuffer ()
- char * Get (int len)
- const char * GetStart () const
- void ShiftEnd (int len)
- void UpdatePosition ()

10.38.1 Detailed Description

ByteBuffer.

Detailed description here

Note

looks like a std::streambuf or std::filebuf class with the get and peek pointer

10.38.2 Constructor & Destructor Documentation

10.38.2.1 ByteBuffer()

```
gdcm::ByteBuffer::ByteBuffer ( ) [inline]
```

10.38.3 Member Function Documentation

10.38.3.1 Get()

```
char * gdcm::ByteBuffer::Get (
            int len ) [inline]
```

10.38.3.2 GetStart()

```
const char * gdcm::ByteBuffer::GetStart ( ) const [inline]
```

10.38.3.3 ShiftEnd()

```
void gdcm::ByteBuffer::ShiftEnd (
            int len ) [inline]
```

10.38.3.4 UpdatePosition()

```
void gdcm::ByteBuffer::UpdatePosition ( ) [inline]
```

The documentation for this class was generated from the following file:

- gdcmByteBuffer.h

10.39 gdcm::ByteSwap< T > Class Template Reference

ByteSwap.

```
#include <gdcmByteSwap.h>
```

Static Public Member Functions

- static void Swap (T &p)
- static void SwapFromSwapCodeIntoSystem (T &p, SwapCode const &sc)
- static void SwapRange (T *p, unsigned int num)
- static void SwapRangeFromSwapCodeIntoSystem (T *p, SwapCode const &sc, std::streamoff num)
- static bool SystemIsBigEndian ()
- static bool SystemIsLittleEndian ()

10.39.1 Detailed Description

template<class T>
class gdcm::ByteSwap< T >

ByteSwap.

Perform machine dependent byte swapping (Little Endian, Big Endian, Bad Little Endian, Bad Big Endian). TODO: bswap_32 / bswap_64 ...

Examples

TestByteSwap.cxx.

10.39.2 Member Function Documentation

10.39.2.1 Swap()

```
template<class T >
static void gdcm::ByteSwap< T >::Swap (
            T & p )  [static]
```

10.39.2.2 SwapFromSwapCodeIntoSystem()

```
template<class T >
static void gdcm::ByteSwap< T >::SwapFromSwapCodeIntoSystem (
            T & p,
            SwapCode const & sc )  [static]
```

Examples

TestByteSwap.cxx.

10.39.2.3 SwapRange()

```
template<class T >
static void gdcm::ByteSwap< T >::SwapRange (
            T * p,
            unsigned int num )  [static]
```

10.39.2.4 SwapRangeFromSwapCodeIntoSystem()

```
template<class T >
static void gdcm::ByteSwap< T >::SwapRangeFromSwapCodeIntoSystem (
            T * p,
            SwapCode const & sc,
            std::streamoff num )  [static]
```

Examples

TestByteSwap.cxx.

10.39.2.5 SystemIsBigEndian()

```
template<class T >
static bool gdcm::ByteSwap< T >::SystemIsBigEndian ( )  [static]
```

Query the machine Endian-ness.

10.39.2.6 SystemIsLittleEndian()

```
template<class T >
static bool gdcm::ByteSwap< T >::SystemIsLittleEndian ( )  [static]
```

The documentation for this class was generated from the following file:

- gdcmByteSwap.h

10.40 gdcm::ByteSwapFilter Class Reference

ByteSwapFilter.

```
#include <gdcmByteSwapFilter.h>
```

Public Member Functions

- ByteSwapFilter (const ByteSwapFilter &)=delete
- ByteSwapFilter (DataSet &ds)
- ~ByteSwapFilter ()=default
- bool ByteSwap ()
- ByteSwapFilter & operator= (const ByteSwapFilter &)=delete
- void SetByteSwapTag (bool b)

10.40.1 Detailed Description

ByteSwapFilter.

In place byte-swapping of a dataset FIXME: FL status ??

10.40.2 Constructor & Destructor Documentation

10.40.2.1 ByteSwapFilter() [1/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            DataSet & ds )  [inline]
```

10.40.2.2 ~ByteSwapFilter()

```
gdcm::ByteSwapFilter::~ByteSwapFilter ( )  [default]
```

10.40.2.3 ByteSwapFilter() [2/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            const ByteSwapFilter &  )  [delete]
```

10.40.3 Member Function Documentation

10.40.3.1 ByteSwap()

```
bool gdcm::ByteSwapFilter::ByteSwap ( )
```

Referenced by gdcm::Item::Read().

10.40.3.2 operator=()

```
ByteSwapFilter & gdcm::ByteSwapFilter::operator= (
            const ByteSwapFilter &  )  [delete]
```

10.40.3.3 SetByteSwapTag()

```
void gdcm::ByteSwapFilter::SetByteSwapTag (
            bool b )  [inline]
```

Referenced by gdcm::Item::Read().

The documentation for this class was generated from the following file:

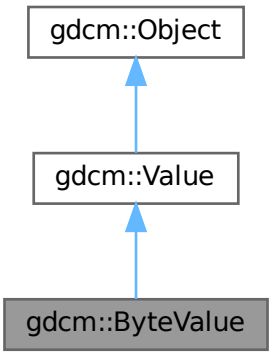
- gdcmByteSwapFilter.h

10.41 gdcm::ByteValue Class Reference

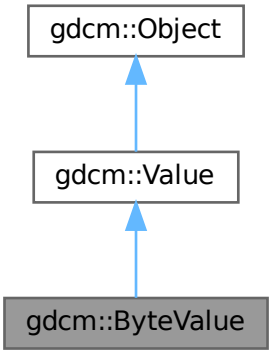
Class to represent binary value (array of bytes)

```
#include <gdcmByteValue.h>
```

Inheritance diagram for gdcm::ByteValue:



Collaboration diagram for gdcm::ByteValue:



Public Member Functions

- ByteValue (const char *array=nullptr, VL const &vl=0)
- ByteValue (std::vector< char > &v)
- ~ByteValue () override
- void Append (ByteValue const &bv)
- void Clear () override
- VL ComputeLength () const
- void Fill (char c)
- bool GetBuffer (char *buffer, unsigned long length) const
- VL GetLength () const override
- const char * GetPointer () const
- void * GetVoidPointer ()
- const void * GetVoidPointer () const
- bool IsEmpty () const
- bool IsPrintable (VL length) const

  Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...
- operator const std::vector< char > & () const
- ByteValue & operator= (const ByteValue &val)
- bool operator== (const ByteValue &val) const
- bool operator== (const Value &val) const override
- void PrintASCII (std::ostream &os, VL maxlength) const
- void PrintASCIIXML (std::ostream &os) const
- void PrintGroupLength (std::ostream &os)
- void PrintHex (std::ostream &os, VL maxlength) const
- void PrintHexXML (std::ostream &os) const
- void PrintPNXML (std::ostream &os) const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap , typename TType >
  std::istream & Read (std::istream &is, bool readvalues=true)
- void SetLength (VL vl) override
- template<typename TSwap , typename TType >
  std::ostream const & Write (std::ostream &os) const
- template<typename TSwap >
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- void Print (std::ostream &os) const override
- void SetLengthOnly (VL vl) override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.41.1 Detailed Description

Class to represent binary value (array of bytes)

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.41.2 Constructor & Destructor Documentation

10.41.2.1 ByteValue() [1/2]

```
gdcm::ByteValue::ByteValue (
            const char * array = nullptr,
            VL const & vl = 0 )  [inline]
```

References gdcmDebugMacro.

10.41.2.2 ByteValue() [2/2]

```
gdcm::ByteValue::ByteValue (
            std::vector< char > & v )  [inline]
```

Warning

casting to uint32_t

10.41.2.3 ~ByteValue()

```
gdcm::ByteValue::~ByteValue ( )  [inline], [override]
```

10.41.3 Member Function Documentation

10.41.3.1 Append()

```
void gdcm::ByteValue::Append (
            ByteValue const & bv )
```

10.41.3.2 Clear()

```
void gdcm::ByteValue::Clear ( )  [inline], [override], [virtual]
```

Implements gdcm::Value.

10.41.3.3 ComputeLength()

```
VL gdcm::ByteValue::ComputeLength ( ) const  [inline]
```

Referenced by gdcm::Fragment::Write().

10.41.3.4 Fill()

```
void gdcm::ByteValue::Fill (
            char c )  [inline]
```

Examples

DuplicatePCDE.cxx.

10.41.3.5 GetBuffer()

```
bool gdcm::ByteValue::GetBuffer (
            char * buffer,
            unsigned long length ) const
```

Examples

ExtractEncapsulatedFile.cs, and FixJAIBugJPEGLS.cxx.

10.41.3.6 GetLength()

```
VL gdcm::ByteValue::GetLength ( ) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >: gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), gdcm::Element< TVR, VM::VM1_n >::SetNoSwap(), and gdcm::Fragment::Write().

10.41.3.7 GetPointer()

```
const char * gdcm::ByteValue::GetPointer ( ) const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncryptedContent.cxx ExtractIconFromFile.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >: gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), and gdcm::Element< TVR, VM::VM1_n >::SetNoSwap().

10.41.3.8 GetVoidPointer() [1/2]

```
void * gdcm::ByteValue::GetVoidPointer ( )  [inline]
```

10.41.3.9 GetVoidPointer() [2/2]

```
const void * gdcm::ByteValue::GetVoidPointer ( ) const  [inline]
```

Examples

FixBrokenJ2K.cxx.

Referenced by gdcm::Element< TVR, VM::VM1_n >::Set().

10.41.3.10 IsEmpty()

```
bool gdcm::ByteValue::IsEmpty ( ) const  [inline]
```

10.41.3.11 IsPrintable()

```
bool gdcm::ByteValue::IsPrintable (
            VL length ) const  [inline]
```

Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...

10.41.3.12 operator const std::vector< char > &()

```
gdcm::ByteValue::operator const std::vector< char > & ( ) const  [inline]
```

10.41.3.13 operator=()

```
ByteValue & gdcm::ByteValue::operator= (
            const ByteValue & val )  [inline]
```

10.41.3.14 operator==() [1/2]

```
bool gdcm::ByteValue::operator== (
            const ByteValue & val ) const  [inline]
```

10.41.3.15 operator==() [2/2]

```
bool gdcm::ByteValue::operator== (
            const Value & val ) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

10.41.3.16 Print()

```
void gdcm::ByteValue::Print (
            std::ostream & os ) const  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Object.

10.41.3.17 PrintASCII()

```
void gdcm::ByteValue::PrintASCII (
            std::ostream & os,
            VL maxlength ) const
```

10.41.3.18 PrintASCIIXML()

```
void gdcm::ByteValue::PrintASCIIXML (
            std::ostream & os ) const
```

10.41.3.19 PrintGroupLength()

```
void gdcm::ByteValue::PrintGroupLength (
            std::ostream & os )  [inline]
```

10.41.3.20 PrintHex()

```
void gdcm::ByteValue::PrintHex (
            std::ostream & os,
            VL maxlength ) const
```

10.41.3.21 PrintHexXML()

```
void gdcm::ByteValue::PrintHexXML (
            std::ostream & os ) const
```

10.41.3.22 PrintPNXML()

```
void gdcm::ByteValue::PrintPNXML (
            std::ostream & os ) const
```

To Print Values in Native DICOM format

10.41.3.23 Read() [1/2]

```
template<typename TSwap >
std::istream & gdcm::ByteValue::Read (
            std::istream & is )  [inline]
```

10.41.3.24 Read() [2/2]

```
template<typename TSwap , typename TType >
std::istream & gdcm::ByteValue::Read (
            std::istream & is,
            bool readvalues = true )  [inline]
```

10.41.3.25 SetLength()

```
void gdcm::ByteValue::SetLength (
            VL vl )  [override], [virtual]
```

Implements gdcm::Value.

10.41.3.26 SetLengthOnly()

```
void gdcm::ByteValue::SetLengthOnly (
            VL vl )  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Value.

10.41.3.27 Write() [1/2]

```
template<typename TSwap , typename TType >
std::ostream const & gdcm::ByteValue::Write (
            std::ostream & os ) const  [inline]
```

Referenced by gdcm::Fragment::Write().

10.41.3.28 Write() [2/2]

```
template<typename TSwap >
std::ostream const & gdcm::ByteValue::Write (
            std::ostream & os ) const  [inline]
```

10.41.3.29 WriteBuffer()

```
bool gdcm::ByteValue::WriteBuffer (
            std::ostream & os ) const  [inline]
```

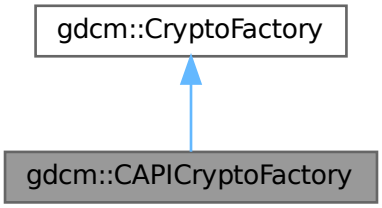
The documentation for this class was generated from the following file:

- gdcmByteValue.h

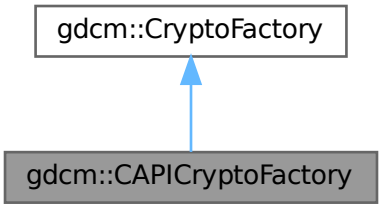
10.42 gdcm::CAPICryptoFactory Class Reference

```
#include <gdcmCAPICryptoFactory.h>
```

Inheritance diagram for gdcm::CAPICryptoFactory:



Collaboration diagram for gdcm::CAPICryptoFactory:



Public Member Functions

- CAPICryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

10.42.1 Constructor & Destructor Documentation

10.42.1.1 CAPICryptoFactory()

```
gdcm::CAPICryptoFactory::CAPICryptoFactory (
            CryptoLib id )
```

10.42.2 Member Function Documentation

10.42.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::CAPICryptoFactory::CreateCMSProvider ( )  [virtual]
```

Implements gdcm::CryptoFactory.

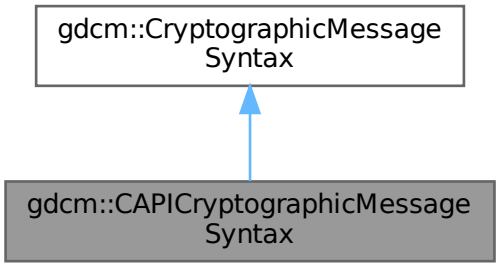
The documentation for this class was generated from the following file:

- gdcmCAPICryptoFactory.h

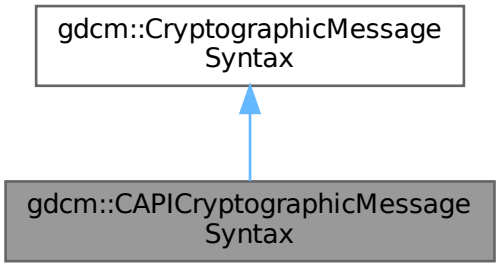
10.43 gdcm::CAPICryptographicMessageSyntax Class Reference

```
#include <gdcmCAPICryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::CAPICryptographicMessageSyntax:



Collaboration diagram for gdcm::CAPICryptographicMessageSyntax:



Public Member Functions

- CAPICryptographicMessageSyntax ()
- ~CAPICryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a CMS envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const
- bool GetInitialized () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

10.43.1 Constructor & Destructor Documentation

10.43.1.1 CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::CAPICryptographicMessageSyntax ( )
```

10.43.1.2 ∼CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::∼CAPICryptographicMessageSyntax ( )
```

10.43.2 Member Function Documentation

10.43.2.1 Decrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

decrypt content from a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.43.2.2 Encrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.43.2.3 GetCipherType()

```
CipherTypes gdcm::CAPICryptographicMessageSyntax::GetCipherType ( ) const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.43.2.4 GetInitialized()

```
bool gdcm::CAPICryptographicMessageSyntax::GetInitialized ( ) const  [inline]
```

10.43.2.5 ParseCertificateFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseCertificateFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.43.2.6 ParseKeyFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseKeyFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.43.2.7 SetCipherType()

```
void gdcm::CAPICryptographicMessageSyntax::SetCipherType (
            CipherTypes type )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.43.2.8 SetPassword()

```
bool gdcm::CAPICryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

The documentation for this class was generated from the following file:

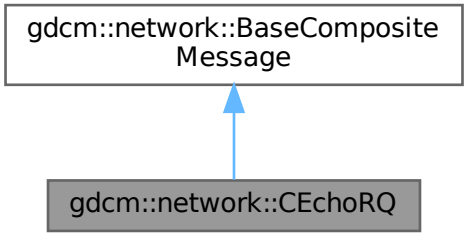
- gdcmCAPICryptographicMessageSyntax.h

10.44 gdcm::network::CEchoRQ Class Reference

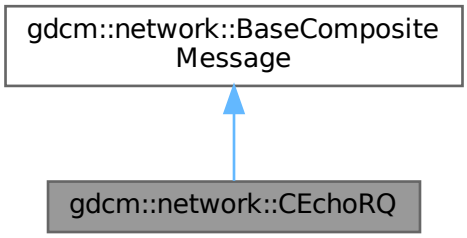
CEchoRQ.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRQ:



Collaboration diagram for gdcm::network::CEchoRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

Public Attributes

- UIComp AffectedSOPClassUID
- uint16_t MessageID

10.44.1 Detailed Description

CEchoRQ.

this file defines the messages for the cecho action

10.44.2 Member Function Documentation

10.44.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

10.44.3 Member Data Documentation

10.44.3.1 AffectedSOPClassUID

```
UIComp gdcm::network::CEchoRQ::AffectedSOPClassUID
```

10.44.3.2 MessageID

```
uint16_t gdcm::network::CEchoRQ::MessageID
```

The documentation for this class was generated from the following files:

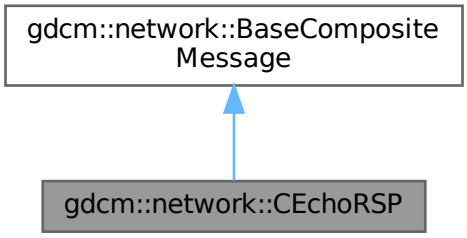
- gdcmCEchoMessages.h
- gdcmDIMSE.h

10.45 gdcm::network::CEchoRSP Class Reference

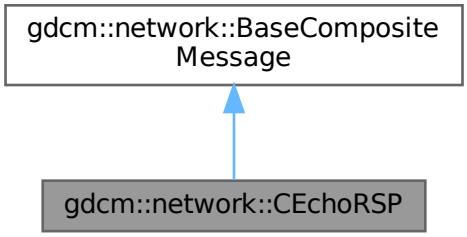
CEchoRSP this file defines the messages for the cecho action.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRSP:



Collaboration diagram for gdcm::network::CEchoRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.45.1 Detailed Description

CEchoRSP this file defines the messages for the cecho action.

10.45.2 Member Function Documentation

10.45.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

- gdcmCEchoMessages.h

10.46 gdcm::network::CFind Class Reference

```
#include <gdcmDIMSE.h>
```

10.46.1 Detailed Description

PS 3.4 - 2009 Table B.2-1 C-STORE STATUS

The documentation for this class was generated from the following file:

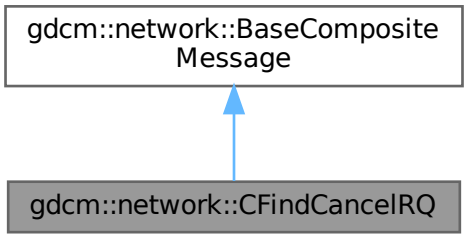
- gdcmDIMSE.h

10.47 gdcm::network::CFindCancelRQ Class Reference

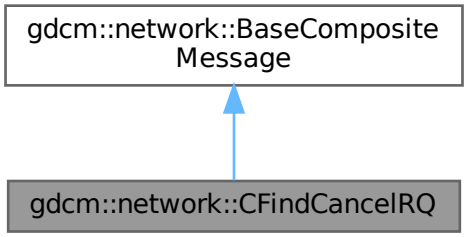
CFindCancelRQ this file defines the messages for the cfind action.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcm::network::CFindCancelRQ:



Collaboration diagram for gdcm::network::CFindCancelRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.47.1 Detailed Description

CFindCancelRQ this file defines the messages for the cfind action.

10.47.2 Member Function Documentation

10.47.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindCancelRQ::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

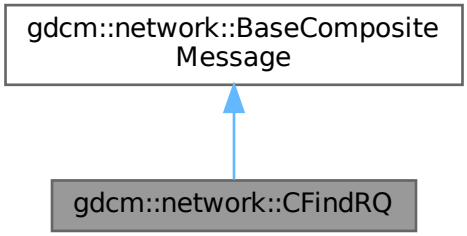
- gdcmCFindMessages.h

10.48 gdcm::network::CFindRQ Class Reference

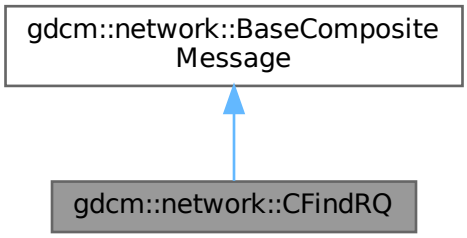
CFindRQ.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcm::network::CFindRQ:



Collaboration diagram for gdcm::network::CFindRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

10.48.1 Detailed Description

CFindRQ.

this file defines the messages for the cfind action

10.48.2 Member Function Documentation

10.48.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CFindRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

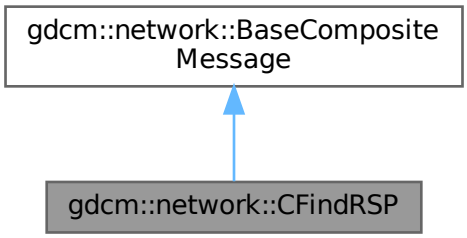
- gdcmCFindMessages.h

10.49 gdcm::network::CFindRSP Class Reference

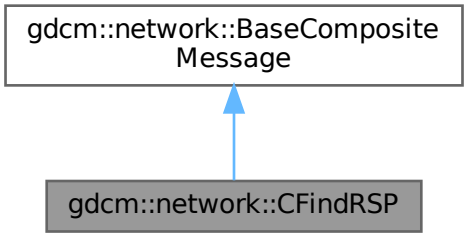
CFindRSP this file defines the messages for the cfind action.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcm::network::CFindRSP:



Collaboration diagram for gdcm::network::CFindRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.49.1 Detailed Description

CFindRSP this file defines the messages for the cfind action.

10.49.2 Member Function Documentation

10.49.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

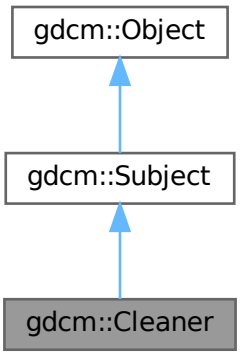
- gdcmCFindMessages.h

10.50 gdcm::Cleaner Class Reference

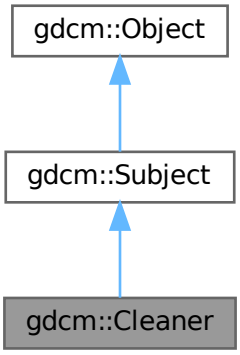
Cleaner.

```
#include <gdcmCleaner.h>
```

Inheritance diagram for gdcm::Cleaner:



Collaboration diagram for gdcm::Cleaner:



Public Member Functions

- Cleaner ()
- ~Cleaner () override
- bool Clean ()

  main loop
- bool Empty (DPath const &dpath)
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)
- bool Empty (VR const &vr)
- void EmptyWhenScrubFails (bool empty)

  Should I empty instead of scrub upon failure.
- File & GetFile ()
- bool Preserve (DPath const &dpath)
- bool Remove (DPath const &dpath)
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)
- bool Remove (VR const &vr)
- void RemoveAllGroupLength (bool remove)

  Should I remove all group length (deprecated). Default: true.
- void RemoveAllIllegal (bool remove)

  Should I remove all illegal attribute. Default: true.
- void RemoveAllMissingPrivateCreator (bool remove)
- bool RemoveMissingPrivateCreator (Tag const &t)
- bool Scrub (DPath const &dpath)
- bool Scrub (PrivateTag const &pt)
- bool Scrub (Tag const &t)

  Clean digital tash (typically SIEMENS CSA header):
- bool Scrub (VR const &vr)
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< Cleaner > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.50.1 Detailed Description

Cleaner.

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

Examples

Cleaner.cs.

10.50.2 Constructor & Destructor Documentation

10.50.2.1 Cleaner()

```
gdcm::Cleaner::Cleaner ( )
```

10.50.2.2 ~Cleaner()

```
gdcm::Cleaner::~Cleaner ( ) [override]
```

10.50.3 Member Function Documentation

10.50.3.1 Clean()

```
bool gdcm::Cleaner::Clean ( )
```

main loop

Examples

Cleaner.cs.

10.50.3.2 Empty() [1/4]

```
bool gdcm::Cleaner::Empty (
            DPath const & dpath )
```

10.50.3.3 Empty() [2/4]

```
bool gdcm::Cleaner::Empty (
            PrivateTag const & pt )
```

10.50.3.4 Empty() [3/4]

```
bool gdcm::Cleaner::Empty (
            Tag const & t )
```

Examples

Cleaner.cs.

10.50.3.5 Empty() [4/4]

```
bool gdcm::Cleaner::Empty (
            VR const & vr )
```

10.50.3.6 EmptyWhenScrubFails()

```
void gdcm::Cleaner::EmptyWhenScrubFails (
            bool empty )
```

Should I empty instead of scrub upon failure.

10.50.3.7 GetFile()

```
File & gdcm::Cleaner::GetFile ( ) [inline]
```

Examples

Cleaner.cs.

10.50.3.8 New()

```
static SmartPointer< Cleaner > gdcm::Cleaner::New ( ) [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

Cleaner.cs.

10.50.3.9 Preserve()

```
bool gdcm::Cleaner::Preserve (
            DPath const & dpath )
```

Examples

Cleaner.cs.

10.50.3.10 Remove() [1/4]

```
bool gdcm::Cleaner::Remove (
            DPath const & dpath )
```

10.50.3.11 Remove() [2/4]

```
bool gdcm::Cleaner::Remove (
            PrivateTag const & pt )
```

10.50.3.12 Remove() [3/4]

```
bool gdcm::Cleaner::Remove (
            Tag const & t )
```

Examples

Cleaner.cs.

10.50.3.13 Remove() [4/4]

```
bool gdcm::Cleaner::Remove (
            VR const & vr )
```

10.50.3.14 RemoveAllGroupLength()

```
void gdcm::Cleaner::RemoveAllGroupLength (
            bool remove )
```

Should I remove all group length (deprecated). Default: true.

10.50.3.15 RemoveAllIllegal()

```
void gdcm::Cleaner::RemoveAllIllegal (
            bool remove )
```

Should I remove all illegal attribute. Default: true.

10.50.3.16 RemoveAllMissingPrivateCreator()

```
void gdcm::Cleaner::RemoveAllMissingPrivateCreator (
            bool remove )
```

Should I remove all private tag for which no private creator is found. Default: true

10.50.3.17 RemoveMissingPrivateCreator()

```
bool gdcm::Cleaner::RemoveMissingPrivateCreator (
            Tag const & t )
```

Specify a private tag (odd number) without a private creator (root level only for now):

10.50.3.18 Scrub() [1/4]

```
bool gdcm::Cleaner::Scrub (
            DPath const & dpath )
```

10.50.3.19 Scrub() [2/4]

```
bool gdcm::Cleaner::Scrub (
            PrivateTag const & pt )
```

10.50.3.20 Scrub() [3/4]

```
bool gdcm::Cleaner::Scrub (
            Tag const & t )
```

Clean digital tash (typically SIEMENS CSA header):

Examples

Cleaner.cs.

10.50.3.21 Scrub() [4/4]

```
bool gdcm::Cleaner::Scrub (
            VR const & vr )
```

10.50.3.22 SetFile()

```
void gdcm::Cleaner::SetFile (
            const File & f )  [inline]
```

Set/Get File.

Examples

Cleaner.cs.

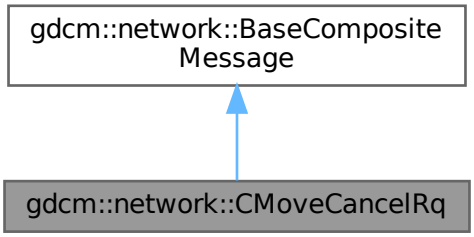
The documentation for this class was generated from the following file:

- gdcmCleaner.h

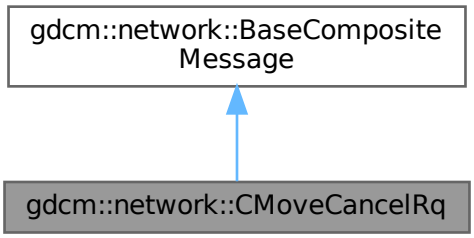
10.51 gdcm::network::CMoveCancelRq Class Reference

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for gdcm::network::CMoveCancelRq:



Collaboration diagram for gdcm::network::CMoveCancelRq:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.51.1 Member Function Documentation

10.51.1.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveCancelRq::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

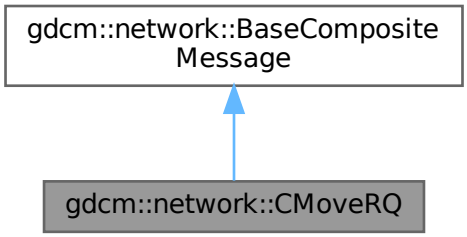
- gdcmCMoveMessages.h

10.52 gdcm::network::CMoveRQ Class Reference

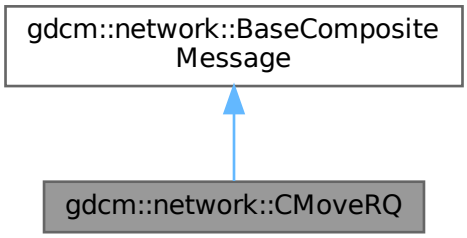
CMoveRQ.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for gdcm::network::CMoveRQ:



Collaboration diagram for gdcm::network::CMoveRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

10.52.1 Detailed Description

CMoveRQ.

this file defines the messages for the cmove action

10.52.2 Member Function Documentation

10.52.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

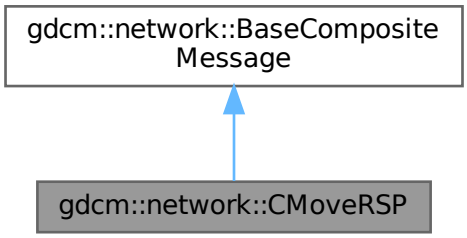
- gdcmCMoveMessages.h

10.53 gdcm::network::CMoveRSP Class Reference

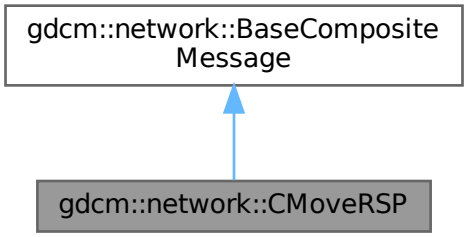
CMoveRSP this file defines the messages for the cmove action.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for gdcm::network::CMoveRSP:



Collaboration diagram for gdcm::network::CMoveRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

10.53.1 Detailed Description

CMoveRSP this file defines the messages for the cmove action.

10.53.2 Member Function Documentation

10.53.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

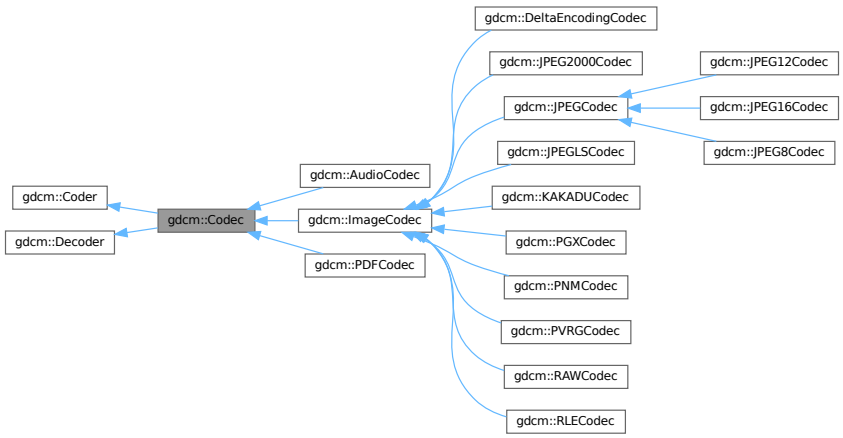
- gdcmCMoveMessages.h

10.54 gdcm::Codec Class Reference

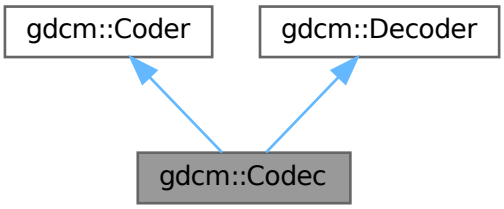
Codec class.

`#include <gdcmCodec.h>`

Inheritance diagram for gdcm::Codec:



Collaboration diagram for gdcm::Codec:



Additional Inherited Members

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it)
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it)
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

10.54.1 Detailed Description

Codec class.

The documentation for this class was generated from the following file:

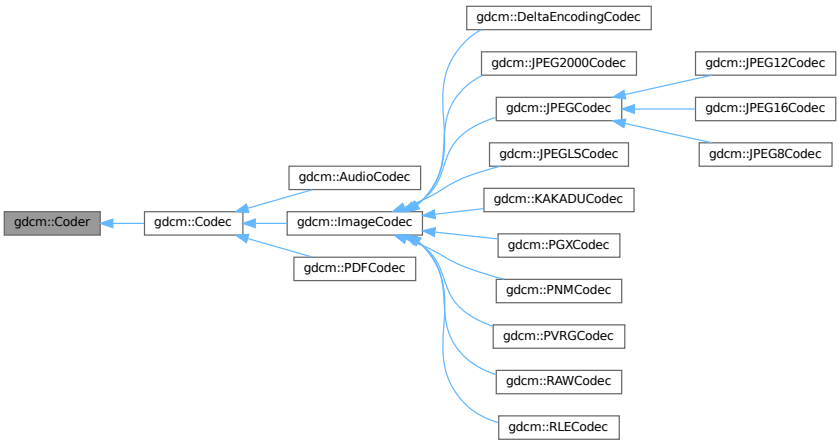
- gdcmCodec.h

10.55 gdcm::Coder Class Reference

Coder.

```
#include <gdcmCoder.h>
```

Inheritance diagram for gdcm::Coder:



Public Member Functions

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it)
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Protected Member Functions

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

10.55.1 Detailed Description

Coder.

10.55.2 Constructor & Destructor Documentation

10.55.2.1 ~Coder()

```
virtual gdcm::Coder::~Coder ( )  [virtual], [default]
```

10.55.3 Member Function Documentation

10.55.3.1 CanCode()

```
virtual bool gdcm::Coder::CanCode (
            TransferSyntax const &  ) const  [pure virtual]
```

Return whether this coder support this transfer syntax (can code it)

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::PDFCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.55.3.2 Code()

```
virtual bool gdcm::Coder::Code (
            DataElement const & in_,
            DataElement & out_ )  [inline], [virtual]
```

Code.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.55.3.3 InternalCode()

```
virtual bool gdcm::Coder::InternalCode (
            const char * bv,
            unsigned long len,
            std::ostream & os )  [inline], [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

The documentation for this class was generated from the following file:

- gdcmCoder.h

10.56 gdcm::CodeString Class Reference

CodeString.

```
#include <gdcmCodeString.h>
```

Public Types

- typedef InternalClass::const_iterator const_iterator
- typedef InternalClass::const_reference const_reference
- typedef InternalClass::const_reverse_iterator const_reverse_iterator
- typedef InternalClass::difference_type difference_type
- typedef InternalClass::iterator iterator
- typedef InternalClass::pointer pointer
- typedef InternalClass::reference reference
- typedef InternalClass::reverse_iterator reverse_iterator
- typedef InternalClass::size_type size_type
- typedef InternalClass::value_type value_type

Public Member Functions

- CodeString ()

  CodeString constructors.
- CodeString (const InternalClass &s, size_type pos=0, size_type n=InternalClass::npos)
- CodeString (const value_type *s)
- CodeString (const value_type *s, size_type n)
- std::string GetAsString () const

  Return the full code string as std::string.
- bool IsValid () const

  Check if CodeString obj is correct..
- size_type Size () const

  Return the size of the string.

Protected Member Functions

- std::string TrimInternal () const

Friends

- bool operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- bool operator== (const CodeString &ref, const CodeString &cs)

10.56.1 Detailed Description

CodeString.

This is an implementation of DICOM VR: CS The cstor will properly Trim so that operator== is correct.

Note

the cstor of CodeString will Trim the string on the fly so as to remove the extra leading and ending spaces. However it will not perform validation on the fly (CodeString obj can contains invalid char such as lower cases). This design was chosen to be a little tolerant to broken DICOM implementation, and thus allow user to compare lower case CS from there input file without the need to first rewrite them to get rid of invalid character (validation is a different operation from searching, querying).

Warning

when writing out DICOM file it is highly recommended to perform the IsValid() call, at least to check that the length of the string match the definition in the standard.

10.56.2 Member Typedef Documentation

10.56.2.1 const_iterator

```
typedef InternalClass::const_iterator gdcm::CodeString::const_iterator
```

10.56.2.2 const_reference

```
typedef InternalClass::const_reference gdcm::CodeString::const_reference
```

10.56.2.3 const_reverse_iterator

```
typedef InternalClass::const_reverse_iterator gdcm::CodeString::const_reverse_iterator
```

10.56.2.4 difference_type

```
typedef InternalClass::difference_type gdcm::CodeString::difference_type
```

10.56.2.5 iterator

```
typedef InternalClass::iterator gdcm::CodeString::iterator
```

10.56.2.6 pointer

```
typedef InternalClass::pointer gdcm::CodeString::pointer
```

10.56.2.7 reference

```
typedef InternalClass::reference gdcm::CodeString::reference
```

10.56.2.8 reverse_iterator

```
typedef InternalClass::reverse_iterator gdcm::CodeString::reverse_iterator
```

10.56.2.9 size_type

```
typedef InternalClass::size_type gdcm::CodeString::size_type
```

10.56.2.10 value_type

```
typedef InternalClass::value_type gdcm::CodeString::value_type
```

10.56.3 Constructor & Destructor Documentation

10.56.3.1 CodeString() [1/4]

```
gdcm::CodeString::CodeString ( )  [inline]
```

CodeString constructors.

10.56.3.2 CodeString() [2/4]

```
gdcm::CodeString::CodeString (
            const value_type * s )  [inline]
```

10.56.3.3 CodeString() [3/4]

```
gdcm::CodeString::CodeString (
            const value_type * s,
            size_type n )  [inline]
```

10.56.3.4 CodeString() [4/4]

```
gdcm::CodeString::CodeString (
            const InternalClass & s,
            size_type pos = 0,
            size_type n = InternalClass::npos )  [inline]
```

10.56.4 Member Function Documentation

10.56.4.1 GetAsString()

```
std::string gdcm::CodeString::GetAsString ( ) const  [inline]
```

Return the full code string as std::string.

10.56.4.2 IsValid()

```
bool gdcm::CodeString::IsValid ( ) const
```

Check if CodeString obj is correct..

10.56.4.3 Size()

```
size_type gdcm::CodeString::Size ( ) const  [inline]
```

Return the size of the string.

10.56.4.4 TrimInternal()

```
std::string gdcm::CodeString::TrimInternal ( ) const  [inline], [protected]
```

10.56.5 Friends And Related Symbol Documentation

10.56.5.1 operator"!=

```
bool operator!= (
            const CodeString & ref,
            const CodeString & cs )  [friend]
```

10.56.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CodeString & str )  [friend]
```

10.56.5.3 operator==

```
bool operator== (
            const CodeString & ref,
            const CodeString & cs )  [friend]
```

The documentation for this class was generated from the following file:

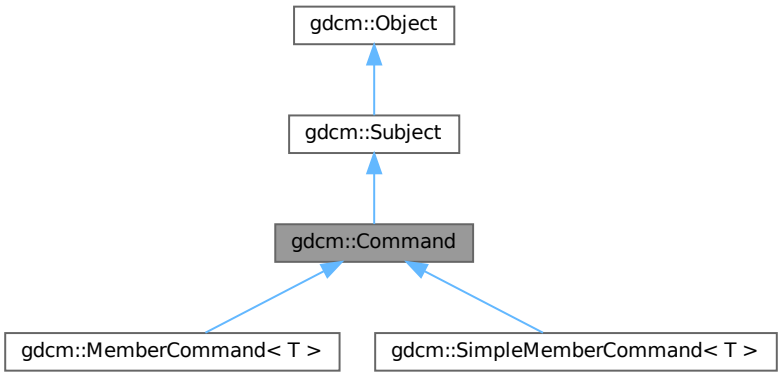
- gdcmCodeString.h

10.57 gdcm::Command Class Reference

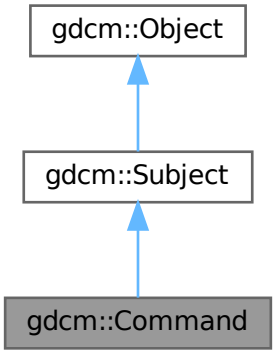
Command superclass for callback/observer methods.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::Command:



Collaboration diagram for gdcm::Command:



Public Member Functions

- Command (const Command &)=delete
- virtual void Execute (const Subject *caller, const Event &event)=0
- virtual void Execute (Subject *caller, const Event &event)=0

  Abstract method that defines the action to be taken by the command.
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.57.1 Detailed Description

Command superclass for callback/observer methods.

See also

Subject

10.57.2 Constructor & Destructor Documentation

10.57.2.1 Command() [1/2]

```
gdcm::Command::Command (
            const Command &  )  [delete]
```

10.57.2.2 Command() [2/2]

```
gdcm::Command::Command ( )  [protected]
```

10.57.2.3 ~Command()

```
gdcm::Command::~Command ( )  [override], [protected]
```

10.57.3 Member Function Documentation

10.57.3.1 Execute() [1/2]

```
virtual void gdcm::Command::Execute (
            const Subject * caller,
            const Event & event )  [pure virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implemented in gdcm::SimpleMemberCommand< T >, and gdcm::MemberCommand< T >.

10.57.3.2 Execute() [2/2]

```
virtual void gdcm::Command::Execute (
            Subject * caller,
            const Event & event )  [pure virtual]
```

Abstract method that defines the action to be taken by the command.

Implemented in gdcm::SimpleMemberCommand< T >, and gdcm::MemberCommand< T >.

10.57.3.3 operator=()

```
void gdcm::Command::operator= (
            const Command &  )  [delete]
```

The documentation for this class was generated from the following file:

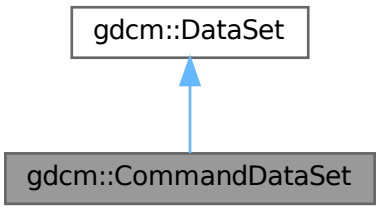
- gdcmCommand.h

10.58 gdcm::CommandDataSet Class Reference

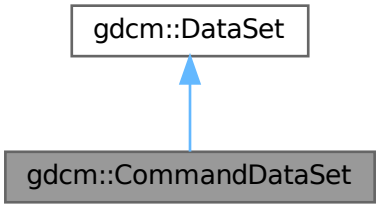
Class to represent a Command DataSet.

```
#include <gdcmCommandDataSet.h>
```

Inheritance diagram for gdcm::CommandDataSet:



Collaboration diagram for gdcm::CommandDataSet:



Public Member Functions

- CommandDataSet ()=default
- ~CommandDataSet ()=default
- void Insert (const DataElement &de)
- std::istream & Read (std::istream &is)

  Read.
- void Replace (const DataElement &de)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE >
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE >
  VL GetLength () const
- MediaStorage GetMediaStorage () const

- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadNested (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE , typename TSwap >
  std::ostream const & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const CommandDataSet &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

10.58.1 Detailed Description

Class to represent a Command DataSet.

See also

DataSet

10.58.2 Constructor & Destructor Documentation

10.58.2.1 CommandDataSet()

```
gdcm::CommandDataSet::CommandDataSet ( ) [default]
```

10.58.2.2 ~CommandDataSet()

```
gdcm::CommandDataSet::~CommandDataSet ( ) [default]
```

References gdcm::operator<<().

10.58.3 Member Function Documentation

10.58.3.1 Insert()

```
void gdcm::CommandDataSet::Insert (
            const DataElement & de ) [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), and gdcm::DataElement::GetTag().

10.58.3.2 Read()

```
std::istream & gdcm::CommandDataSet::Read (
            std::istream & is )
```

Read.

10.58.3.3 Replace()

```
void gdcm::CommandDataSet::Replace (
            const DataElement & de )  [inline]
```

References gdcm::DataElement::GetTag().

10.58.3.4 Write()

```
std::ostream & gdcm::CommandDataSet::Write (
            std::ostream & os ) const
```

Write.

10.58.4 Friends And Related Symbol Documentation

10.58.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CommandDataSet & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmCommandDataSet.h

10.59 gdcm::network::CompositeMessageFactory Class Reference

CompositeMessageFactory.

```
#include <gdcmCompositeMessageFactory.h>
```

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructCEchoRQ (const ULConnection &inConnection)
- static std::vector< PresentationDataValue > ConstructCFindRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCMoveRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCStoreRQ (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< PresentationDataValue > ConstructCStoreRSP (const DataSet *inDataSet, const BasePDU *inPC)

10.59.1 Detailed Description

CompositeMessageFactory.

This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).

10.59.2 Member Function Documentation

10.59.2.1 ConstructCEchoRQ()

```
static std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::Construct↩
CEchoRQ (
            const ULConnection & inConnection )  [static]
```

10.59.2.2 ConstructCFindRQ()

```
static std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::Construct↩
CFindRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [static]
```

10.59.2.3 ConstructCMoveRQ()

```
static std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::Construct↩
CMoveRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [static]
```

10.59.2.4 ConstructCStoreRQ()

```
static std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::Construct↩
CStoreRQ (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true )  [static]
```

10.59.2.5 ConstructCStoreRSP()

```
static std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::Construct↩
CStoreRSP (
            const DataSet * inDataSet,
            const BasePDU * inPC )  [static]
```

The documentation for this class was generated from the following file:

- gdcmCompositeMessageFactory.h

10.60 gdcm::CompositeNetworkFunctions Class Reference

Composite Network Functions.

```
#include <gdcmCompositeNetworkFunctions.h>
```

Public Types

- typedef std::vector< KeyValuePairType > KeyValuePairArrayType
- typedef std::pair< Tag, std::string > KeyValuePairType

Static Public Member Functions

- static bool CEcho (const char *remote, uint16_t portno, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CFind (const char *remote, uint16_t portno, const BaseRootQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CMove (const char *remote, uint16_t portno, const BaseRootQuery *query, uint16_t portscp, const char *aetitle=nullptr, const char *call=nullptr, const char *outputdir=nullptr)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const DataSet &queryds, EQueryType queryType=eFind)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)
- static bool CStore (const char *remote, uint16_t portno, const Directory::FilenamesType &filenames, const char *aetitle=nullptr, const char *call=nullptr)

10.60.1 Detailed Description

Composite Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- C-ECHO SCU
- C-FIND SCU
- C-STORE SCU
- C-MOVE SCU (+internal C-STORE SCP)

Examples

SendFileSCU.cs.

10.60.2 Member Typedef Documentation

10.60.2.1 KeyValuePairArrayType

```
typedef std::vector< KeyValuePairType > gdcm::CompositeNetworkFunctions::KeyValuePairArrayType
```

10.60.2.2 KeyValuePairType

```
typedef std::pair<Tag, std::string> gdcm::CompositeNetworkFunctions::KeyValuePairType
```

10.60.3 Member Function Documentation

10.60.3.1 CEcho()

```
static bool gdcm::CompositeNetworkFunctions::CEcho (
            const char * remote,
            uint16_t portno,
            const char * aetitle = nullptr,
            const char * call = nullptr )  [static]
```

The most basic network function. Use this function to ensure that the remote server is responding on the given IP and port number as expected.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

Examples

SendFileSCU.cs.

10.60.3.2 CFind()

```
static bool gdcm::CompositeNetworkFunctions::CFind (
            const char * remote,
            uint16_t portno,
            const BaseRootQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle = nullptr,
            const char * call = nullptr )  [static]
```

This function will use the provided query to determine what files a remote server contains that match the query strings. The return is a vector of datasets that contain tags as reported by the server. If the dataset is empty, then it is possible that an error condition was encountered; in which case, the user should monitor the error and warning streams.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

10.60.3.3 CMove()

```
static bool gdcm::CompositeNetworkFunctions::CMove (
            const char * remote,
            uint16_t portno,
            const BaseRootQuery * query,
            uint16_t portscp,
            const char * aetitle = nullptr,
            const char * call = nullptr,
            const char * outputdir = nullptr )  [static]
```

This function will use the provided query to get files from a remote server. NOTE that this functionality is essentially equivalent to C-GET in the DICOM standard; however, C-GET has been deprecated, so this function allows for the user to ask a remote server for files matching a query and return them to the local machine. Files will be written to the given output directory. If the operation succeeds, the function returns true. This function is a prime candidate for being overwritten by expert users; if the datasets should remain in memory, for instance, that behavior can be changed by creating a user-level version of this function.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP' This is an error to set remote to NULL or portno to 0 when
outputdir	is not set default to current dir ('.')

Returns

true if it worked.

10.60.3.4 ConstructQuery() [1/2]

```
static BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const DataSet & queryds,
            EQueryType queryType = eFind )  [static]
```

This function will take a list of strings and tags and fill in a query that can be used for either CFind or CMove (depending on the input boolean

Parameters

inMove).	Note that the caller is responsible for deleting the constructed query. This function is used to build both a move and a find query (true for inMove if it's move, false if it's find)

10.60.3.5 ConstructQuery() [2/2]

```
static BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
```

```
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const KeyValuePairArrayType & keys,
            EQueryType queryType = eFind )  [static]
```

Deprecated

10.60.3.6 CStore()

```
static bool gdcm::CompositeNetworkFunctions::CStore (
            const char * remote,
            uint16_t portno,
            const Directory::FilenamesType & filenames,
            const char * aetitle = nullptr,
            const char * call = nullptr )  [static]
```

This function will place the provided files into the remote server. The function returns true if it worked for all files.

Warning

the server side can refuse an association on a given file

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked for all files

Examples

SendFileSCU.cs.

The documentation for this class was generated from the following file:

- gdcmCompositeNetworkFunctions.h

10.61 gdcm::ConstCharWrapper Class Reference

Do not use me.

```
#include <gdcmConstCharWrapper.h>
```

Public Member Functions

- ConstCharWrapper (const char ∗i=0)
- operator const char ∗ () const

10.61.1 Detailed Description

Do not use me.

10.61.2 Constructor & Destructor Documentation

10.61.2.1 ConstCharWrapper()

```
gdcm::ConstCharWrapper::ConstCharWrapper (
            const char * i = 0 )  [inline]
```

10.61.3 Member Function Documentation

10.61.3.1 operator const char ∗()

```
gdcm::ConstCharWrapper::operator const char * ( ) const  [inline]
```

The documentation for this class was generated from the following file:

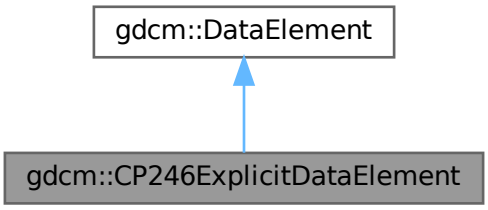
- gdcmConstCharWrapper.h

10.62 gdcm::CP246ExplicitDataElement Class Reference

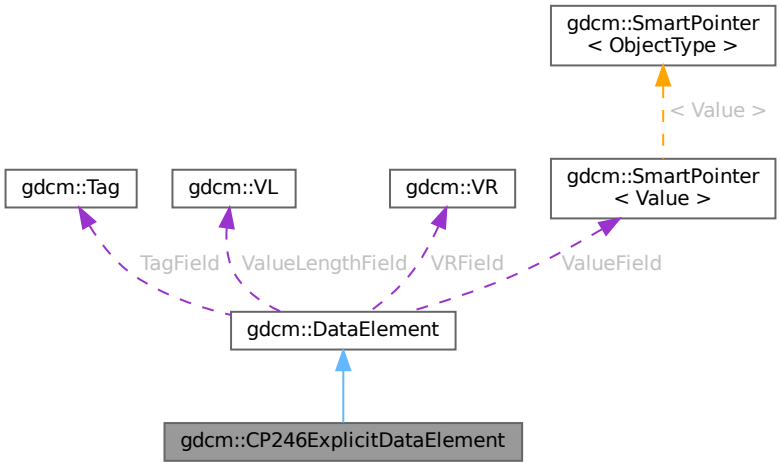
Class to read/write a DataElement as CP246Explicit Data Element.

```
#include <gdcmCP246ExplicitDataElement.h>
```

Inheritance diagram for gdcm::CP246ExplicitDataElement:



Collaboration diagram for gdcm::CP246ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)

- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.62.1 Detailed Description

Class to read/write a DataElement as CP246Explicit Data Element.

Note

Some system are producing SQ, declare them as UN, but encode the SQ as 'Explicit' instead of Implicit

10.62.2 Member Function Documentation

10.62.2.1 GetLength()

```
VL gdcm::CP246ExplicitDataElement::GetLength ( ) const
```

10.62.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::CP246ExplicitDataElement::Read (
            std::istream & is )
```

10.62.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::CP246ExplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.62.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::CP246ExplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.62.2.5 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::CP246ExplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length )
```

The documentation for this class was generated from the following file:

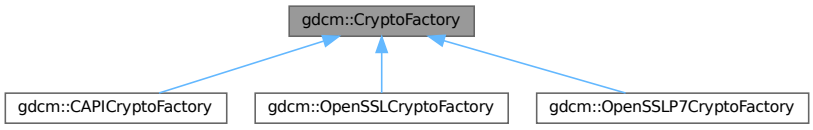
- gdcmCP246ExplicitDataElement.h

10.63 gdcm::CryptoFactory Class Reference

Class to do handle the crypto factory.

```
#include <gdcmCryptoFactory.h>
```

Inheritance diagram for gdcm::CryptoFactory:



Public Types

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Public Member Functions

- virtual CryptographicMessageSyntax ∗ CreateCMSProvider ()=0

Static Public Member Functions

- static CryptoFactory ∗ GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ∼CryptoFactory ()=default

10.63.1 Detailed Description

Class to do handle the crypto factory.

GDCM needs to access in a platform independent way the user specified crypto engine. It can be:

- CAPI (windows only)
- OPENSSL (portable)
- OPENSSLP7 (portable) By default the factory will try: CAPI if on windows OPENSSL if possible OPENSSLP7 when older OpenSSL is used.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.63.2 Member Enumeration Documentation

10.63.2.1 CryptoLib

```
enum gdcm::CryptoFactory::CryptoLib
```

Enumerator

DEFAULT	
OPENSSL	
CAPI	
OPENSSLP7	

10.63.3 Constructor & Destructor Documentation

10.63.3.1 CryptoFactory() [1/2]

```
gdcm::CryptoFactory::CryptoFactory (
            CryptoLib id )  [inline], [protected]
```

10.63.3.2 CryptoFactory() [2/2]

```
gdcm::CryptoFactory::CryptoFactory ( )  [protected], [default]
```

10.63.3.3 ~CryptoFactory()

```
gdcm::CryptoFactory::~CryptoFactory ( )  [protected], [default]
```

10.63.4 Member Function Documentation

10.63.4.1 CreateCMSProvider()

```
virtual CryptographicMessageSyntax * gdcm::CryptoFactory::CreateCMSProvider ( )  [pure virtual]
```

Implemented in gdcm::CAPICryptoFactory, gdcm::OpenSSLCryptoFactory, and gdcm::OpenSSLP7CryptoFactory.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.63.4.2 GetFactoryInstance()

```
static CryptoFactory * gdcm::CryptoFactory::GetFactoryInstance (
            CryptoLib id = DEFAULT )  [static]
```

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

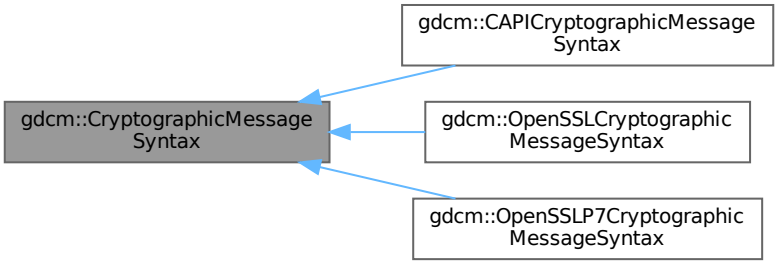
The documentation for this class was generated from the following file:

- gdcmCryptoFactory.h

10.64 gdcm::CryptographicMessageSyntax Class Reference

```
#include <gdcmCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::CryptographicMessageSyntax:



Public Types

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

Public Member Functions

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- virtual bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const =0

  decrypt content from a CMS envelopedData structure
- virtual bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const =0

  create a CMS envelopedData structure
- virtual CipherTypes GetCipherType () const =0
- void operator= (const CryptographicMessageSyntax &)=delete
- virtual bool ParseCertificateFile (const char *filename)=0
- virtual bool ParseKeyFile (const char *filename)=0
- virtual void SetCipherType (CipherTypes type)=0
- virtual bool SetPassword (const char *pass, size_t passLen)=0

10.64.1 Detailed Description

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.64.2 Member Enumeration Documentation

10.64.2.1 CipherTypes

```
enum gdcm::CryptographicMessageSyntax::CipherTypes
```

Enumerator

DES3_CIPHER	
AES128_CIPHER	
AES192_CIPHER	
AES256_CIPHER	

10.64.3 Constructor & Destructor Documentation

10.64.3.1 CryptographicMessageSyntax() [1/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax ( ) [default]
```

10.64.3.2 ~CryptographicMessageSyntax()

```
virtual gdcm::CryptographicMessageSyntax::~CryptographicMessageSyntax ( ) [virtual], [default]
```

10.64.3.3 CryptographicMessageSyntax() [2/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax (
            const CryptographicMessageSyntax & ) [delete]
```

10.64.4 Member Function Documentation

10.64.4.1 Decrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const [pure virtual]
```

decrypt content from a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

10.64.4.2 Encrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [pure virtual]
```

create a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

10.64.4.3 GetCipherType()

```
virtual CipherTypes gdcm::CryptographicMessageSyntax::GetCipherType ( ) const  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

10.64.4.4 operator=()

```
void gdcm::CryptographicMessageSyntax::operator= (
            const CryptographicMessageSyntax &  )  [delete]
```

10.64.4.5 ParseCertificateFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename )  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.64.4.6 ParseKeyFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseKeyFile (
            const char * filename )  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

10.64.4.7 SetCipherType()

```
virtual void gdcm::CryptographicMessageSyntax::SetCipherType (
            CipherTypes type )  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

10.64.4.8 SetPassword()

```
virtual bool gdcm::CryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen )  [pure virtual]
```

Implemented in gdcm::OpenSSLP7CryptographicMessageSyntax, gdcm::CAPICryptographicMessageSyntax, and gdcm::OpenSSLCryptographicMessageSyntax.

The documentation for this class was generated from the following file:

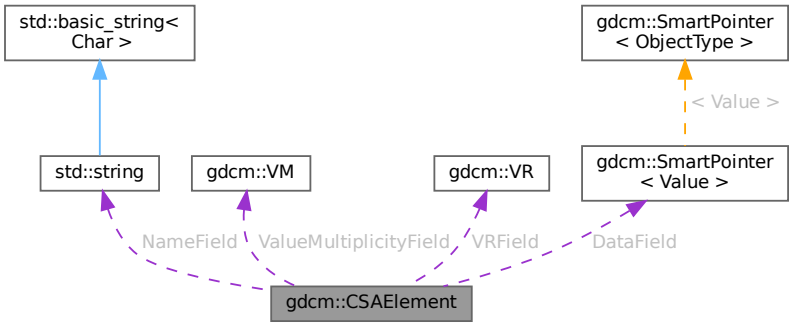
- gdcmCryptographicMessageSyntax.h

10.65 gdcm::CSAElement Class Reference

Class to represent a CSA Element.

```
#include <gdcmCSAElement.h>
```

Collaboration diagram for gdcm::CSAElement:



Public Member Functions

- CSAElement (const CSAElement &_val)
- CSAElement (unsigned int kf=0)
- const ByteValue * GetByteValue () const
- unsigned int GetKey () const

  Set/Get Key.
- const char * GetName () const

  Set/Get Name.
- unsigned int GetNoOfItems () const

  Set/Get NoOfItems.
- unsigned int GetSyngoDT () const

  Set/Get SyngoDT.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- const VM & GetVM () const

  Set/Get VM.
- VR const & GetVR () const

  Set/Get VR.
- bool IsEmpty () const

  Check if CSA Element is empty.
- bool operator< (const CSAElement &de) const
- CSAElement & operator= (const CSAElement &de)=default
- bool operator== (const CSAElement &de) const
- void SetByteValue (const char *array, VL length)

  Set.
- void SetKey (unsigned int key)
- void SetName (const char *name)
- void SetNoOfItems (unsigned int items)
- void SetSyngoDT (unsigned int syngodt)
- void SetValue (Value const &vl)
- void SetVM (const VM &vm)
- void SetVR (VR const &vr)

Protected Types

- typedef SmartPointer< Value > DataPtr

Protected Attributes

- DataPtr DataField
- unsigned int KeyField
- std::string NameField
- unsigned int NoOfItemsField
- unsigned int SyngoDTField
- VM ValueMultiplicityField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &os, const CSAElement &val)

10.65.1 Detailed Description

Class to represent a CSA Element.

See also

CSAHeader

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

10.65.2 Member Typedef Documentation

10.65.2.1 DataPtr

```
typedef SmartPointer<Value> gdcm::CSAElement::DataPtr  [protected]
```

10.65.3 Constructor & Destructor Documentation

10.65.3.1 CSAElement() [1/2]

```
gdcm::CSAElement::CSAElement (
            unsigned int kf = 0 )  [inline]
```

10.65.3.2 CSAElement() [2/2]

```
gdcm::CSAElement::CSAElement (
            const CSAElement & _val )  [inline]
```

10.65.4 Member Function Documentation

10.65.4.1 GetByteValue()

```
const ByteValue * gdcm::CSAElement::GetByteValue ( ) const  [inline]
```

Return the Value of CSAElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpSiemensBase64.cxx, and MrProtocol.cxx.

10.65.4.2 GetKey()

```
unsigned int gdcm::CSAElement::GetKey ( ) const  [inline]
```

Set/Get Key.

Referenced by operator<().

10.65.4.3 GetName()

```
const char * gdcm::CSAElement::GetName ( ) const  [inline]
```

Set/Get Name.

10.65.4.4 GetNoOfItems()

```
unsigned int gdcm::CSAElement::GetNoOfItems ( ) const  [inline]
```

Set/Get NoOfItems.

10.65.4.5 GetSyngoDT()

```
unsigned int gdcm::CSAElement::GetSyngoDT ( ) const  [inline]
```

Set/Get SyngoDT.

10.65.4.6 GetValue() [1/2]

```
Value & gdcm::CSAElement::GetValue ( )  [inline]
```

10.65.4.7 GetValue() [2/2]

```
Value const & gdcm::CSAElement::GetValue ( ) const  [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

csa2img.cxx.

10.65.4.8 GetVM()

```
const VM & gdcm::CSAElement::GetVM ( ) const  [inline]
```

Set/Get VM.

10.65.4.9 GetVR()

```
VR const & gdcm::CSAElement::GetVR ( ) const  [inline]
```

Set/Get VR.

10.65.4.10 IsEmpty()

```
bool gdcm::CSAElement::IsEmpty ( ) const  [inline]
```

Check if CSA Element is empty.

Examples

csa2img.cxx.

10.65.4.11 operator<()

```
bool gdcm::CSAElement::operator< (
            const CSAElement & de ) const  [inline]
```

References GetKey().

10.65.4.12 operator=()

```
CSAElement & gdcm::CSAElement::operator= (
            const CSAElement & de )  [default]
```

10.65.4.13 operator==()

```
bool gdcm::CSAElement::operator== (
            const CSAElement & de ) const  [inline]
```

References KeyField, NameField, SyngoDTField, ValueMultiplicityField, and VRField.

10.65.4.14 SetByteValue()

```
void gdcm::CSAElement::SetByteValue (
            const char * array,
            VL length )  [inline]
```

Set.

10.65.4.15 SetKey()

```
void gdcm::CSAElement::SetKey (
            unsigned int key )  [inline]
```

10.65.4.16 SetName()

```
void gdcm::CSAElement::SetName (
            const char * name )  [inline]
```

10.65.4.17 SetNoOfItems()

```
void gdcm::CSAElement::SetNoOfItems (
            unsigned int items )  [inline]
```

10.65.4.18 SetSyngoDT()

```
void gdcm::CSAElement::SetSyngoDT (
            unsigned int syngodt )  [inline]
```

10.65.4.19 SetValue()

```
void gdcm::CSAElement::SetValue (
            Value const & vl )  [inline]
```

10.65.4.20 SetVM()

```
void gdcm::CSAElement::SetVM (
            const VM & vm )  [inline]
```

10.65.4.21 SetVR()

```
void gdcm::CSAElement::SetVR (
            VR const & vr )  [inline]
```

10.65.5 Friends And Related Symbol Documentation

10.65.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CSAElement & val )  [friend]
```

10.65.6 Member Data Documentation

10.65.6.1 DataField

```
DataPtr gdcm::CSAElement::DataField  [protected]
```

10.65.6.2 KeyField

```
unsigned int gdcm::CSAElement::KeyField  [protected]
```

Referenced by operator==().

10.65.6.3 NameField

```
std::string gdcm::CSAElement::NameField  [protected]
```

Referenced by operator==().

10.65.6.4 NoOfItemsField

```
unsigned int gdcm::CSAElement::NoOfItemsField  [protected]
```

10.65.6.5 SyngoDTField

```
unsigned int gdcm::CSAElement::SyngoDTField  [protected]
```

Referenced by operator==().

10.65.6.6 ValueMultiplicityField

```
VM gdcm::CSAElement::ValueMultiplicityField  [protected]
```

Referenced by operator==().

10.65.6.7 VRField

```
VR gdcm::CSAElement::VRField [protected]
```

Referenced by operator==().

The documentation for this class was generated from the following file:

- gdcmCSAElement.h

10.66 gdcm::CSAHeader Class Reference

Class for CSAHeader.

```
#include <gdcmCSAHeader.h>
```

Public Types

- enum CSAHeaderType {
  UNKNOWN = 0 ,
  SV10 ,
  NOMAGIC ,
  DATASET_FORMAT ,
  INTERFILE ,
  ZEROED_OUT }

  Diverse format of CSAHeader as found 'in the wild'.

Public Member Functions

- CSAHeader ()
- ~CSAHeader ()=default
- bool FindCSAElementByName (const char *name)
- const CSAElement & GetCSAElementByName (const char *name)
- const DataSet & GetDataSet () const

  Return the DataSet output (use only if Format == DATASET_FORMAT)
- CSAHeaderType GetFormat () const
- const char * GetInterfile () const

  Return the string output (use only if Format == Interfile)
- bool GetMrProtocol (const DataSet &ds, MrProtocol &mrProtocol)

  Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:
- bool LoadFromDataElement (DataElement const &de)

  Decode the CSAHeader from element 'de'.
- void Print (std::ostream &os) const

  Print the CSAHeader (use only if Format == SV10 or NOMAGIC)

Static Public Member Functions

- static const PrivateTag & GetCSADataInfo ()
- static const PrivateTag & GetCSAImageHeaderInfoTag ()
- static const PrivateTag & GetCSASeriesHeaderInfoTag ()

Protected Member Functions

- const CSAElement & GetCSAEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeader &d)

10.66.1 Detailed Description

Class for CSAHeader.

SIEMENS store private information in tag (0x0029,0x10,"SIEMENS CSA HEADER") this class is meant for user wishing to access values stored within this private attribute. There are basically two main 'format' for this attribute : SV10/↩ NOMAGIC and DATASET_FORMAT SV10 and NOMAGIC are from a user prospective identical, see CSAHeader.xml for possible name / value stored in this format. DATASET_FORMAT is in fact simply just another DICOM dataset (implicit) with -currently unknown- value. This can be only be printed for now.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

the API of this class might change.

Todo MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

See also

PDBHeader

External references: 5.1.3.2.4.1 MEDCOM History Information and 5.1.4.3 CSA Non-Image Module in `http↩ ://tamsinfo.toshiba.com/docrequest/pdf/E.Soft_v2.0.pdf`

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

10.66.2 Member Enumeration Documentation

10.66.2.1 CSAHeaderType

`enum gdcm::CSAHeader::CSAHeaderType`

Diverse format of CSAHeader as found 'in the wild'.

Enumerator

UNKNOWN	
SV10	
NOMAGIC	
DATASET_FORMAT	
INTERFILE	
ZEROED_OUT	

10.66.3 Constructor & Destructor Documentation

10.66.3.1 CSAHeader()

```
gdcm::CSAHeader::CSAHeader ( ) [inline]
```

10.66.3.2 ~CSAHeader()

```
gdcm::CSAHeader::~CSAHeader ( ) [default]
```

10.66.4 Member Function Documentation

10.66.4.1 FindCSAElementByName()

```
bool gdcm::CSAHeader::FindCSAElementByName (
            const char * name )
```

Return true if the CSA element matching 'name' is found or not

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

10.66.4.2 GetCSADataInfo()

```
static const PrivateTag & gdcm::CSAHeader::GetCSADataInfo ( ) [static]
```

Return the private tag used by SIEMENS to store the CSA Data Info This is: PrivateTag(0x0029,0x10,"SIEMENS CSA NON-IMAGE");

10.66.4.3 GetCSAEEnd()

```
const CSAElement & gdcm::CSAHeader::GetCSAEEnd ( ) const  [protected]
```

10.66.4.4 GetCSAElementByName()

```
const CSAElement & gdcm::CSAHeader::GetCSAElementByName (
            const char * name )
```

Return the CSAElement corresponding to name 'name'

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

10.66.4.5 GetCSAImageHeaderInfoTag()

```
static const PrivateTag & gdcm::CSAHeader::GetCSAImageHeaderInfoTag ( )  [static]
```

Return the private tag used by SIEMENS to store the CSA Image Header This is: PrivateTag(0x0029,0x10,"SIEMENS CSA HEADER");

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, PublicDict.cxx, and csa2img.cxx.

10.66.4.6 GetCSASeriesHeaderInfoTag()

```
static const PrivateTag & gdcm::CSAHeader::GetCSASeriesHeaderInfoTag ( )  [static]
```

Return the private tag used by SIEMENS to store the CSA Series Header This is: PrivateTag(0x0029,0x20,"SIEMENS CSA HEADER");

Examples

MrProtocol.cxx.

10.66.4.7 GetDataSet()

```
const DataSet & gdcm::CSAHeader::GetDataSet ( ) const  [inline]
```

Return the DataSet output (use only if Format == DATASET_FORMAT)

10.66.4.8 GetFormat()

```
CSAHeaderType gdcm::CSAHeader::GetFormat ( ) const
```

return the format of the CSAHeader SV10 and NOMAGIC are equivalent.

10.66.4.9 GetInterfile()

```
const char * gdcm::CSAHeader::GetInterfile ( ) const  [inline]
```

Return the string output (use only if Format == Interfile)

10.66.4.10 GetMrProtocol()

```
bool gdcm::CSAHeader::GetMrProtocol (
            const DataSet & ds,
            MrProtocol & mrProtocol )
```

Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:

Examples

MrProtocol.cxx.

10.66.4.11 LoadFromDataElement()

```
bool gdcm::CSAHeader::LoadFromDataElement (
            DataElement const & de )
```

Decode the CSAHeader from element 'de'.

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

10.66.4.12 Print()

```
void gdcm::CSAHeader::Print (
            std::ostream & os ) const
```

Print the CSAHeader (use only if Format == SV10 or NOMAGIC)

Examples

csa2img.cxx.

10.66.5 Friends And Related Symbol Documentation

10.66.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeader & d )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmCSAHeader.h

10.67 gdcm::CSAHeaderDict Class Reference

Class to represent a map of CSAHeaderDictEntry.

```
#include <gdcmCSAHeaderDict.h>
```

Public Types

- typedef MapCSAHeaderDictEntry::const_iterator ConstIterator
- typedef MapCSAHeaderDictEntry::iterator Iterator
- typedef std::set< CSAHeaderDictEntry > MapCSAHeaderDictEntry

Public Member Functions

- CSAHeaderDict ()
- CSAHeaderDict (const CSAHeaderDict &_val)=delete
- void AddCSAHeaderDictEntry (const CSAHeaderDictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const CSAHeaderDictEntry & GetCSAHeaderDictEntry (const char *name) const
- bool IsEmpty () const
- CSAHeaderDict & operator= (const CSAHeaderDict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDict &_val)

10.67.1 Detailed Description

Class to represent a map of CSAHeaderDictEntry.

Examples

MrProtocol.cxx.

10.67.2 Member Typedef Documentation

10.67.2.1 ConstIterator

```
typedef MapCSAHeaderDictEntry::const_iterator gdcm::CSAHeaderDict::ConstIterator
```

10.67.2.2 Iterator

```
typedef MapCSAHeaderDictEntry::iterator gdcm::CSAHeaderDict::Iterator
```

10.67.2.3 MapCSAHeaderDictEntry

```
typedef std::set<CSAHeaderDictEntry> gdcm::CSAHeaderDict::MapCSAHeaderDictEntry
```

10.67.3 Constructor & Destructor Documentation

10.67.3.1 CSAHeaderDict() [1/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict ( ) [inline]
```

10.67.3.2 CSAHeaderDict() [2/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict (
            const CSAHeaderDict & _val ) [delete]
```

References gdcm::operator<<().

10.67.4 Member Function Documentation

10.67.4.1 AddCSAHeaderDictEntry()

```
void gdcm::CSAHeaderDict::AddCSAHeaderDictEntry (
            const CSAHeaderDictEntry & de ) [inline]
```

10.67.4.2 Begin()

```
ConstIterator gdcm::CSAHeaderDict::Begin ( ) const  [inline]
```

10.67.4.3 End()

```
ConstIterator gdcm::CSAHeaderDict::End ( ) const  [inline]
```

10.67.4.4 GetCSAHeaderDictEntry()

```
const CSAHeaderDictEntry & gdcm::CSAHeaderDict::GetCSAHeaderDictEntry (
            const char * name ) const  [inline]
```

Examples

MrProtocol.cxx.

10.67.4.5 IsEmpty()

```
bool gdcm::CSAHeaderDict::IsEmpty ( ) const  [inline]
```

10.67.4.6 LoadDefault()

```
void gdcm::CSAHeaderDict::LoadDefault ( )  [protected]
```

10.67.4.7 operator=()

```
CSAHeaderDict & gdcm::CSAHeaderDict::operator= (
            const CSAHeaderDict & _val )  [delete]
```

10.67.5 Friends And Related Symbol Documentation

10.67.5.1 Dicts

```
friend class Dicts  [friend]
```

10.67.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDict & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmCSAHeaderDict.h

10.68 gdcm::CSAHeaderDictEntry Class Reference

Class to represent an Entry in the Dict.

```
#include <gdcmCSAHeaderDictEntry.h>
```

Public Member Functions

- CSAHeaderDictEntry (const char *name="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, const char *desc="")
- const char * GetDescription () const

  Set/Get Description.
- const char * GetName () const

  Set/Get Name.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool operator< (const CSAHeaderDictEntry &entry) const
- void SetDescription (const char *desc)
- void SetName (const char *name)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDictEntry &_val)

10.68.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicCSAHeaderDictEntry...indeed CSAHeaderDictEntry has a notion of retired which does not exist in PrivateCSAHeaderDictEntry...

See also

gdcm::Dict

Examples

MrProtocol.cxx.

10.68.2 Constructor & Destructor Documentation

10.68.2.1 CSAHeaderDictEntry()

```
gdcm::CSAHeaderDictEntry::CSAHeaderDictEntry (
            const char * name = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            const char * desc = "" )  [inline]
```

10.68.3 Member Function Documentation

10.68.3.1 GetDescription()

```
const char * gdcm::CSAHeaderDictEntry::GetDescription ( ) const  [inline]
```

Set/Get Description.

10.68.3.2 GetName()

```
const char * gdcm::CSAHeaderDictEntry::GetName ( ) const  [inline]
```

Set/Get Name.

Referenced by operator<().

10.68.3.3 GetVM()

```
const VM & gdcm::CSAHeaderDictEntry::GetVM ( ) const  [inline]
```

Set/Get VM.

10.68.3.4 GetVR()

```
const VR & gdcm::CSAHeaderDictEntry::GetVR ( ) const  [inline]
```

Set/Get VR.

10.68.3.5 operator<()

```
bool gdcm::CSAHeaderDictEntry::operator< (
            const CSAHeaderDictEntry & entry ) const  [inline]
```

References GetName().

10.68.3.6 SetDescription()

```
void gdcm::CSAHeaderDictEntry::SetDescription (
            const char * desc )  [inline]
```

10.68.3.7 SetName()

```
void gdcm::CSAHeaderDictEntry::SetName (
            const char * name )  [inline]
```

10.68.3.8 SetVM()

```
void gdcm::CSAHeaderDictEntry::SetVM (
            VM const & vm )  [inline]
```

10.68.3.9 SetVR()

```
void gdcm::CSAHeaderDictEntry::SetVR (
            const VR & vr )  [inline]
```

10.68.4 Friends And Related Symbol Documentation

10.68.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDictEntry & _val )  [friend]
```

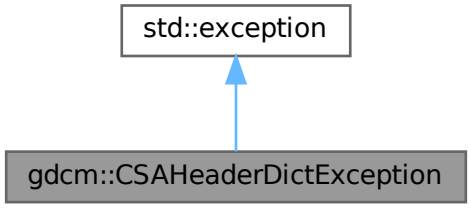
The documentation for this class was generated from the following file:

- gdcmCSAHeaderDictEntry.h

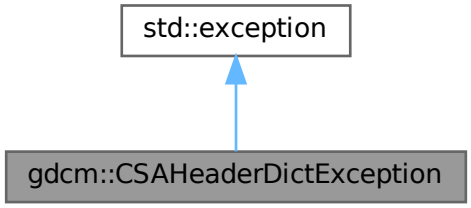
10.69 gdcm::CSAHeaderDictException Class Reference

```
#include <gdcmCSAHeaderDict.h>
```

Inheritance diagram for gdcm::CSAHeaderDictException:



Collaboration diagram for gdcm::CSAHeaderDictException:



The documentation for this class was generated from the following file:

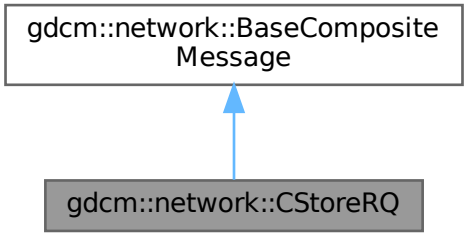
- gdcmCSAHeaderDict.h

10.70 gdcm::network::CStoreRQ Class Reference

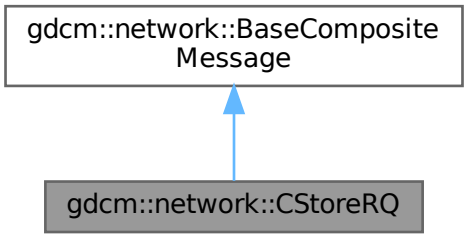
CStoreRQ.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for gdcm::network::CStoreRQ:



Collaboration diagram for gdcm::network::CStoreRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const File &file, bool writeDataSet=true)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

10.70.1 Detailed Description

CStoreRQ.

this file defines the messages for the cecho action

10.70.2 Member Function Documentation

10.70.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRQ::ConstructPDV (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true )
```

The documentation for this class was generated from the following file:

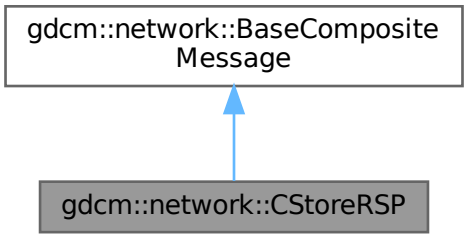
- gdcmCStoreMessages.h

10.71 gdcm::network::CStoreRSP Class Reference

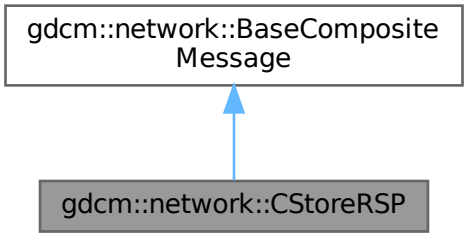
CStoreRSP this file defines the messages for the cecho action.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for gdcm::network::CStoreRSP:



Collaboration diagram for gdcm::network::CStoreRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const DataSet *inDataSet, const BasePDU *inPC)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

10.71.1 Detailed Description

CStoreRSP this file defines the messages for the cecho action.

10.71.2 Member Function Documentation

10.71.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRSP::ConstructPDV (
            const DataSet * inDataSet,
            const BasePDU * inPC )
```

The documentation for this class was generated from the following file:

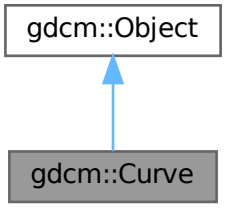
- gdcmCStoreMessages.h

10.72 gdcm::Curve Class Reference

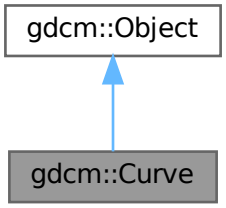
Curve class to handle element 50xx,3000 Curve Data.

```
#include <gdcmCurve.h>
```

Inheritance diagram for gdcm::Curve:



Collaboration diagram for gdcm::Curve:



Public Member Functions

- Curve ()
- Curve (Curve const &ov)
- ~Curve () override
- void Decode (std::istream &is, std::ostream &os)
- void GetAsPoints (float *array) const
- std::vector< unsigned short > const & GetCurveDataDescriptor () const
- unsigned short GetDataValueRepresentation () const
- unsigned short GetDimensions () const
- unsigned short GetGroup () const

- unsigned short GetNumberOfPoints () const
- const char ∗ GetTypeOfData () const
- const char ∗ GetTypeOfDataDescription () const
- bool IsEmpty () const
- void Print (std::ostream &) const override
- void SetCoordinateStartValue (unsigned short v)
- void SetCoordinateStepValue (unsigned short v)
- void SetCurve (const char ∗array, unsigned int length)
- void SetCurveDataDescriptor (const uint16_t ∗values, size_t num)
- void SetCurveDescription (const char ∗curvedescription)
- void SetDataValueRepresentation (unsigned short datavaluerepresentation)
- void SetDimensions (unsigned short dimensions)
- void SetGroup (unsigned short group)
- void SetNumberOfPoints (unsigned short numberofpoints)
- void SetTypeOfData (const char ∗typeofdata)
- void Update (const DataElement &de)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ∼Object ()
- void operator= (const Object &)

Static Public Member Functions

- static unsigned int GetNumberOfCurves (DataSet const &ds)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.72.1 Detailed Description

Curve class to handle element 50xx,3000 Curve Data.

WARNING: This is deprecated and lastly defined in PS 3.3 - 2004

Examples:

- GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
- GE_DLX-8-MONO2-Multiframe.dcm
- gdcmSampleData/Philips_Medical_Images/integris_HV_5000/xa_integris.dcm
- TOSHIBA-CurveData[1-3].dcm

10.72.2 Constructor & Destructor Documentation

10.72.2.1 Curve() [1/2]

```
gdcm::Curve::Curve ( )
```

10.72.2.2 ~Curve()

```
gdcm::Curve::~Curve ( )  [override]
```

10.72.2.3 Curve() [2/2]

```
gdcm::Curve::Curve (
            Curve const & ov )
```

10.72.3 Member Function Documentation

10.72.3.1 Decode()

```
void gdcm::Curve::Decode (
            std::istream & is,
            std::ostream & os )
```

10.72.3.2 GetAsPoints()

```
void gdcm::Curve::GetAsPoints (
            float * array ) const
```

10.72.3.3 GetCurveDataDescriptor()

```
std::vector< unsigned short > const & gdcm::Curve::GetCurveDataDescriptor ( ) const
```

10.72.3.4 GetDataValueRepresentation()

```
unsigned short gdcm::Curve::GetDataValueRepresentation ( ) const
```

10.72.3.5 GetDimensions()

```
unsigned short gdcm::Curve::GetDimensions ( ) const
```

10.72.3.6 GetGroup()

```
unsigned short gdcm::Curve::GetGroup ( ) const
```

10.72.3.7 GetNumberOfCurves()

```
static unsigned int gdcm::Curve::GetNumberOfCurves (
            DataSet const & ds )  [static]
```

10.72.3.8 GetNumberOfPoints()

```
unsigned short gdcm::Curve::GetNumberOfPoints ( ) const
```

10.72.3.9 GetTypeOfData()

```
const char * gdcm::Curve::GetTypeOfData ( ) const
```

10.72.3.10 GetTypeOfDataDescription()

```
const char * gdcm::Curve::GetTypeOfDataDescription ( ) const
```

10.72.3.11 IsEmpty()

```
bool gdcm::Curve::IsEmpty ( ) const
```

10.72.3.12 Print()

```
void gdcm::Curve::Print (
            std::ostream &  ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

10.72.3.13 SetCoordinateStartValue()

```
void gdcm::Curve::SetCoordinateStartValue (
            unsigned short v )
```

10.72.3.14 SetCoordinateStepValue()

```
void gdcm::Curve::SetCoordinateStepValue (
            unsigned short v )
```

10.72.3.15 SetCurve()

```
void gdcm::Curve::SetCurve (
            const char * array,
            unsigned int length )
```

10.72.3.16 SetCurveDataDescriptor()

```
void gdcm::Curve::SetCurveDataDescriptor (
            const uint16_t * values,
            size_t num )
```

10.72.3.17 SetCurveDescription()

```
void gdcm::Curve::SetCurveDescription (
            const char * curvedescription )
```

10.72.3.18 SetDataValueRepresentation()

```
void gdcm::Curve::SetDataValueRepresentation (
            unsigned short datavaluerepresentation )
```

10.72.3.19 SetDimensions()

```
void gdcm::Curve::SetDimensions (
            unsigned short dimensions )
```

10.72.3.20 SetGroup()

```
void gdcm::Curve::SetGroup (
            unsigned short group )
```

10.72.3.21 SetNumberOfPoints()

```
void gdcm::Curve::SetNumberOfPoints (
            unsigned short numberofpoints )
```

10.72.3.22 SetTypeOfData()

```
void gdcm::Curve::SetTypeOfData (
            const char * typeofdata )
```

10.72.3.23 Update()

```
void gdcm::Curve::Update (
            const DataElement & de )
```

The documentation for this class was generated from the following file:

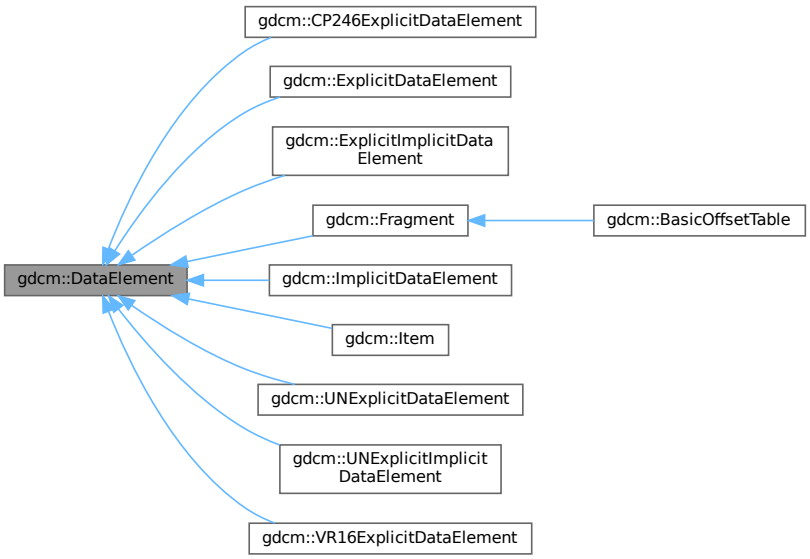
- gdcmCurve.h

10.73 gdcm::DataElement Class Reference

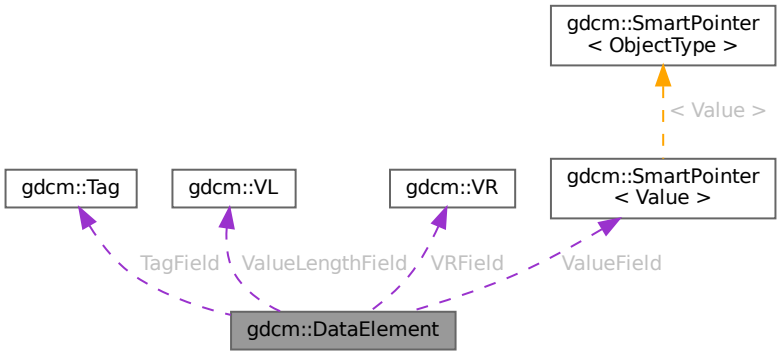
Class to represent a Data Element either Implicit or Explicit.

```
#include <gdcmDataElement.h>
```

Inheritance diagram for gdcm::DataElement:



Collaboration diagram for gdcm::DataElement:



Public Member Functions

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default

- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Protected Types

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &_os, const DataElement &_val)

10.73.1 Detailed Description

Class to represent a Data Element either Implicit or Explicit.

DATA ELEMENT: A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly.

Design:

- A DataElement in GDCM always store VL (Value Length) on a 32 bits integer even when VL is 16 bits
- A DataElement always store the VR even for Implicit TS, in which case VR is defaulted to VR::INVALID
- For Item start/end (See 0xfffe tags), Value is NULL

See also

ExplicitDataElement ImplicitDataElement

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MpegVideoInfo.cs, NewSequence.cs, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.73.2 Member Typedef Documentation

10.73.2.1 ValuePtr

```
typedef SmartPointer<Value> gdcm::DataElement::ValuePtr  [protected]
```

10.73.3 Constructor & Destructor Documentation

10.73.3.1 DataElement() [1/2]

```
gdcm::DataElement::DataElement (
            const Tag & t = Tag(0),
            const VL & vl = 0,
            const VR & vr = VR::INVALID )  [inline]
```

10.73.3.2 DataElement() [2/2]

```
gdcm::DataElement::DataElement (
            const DataElement & _val )  [inline]
```

10.73.4 Member Function Documentation

10.73.4.1 Clear()

```
void gdcm::DataElement::Clear ( )  [inline]
```

Clear Data Element (make Value empty and invalidate Tag & VR)

10.73.4.2 Empty()

```
void gdcm::DataElement::Empty ( )  [inline]
```

Make Data Element empty (no Value)

10.73.4.3 GetByteValue()

```
const ByteValue * gdcm::DataElement::GetByteValue ( ) const  [inline]
```

Return the Value of DataElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement(), gdcm::Element< TVR, TVM >::SetFromDataElement(),
and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

10.73.4.4 GetLength()

```
template<typename TDE >
VL gdcm::DataElement::GetLength ( ) const  [inline]
```

10.73.4.5 GetSequenceOfFragments() [1/2]

```
SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments ( )
```

10.73.4.6 GetSequenceOfFragments() [2/2]

```
const SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments ( ) const
```

Return the Value of DataElement as a Sequence Of Fragments (if possible)

Warning

: You need to check for NULL return value

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and GetJPEGSamplePrecision.cxx.

10.73.4.7 GetTag() [1/2]

```
Tag & gdcm::DataElement::GetTag ( )  [inline]
```

10.73.4.8 GetTag() [2/2]

```
const Tag & gdcm::DataElement::GetTag ( ) const  [inline]
```

Get Tag.

Examples

DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, SimplePrint.cs, and pmsct_rgb1.cxx.

Referenced by gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), gdcm::CommandDataSet::Insert(), operator<(), gdcm::SequenceOfItems::Read(), gdcm::SequenceOfFragments::ReadValue(), gdcm::FileMetaInformation::Replace(), gdcm::CommandDataSet::Replace(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

10.73.4.9 GetValue() [1/2]

```
Value & gdcm::DataElement::GetValue ( )  [inline]
```

References gdcmAssertAlwaysMacro.

10.73.4.10 GetValue() [2/2]

```
Value const & gdcm::DataElement::GetValue ( ) const [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

ReadAndDumpDICOMDIR.cxx.

References gdcmAssertAlwaysMacro.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

10.73.4.11 GetValueAsSQ()

```
SmartPointer< SequenceOfItems > gdcm::DataElement::GetValueAsSQ ( ) const
```

Interpret the Value stored in the DataElement. This is more robust (but also more expensive) to call this function rather than the simplest form: GetSequenceOfItems() It also return NULL when the Value is NOT of type SequenceOfItems

Warning

in case GetSequenceOfItems() succeed the function return this value, otherwise it creates a new SequenceOfItems, you should handle that in your case, for instance: SmartPointer<SequenceOfItems> sqi = de.GetValueAsSQ();

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.73.4.12 GetVL() [1/2]

```
VL & gdcm::DataElement::GetVL ( ) [inline]
```

10.73.4.13 GetVL() [2/2]

```
const VL & gdcm::DataElement::GetVL ( ) const [inline]
```

Get VL.

Examples

SimplePrint.cs.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::SequenceOfItems::Read(), and gdcm::SequenceOfFragments::ReadValue().

10.73.4.14 GetVR()

```
VR const & gdcm::DataElement::GetVR ( ) const  [inline]
```

Get VR do not set VR::SQ on bytevalue data element

Examples

DuplicatePCDE.cxx, and GenFakeIdentifyFile.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

10.73.4.15 IsEmpty()

```
bool gdcm::DataElement::IsEmpty ( ) const  [inline]
```

Check if Data Element is empty.

Examples

DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, FixJAIBugJPEGLS.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

10.73.4.16 IsUndefinedLength()

```
bool gdcm::DataElement::IsUndefinedLength ( ) const  [inline]
```

return if Value Length if of undefined length

10.73.4.17 operator<()

```
bool gdcm::DataElement::operator< (
            const DataElement & de ) const  [inline]
```

References GetTag().

10.73.4.18 operator=()

```
DataElement & gdcm::DataElement::operator= (
            const DataElement &  )  [default]
```

10.73.4.19 operator==()

```
bool gdcm::DataElement::operator== (
            const DataElement & de ) const  [inline]
```

References TagField, ValueField, ValueLengthField, and VRField.

10.73.4.20 Read()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::Read (
            std::istream & is )  [inline]
```

Examples

DumpSiemensBase64.cxx.

10.73.4.21 ReadOrSkip()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::ReadOrSkip (
            std::istream & is,
            std::set< Tag > const & skiptags )  [inline]
```

10.73.4.22 ReadPreValue()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::ReadPreValue (
            std::istream & is,
            std::set< Tag > const & skiptags )  [inline]
```

10.73.4.23 ReadValue()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::ReadValue (
            std::istream & is,
            std::set< Tag > const & skiptags )  [inline]
```

10.73.4.24 ReadValueWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::ReadValueWithLength (
            std::istream & is,
            VL & length,
            std::set< Tag > const & skiptags )  [inline]
```

10.73.4.25 ReadWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataElement::ReadWithLength (
            std::istream & is,
            VL & length )  [inline]
```

10.73.4.26 SetByteValue()

```
void gdcm::DataElement::SetByteValue (
            const char * array,
            VL length )  [inline]
```

Set the byte value

Warning

user need to read DICOM standard for an understanding of:

- even padding
- \0 vs space padding By default even padding is achieved using \0 regardless of the of VR

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

10.73.4.27 SetTag()

```
void gdcm::DataElement::SetTag (
            const Tag & t )  [inline]
```

Set Tag Use with cautious (need to match Part 6)

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenFakeIdentifyFile.cxx, and GetSubSequenceData.cxx.

10.73.4.28 SetValue()

```
void gdcm::DataElement::SetValue (
            Value const & vl )  [inline]
```

Warning

you need to set the ValueLengthField explicitly

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DuplicatePCDE.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, MpegVideoInfo.cs, and NewSequence.cs.

References gdcm::Value::GetLength().

10.73.4.29 SetValueFieldLength()

```
void gdcm::DataElement::SetValueFieldLength (
            VL vl,
            bool readvalues )  [protected]
```

10.73.4.30 SetVL()

```
void gdcm::DataElement::SetVL (
            const VL & vl )  [inline]
```

Set VL Use with cautious (need to match Part 6), advanced user only

See also

SetByteValue

10.73.4.31 SetVLToUndefined()

```
void gdcm::DataElement::SetVLToUndefined ( )
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, and NewSequence.cs.

10.73.4.32 SetVR()

```
void gdcm::DataElement::SetVR (
            VR const & vr )  [inline]
```

Set VR Use with cautious (need to match Part 6), advanced user only

Precondition

vr is a VR::VRALL (not a dual one such as OB_OW)

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

References gdcm::VR::IsVRFile().

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

10.73.4.33 Write()

```
template<typename TDE , typename TSwap >
const std::ostream & gdcm::DataElement::Write (
            std::ostream & os ) const  [inline]
```

10.73.5 Friends And Related Symbol Documentation

10.73.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DataElement & _val )  [friend]
```

10.73.6 Member Data Documentation

10.73.6.1 TagField

```
Tag gdcm::DataElement::TagField [protected]
```

Referenced by operator==().

10.73.6.2 ValueField

```
ValuePtr gdcm::DataElement::ValueField [protected]
```

Referenced by operator==().

10.73.6.3 ValueLengthField

```
VL gdcm::DataElement::ValueLengthField [protected]
```

Referenced by operator==().

10.73.6.4 VRField

```
VR gdcm::DataElement::VRField [protected]
```

Referenced by operator==().

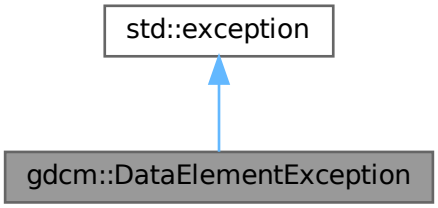
The documentation for this class was generated from the following file:

- gdcmDataElement.h

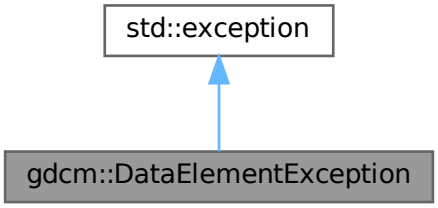
10.74 gdcm::DataElementException Class Reference

```
#include <gdcmDataSet.h>
```

Inheritance diagram for gdcm::DataElementException:



Collaboration diagram for gdcm::DataElementException:



The documentation for this class was generated from the following file:

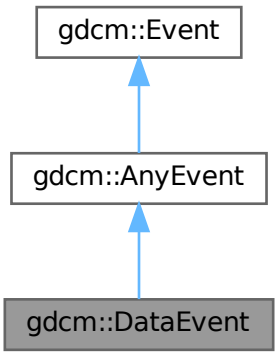
- gdcmDataSet.h

10.75 gdcm::DataEvent Class Reference

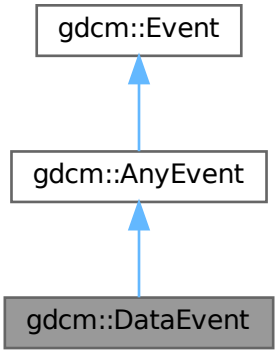
DataEvent.

```
#include <gdcmDataEvent.h>
```

Inheritance diagram for gdcm::DataEvent:



Collaboration diagram for gdcm::DataEvent:



Public Types

- typedef DataEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataEvent (const char ∗bytes=nullptr, size_t len=0)

- DataEvent (const Self &s)
- ~DataEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetData () const
- size_t GetDataLength () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetData (const char *bytes, size_t len)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.75.1 Detailed Description

DataEvent.

10.75.2 Member Typedef Documentation

10.75.2.1 Self

```
typedef DataEvent gdcm::DataEvent::Self
```

10.75.2.2 Superclass

```
typedef AnyEvent gdcm::DataEvent::Superclass
```

10.75.3 Constructor & Destructor Documentation

10.75.3.1 DataEvent() [1/2]

```
gdcm::DataEvent::DataEvent (
            const char * bytes = nullptr,
            size_t len = 0 )  [inline]
```

10.75.3.2 ~DataEvent()

```
gdcm::DataEvent::~DataEvent ( ) [override], [default]
```

10.75.3.3 DataEvent() [2/2]

```
gdcm::DataEvent::DataEvent (
            const Self & s ) [inline]
```

10.75.4 Member Function Documentation

10.75.4.1 CheckEvent()

```
bool gdcm::DataEvent::CheckEvent (
            const ::gdcm::Event * e ) const [inline], [override]
```

10.75.4.2 GetData()

```
const char * gdcm::DataEvent::GetData ( ) const [inline]
```

10.75.4.3 GetDataLength()

```
size_t gdcm::DataEvent::GetDataLength ( ) const [inline]
```

10.75.4.4 GetEventName()

```
const char * gdcm::DataEvent::GetEventName ( ) const [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

10.75.4.5 MakeObject()

```
::gdcm::Event * gdcm::DataEvent::MakeObject ( ) const [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

10.75.4.6 operator=()

```
void gdcm::DataEvent::operator= (
            const Self &  )  [delete]
```

10.75.4.7 SetData()

```
void gdcm::DataEvent::SetData (
            const char * bytes,
            size_t len )  [inline]
```

The documentation for this class was generated from the following file:

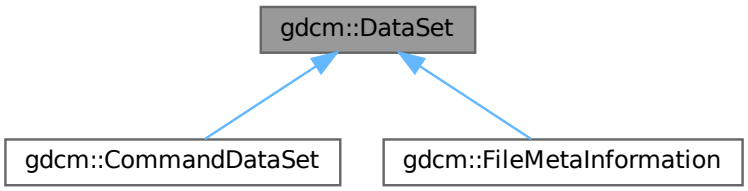
- gdcmDataEvent.h

10.76 gdcm::DataSet Class Reference

Class to represent a Data Set (which contains Data Elements)

```
#include <gdcmDataSet.h>
```

Inheritance diagram for gdcm::DataSet:



Public Types

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Public Member Functions

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE >
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE >
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadNested (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE , typename TSwap >
  std::ostream const & Write (std::ostream &os) const

Protected Member Functions

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Friends

- class CSAHeader
- std::ostream & operator<< (std::ostream &_os, const DataSet &)

10.76.1 Detailed Description

Class to represent a Data Set (which contains Data Elements)

A Data Set represents an instance of a real world Information Object

Note

DATA SET: Exchanged information consisting of a structured set of Attribute values directly or indirectly related to Information Objects. The value of each Attribute in a Data Set is expressed as a Data Element. A collection of Data Elements ordered by increasing Data Element Tag number that is an encoding of the values of Attributes of a real world object.

Implementation note. If one do: DataSet ds; ds.SetLength(0); ds.Read(is); setting length to 0 actually means try to read is as if it was a root DataSet. Other value are undefined (nested dataset with undefined length) or defined length (different from 0) means nested dataset with defined length.

Warning

a DataSet does not have a Transfer Syntax type, only a File does.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Write FileChangeTS.cs, FileChangeTSLossy.cs, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SortImage.cxx, SortImage2.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, VolumeSorter.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.76.2 Member Typedef Documentation

10.76.2.1 ConstIterator

```
typedef DataElementSet::const_iterator gdcm::DataSet::ConstIterator
```

10.76.2.2 DataElementSet

```
typedef std::set<DataElement> gdcm::DataSet::DataElementSet
```

10.76.2.3 Iterator

```
typedef DataElementSet::iterator gdcm::DataSet::Iterator
```

10.76.2.4 SizeType

```
typedef DataElementSet::size_type gdcm::DataSet::SizeType
```

10.76.3 Member Function Documentation

10.76.3.1 Begin() [1/2]

```
Iterator gdcm::DataSet::Begin ( )  [inline]
```

10.76.3.2 Begin() [2/2]

```
ConstIterator gdcm::DataSet::Begin ( ) const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

10.76.3.3 Clear()

```
void gdcm::DataSet::Clear ( )  [inline]
```

Referenced by gdcm::Item::Read().

10.76.3.4 ComputeDataElement()

```
Tag gdcm::DataSet::ComputeDataElement (
            const PrivateTag & t ) const  [protected]
```

References gdcm::operator<<().

10.76.3.5 ComputeGroupLength()

```
template<typename TDE >
unsigned int gdcm::DataSet::ComputeGroupLength (
            Tag const & tag ) const  [inline]
```

References gdcm::Tag::GetElement(), and gdcm::Tag::GetGroup().

10.76.3.6 End() [1/2]

```
Iterator gdcm::DataSet::End ( )  [inline]
```

10.76.3.7 End() [2/2]

```
ConstIterator gdcm::DataSet::End ( ) const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

10.76.3.8 FindDataElement() [1/2]

```
bool gdcm::DataSet::FindDataElement (
            const PrivateTag & t ) const
```

Look up if private tag 't' is present in the dataset:

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >: and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet().

10.76.3.9 FindDataElement() [2/2]

```
bool gdcm::DataSet::FindDataElement (
            const Tag & t ) const  [inline]
```

10.76.3.10 FindNextDataElement()

```
const DataElement & gdcm::DataSet::FindNextDataElement (
            const Tag & t ) const  [inline]
```

Examples

DuplicatePCDE.cxx.

10.76.3.11 GetDataElement() [1/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const PrivateTag & t ) const
```

Return the dataelement.

10.76.3.12 GetDataElement() [2/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const Tag & t ) const  [inline]
```

Return the DataElement with Tag 't'

Warning

: This only search at the 'root level' of the DataSet

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DecompressImage.cs, DeriveSeries.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cx GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet(), and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se

10.76.3.13 GetDEEnd()

```
const DataElement & gdcm::DataSet::GetDEEnd ( ) const  [protected]
```

10.76.3.14 GetDES() [1/2]

```
DataElementSet & gdcm::DataSet::GetDES ( )  [inline]
```

10.76.3.15 GetDES() [2/2]

```
const DataElementSet & gdcm::DataSet::GetDES ( ) const  [inline]
```

Examples

ReadAndDumpDICOMDIR.cxx.

10.76.3.16 GetLength()

```
template<typename TDE >
VL gdcm::DataSet::GetLength ( ) const  [inline]
```

References gdcm::VL::GetLength().

10.76.3.17 GetMediaStorage()

```
MediaStorage gdcm::DataSet::GetMediaStorage ( ) const
```

10.76.3.18 GetPrivateCreator()

```
std::string gdcm::DataSet::GetPrivateCreator (
            const Tag & t ) const
```

Return the private creator of the private tag 't': or an empty string when not found

Examples

DuplicatePCDE.cxx.

10.76.3.19 GetPrivateTag()

```
PrivateTag gdcm::DataSet::GetPrivateTag (
            const Tag & t ) const
```

Return the private tag of the private tag 't', private creator will be set to empty if not found.

10.76.3.20 Insert()

```
void gdcm::DataSet::Insert (
            const DataElement & de )  [inline]
```

Insert a DataElement in the DataSet.

Warning

: Tag need to be >= 0x8 to be considered valid data element

Examples

CreateJPIPDataSet.cxx, DumpSiemensBase64.cxx, DuplicatePCDE.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, NewSequence.cs, StreamImageReaderTest.cxx, and TemplateEmptyImage.cxx.

References gdcmErrorMacro, gdcm::Tag::GetGroup(), and gdcm::DataElement::GetTag().

10.76.3.21 InsertDataElement()

```
void gdcm::DataSet::InsertDataElement (
            const DataElement & de )  [inline], [protected]
```

References gdcmWarningMacro, gdcm::Value::GetLength(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVL(), and gdcm::DataElement::IsEmpty().

10.76.3.22 IsEmpty()

```
bool gdcm::DataSet::IsEmpty ( ) const  [inline]
```

Returns if the dataset is empty.

Referenced by gdcm::Item::Read().

10.76.3.23 operator()()

```
const DataElement & gdcm::DataSet::operator() (
            uint16_t group,
            uint16_t element ) const  [inline]
```

10.76.3.24 operator=()

```
DataSet & gdcm::DataSet::operator= (
            DataSet const &  )  [default]
```

10.76.3.25 operator[]()

```
const DataElement & gdcm::DataSet::operator[] (
            const Tag & t ) const  [inline]
```

10.76.3.26 Print()

```
void gdcm::DataSet::Print (
            std::ostream & os,
            std::string const & indent = "" ) const  [inline]
```

10.76.3.27 Read()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::Read (
            std::istream & is )
```

Examples

DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

10.76.3.28 ReadNested()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadNested (
            std::istream & is )
```

10.76.3.29 ReadSelectedPrivateTags()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadSelectedPrivateTags (
            std::istream & is,
            const std::set< PrivateTag > & tags,
            bool readvalues = true )
```

10.76.3.30 ReadSelectedPrivateTagsWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadSelectedPrivateTagsWithLength (
            std::istream & is,
            const std::set< PrivateTag > & tags,
            VL & length,
            bool readvalues = true )
```

10.76.3.31 ReadSelectedTags()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadSelectedTags (
            std::istream & is,
            const std::set< Tag > & tags,
            bool readvalues = true )
```

10.76.3.32 ReadSelectedTagsWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadSelectedTagsWithLength (
            std::istream & is,
            const std::set< Tag > & tags,
            VL & length,
            bool readvalues = true )
```

10.76.3.33 ReadUpToTag()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadUpToTag (
            std::istream & is,
            const Tag & t,
            std::set< Tag > const & skiptags )
```

10.76.3.34 ReadUpToTagWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadUpToTagWithLength (
            std::istream & is,
            const Tag & t,
            std::set< Tag > const & skiptags,
            VL & length )
```

10.76.3.35 ReadWithLength()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::DataSet::ReadWithLength (
            std::istream & is,
            VL & length )
```

10.76.3.36 Remove()

```
SizeType gdcm::DataSet::Remove (
            const Tag & tag )  [inline]
```

Completely remove a dataelement from the dataset.

Examples

ClinicalTrialIdentificationWorkflow.cs, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

10.76.3.37 Replace()

```
void gdcm::DataSet::Replace (
            const DataElement & de )  [inline]
```

Replace a dataelement with another one.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcmAssertAlwaysMacro.

10.76.3.38 ReplaceEmpty()

```
void gdcm::DataSet::ReplaceEmpty (
            const DataElement & de )  [inline]
```

Only replace a DICOM attribute when it is missing or empty.

Examples

rle2img.cxx.

References gdcmAssertAlwaysMacro.

10.76.3.39 Size()

```
SizeType gdcm::DataSet::Size ( ) const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

Referenced by gdcm::SequenceOfItems::Read().

10.76.3.40 Write()

```
template<typename TDE , typename TSwap >
std::ostream const & gdcm::DataSet::Write (
            std::ostream & os ) const
```

10.76.4 Friends And Related Symbol Documentation

10.76.4.1 CSAHeader

```
friend class CSAHeader  [friend]
```

10.76.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DataSet & val )  [friend]
```

The documentation for this class was generated from the following file:

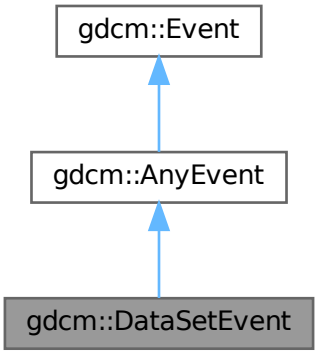
- gdcmDataSet.h

10.77 gdcm::DataSetEvent Class Reference

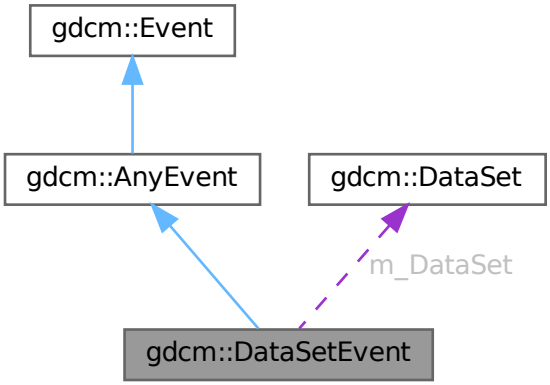
DataSetEvent.

```
#include <gdcmDataSetEvent.h>
```

Inheritance diagram for gdcm::DataSetEvent:



Collaboration diagram for gdcm::DataSetEvent:



Public Types

- typedef DataSetEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataSetEvent (const Self &s)
- DataSetEvent (DataSet const *ds=nullptr)
- ~DataSetEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- DataSet const & GetDataSet () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

Public Attributes

- const DataSet * m_DataSet

10.77.1 Detailed Description

DataSetEvent.

Special type of event triggered during the DataSet store/move process

10.77.2 Member Typedef Documentation

10.77.2.1 Self

```
typedef DataSetEvent gdcm::DataSetEvent::Self
```

10.77.2.2 Superclass

```
typedef AnyEvent gdcm::DataSetEvent::Superclass
```

10.77.3 Constructor & Destructor Documentation

10.77.3.1 DataSetEvent() [1/2]

```
gdcm::DataSetEvent::DataSetEvent (
            DataSet const * ds = nullptr )  [inline]
```

10.77.3.2 ~DataSetEvent()

```
gdcm::DataSetEvent::~DataSetEvent ( )  [override], [default]
```

10.77.3.3 DataSetEvent() [2/2]

```
gdcm::DataSetEvent::DataSetEvent (
            const Self & s )  [inline]
```

10.77.4 Member Function Documentation

10.77.4.1 CheckEvent()

```
bool gdcm::DataSetEvent::CheckEvent (
            const ::gdcm::Event * e ) const  [inline], [override]
```

10.77.4.2 GetDataSet()

```
DataSet const & gdcm::DataSetEvent::GetDataSet ( ) const  [inline]
```

References m_DataSet.

10.77.4.3 GetEventName()

```
const char * gdcm::DataSetEvent::GetEventName ( ) const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

10.77.4.4 MakeObject()

```
::gdcm::Event * gdcm::DataSetEvent::MakeObject ( ) const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

10.77.4.5 operator=()

```
void gdcm::DataSetEvent::operator= (
            const Self &  )  [delete]
```

10.77.5 Member Data Documentation

10.77.5.1 m_DataSet

```
const DataSet* gdcm::DataSetEvent::m_DataSet
```

Referenced by GetDataSet().

The documentation for this class was generated from the following file:

- gdcmDataSetEvent.h

10.78 gdcm::DataSetHelper Class Reference

DataSetHelper (internal class, not intended for user level)

```
#include <gdcmDataSetHelper.h>
```

Static Public Member Functions

- static VR ComputeVR (File const &file, DataSet const &ds, const Tag &tag)

10.78.1 Detailed Description

DataSetHelper (internal class, not intended for user level)

Examples

SimplePrint.cs.

10.78.2 Member Function Documentation

10.78.2.1 ComputeVR()

```
static VR gdcm::DataSetHelper::ComputeVR (
            File const & file,
            DataSet const & ds,
            const Tag & tag )  [static]
```

ds -> current dataset, which is not the same as the root dataset return VR::INVALID in case of error

Examples

SimplePrint.cs.

The documentation for this class was generated from the following file:

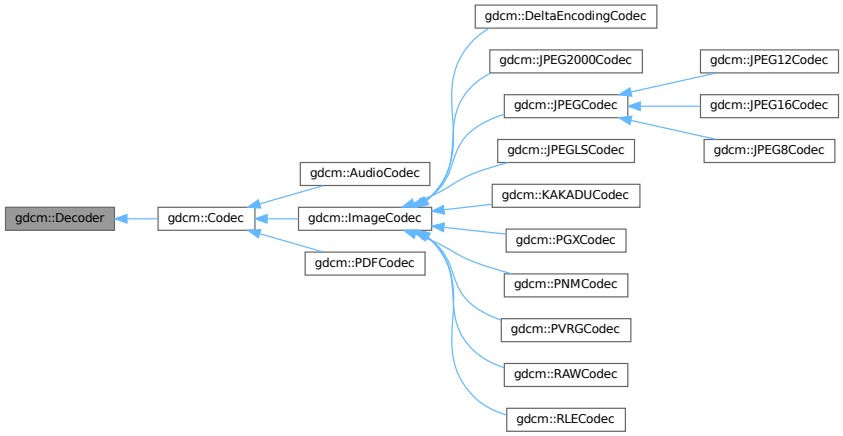
- gdcmDataSetHelper.h

10.79 gdcm::Decoder Class Reference

Decoder.

```
#include <gdcmDecoder.h>
```

Inheritance diagram for gdcm::Decoder:



Public Member Functions

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it)
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

10.79.1 Detailed Description

Decoder.

10.79.2 Constructor & Destructor Documentation

10.79.2.1 ~Decoder()

```
virtual gdcm::Decoder::~Decoder ( ) [virtual], [default]
```

10.79.3 Member Function Documentation

10.79.3.1 CanDecode()

```
virtual bool gdcm::Decoder::CanDecode (
            TransferSyntax const & ) const [pure virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::PDFCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.79.3.2 Decode()

```
virtual bool gdcm::Decoder::Decode (
            DataElement const & ,
            DataElement & ) [inline], [virtual]
```

Decode.

Reimplemented in gdcm::DeltaEncodingCodec, gdcm::AudioCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PVRGCodec, gdcm::RAWCodec, gdcm::RLECodec, and gdcm::ImageCodec.

10.79.3.3 DecodeByStreams()

```
virtual bool gdcm::Decoder::DecodeByStreams (
            std::istream & ,
            std::ostream &  )  [inline], [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::RAWCodec, gdcm::RLECodec, and gdcm::ImageCodec.

The documentation for this class was generated from the following file:

- gdcmDecoder.h

10.80 gdcm::DefinedTerms Class Reference

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

```
#include <gdcmDefinedTerms.h>
```

Public Member Functions

- DefinedTerms ()=default

10.80.1 Detailed Description

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

10.80.2 Constructor & Destructor Documentation

10.80.2.1 DefinedTerms()

```
gdcm::DefinedTerms::DefinedTerms ( )  [default]
```

The documentation for this class was generated from the following file:

- gdcmDefinedTerms.h

10.81 gdcm::Defs Class Reference

FIXME I do not like the name 'Defs'.

```
#include <gdcmDefs.h>
```

Public Member Functions

- Defs ()
- Defs (const Defs &val)=delete
- ~Defs ()
- const IOD & GetIODFromFile (const File &file) const
- IODs & GetIODs ()
- const IODs & GetIODs () const
- Macros & GetMacros ()
- const Macros & GetMacros () const
- Modules & GetModules ()
- const Modules & GetModules () const
- Type GetTypeFromTag (const File &file, const Tag &tag) const
- bool IsEmpty () const
- Defs & operator= (const Defs &val)=delete
- bool Verify (const DataSet &ds) const
- bool Verify (const File &file) const

Static Public Member Functions

- static const char * GetIODNameFromMediaStorage (MediaStorage const &ms)

Protected Member Functions

- void LoadDefaults ()
- void LoadFromFile (const char *filename)

Friends

- class Global

10.81.1 Detailed Description

FIXME I do not like the name 'Defs'.

Note

bla

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

10.81.2 Constructor & Destructor Documentation

10.81.2.1 Defs() [1/2]

```
gdcm::Defs::Defs ( )
```

10.81.2.2 ~Defs()

```
gdcm::Defs::~Defs ( )
```

10.81.2.3 Defs() [2/2]

```
gdcm::Defs::Defs (
            const Defs & val )  [delete]
```

10.81.3 Member Function Documentation

10.81.3.1 GetIODFromFile()

```
const IOD & gdcm::Defs::GetIODFromFile (
            const File & file ) const
```

10.81.3.2 GetIODNameFromMediaStorage()

```
static const char * gdcm::Defs::GetIODNameFromMediaStorage (
            MediaStorage const & ms )  [static]
```

Examples

GenerateStandardSOPClasses.cxx.

10.81.3.3 GetIODs() [1/2]

```
IODs & gdcm::Defs::GetIODs ( )  [inline]
```

10.81.3.4 GetIODs() [2/2]

```
const IODs & gdcm::Defs::GetIODs ( ) const  [inline]
```

Examples

TraverseModules.cxx.

10.81.3.5 GetMacros() [1/2]

```
Macros & gdcm::Defs::GetMacros ( )  [inline]
```

10.81.3.6 GetMacros() [2/2]

```
const Macros & gdcm::Defs::GetMacros ( ) const  [inline]
```

Users should not directly use Macro. Macro are simply a way for DICOM WG to re-use Tables. Macros are conveniently wrapped within Modules. See gdcm::Module API directly

Examples

TraverseModules.cxx.

10.81.3.7 GetModules() [1/2]

```
Modules & gdcm::Defs::GetModules ( )  [inline]
```

10.81.3.8 GetModules() [2/2]

```
const Modules & gdcm::Defs::GetModules ( ) const  [inline]
```

Examples

TraverseModules.cxx.

10.81.3.9 GetTypeFromTag()

```
Type gdcm::Defs::GetTypeFromTag (
            const File & file,
            const Tag & tag ) const
```

10.81.3.10 IsEmpty()

```
bool gdcm::Defs::IsEmpty ( ) const  [inline]
```

10.81.3.11 LoadDefaults()

```
void gdcm::Defs::LoadDefaults ( )  [protected]
```

10.81.3.12 LoadFromFile()

```
void gdcm::Defs::LoadFromFile (
            const char * filename )  [protected]
```

10.81.3.13 operator=()

```
Defs & gdcm::Defs::operator= (
            const Defs & val )  [delete]
```

10.81.3.14 Verify() [1/2]

```
bool gdcm::Defs::Verify (
            const DataSet & ds ) const
```

10.81.3.15 Verify() [2/2]

```
bool gdcm::Defs::Verify (
            const File & file ) const
```

10.81.4 Friends And Related Symbol Documentation

10.81.4.1 Global

```
friend class Global  [friend]
```

The documentation for this class was generated from the following file:

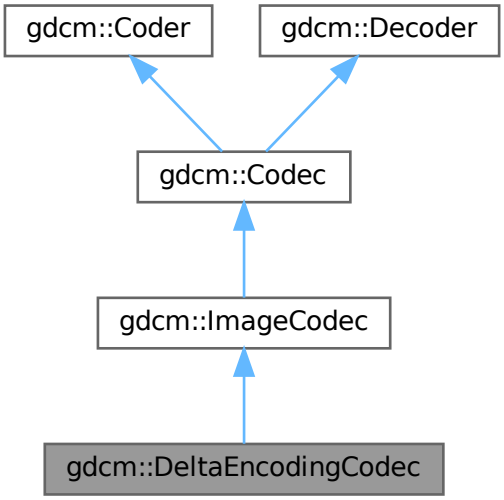
- gdcmDefs.h

10.82 gdcm::DeltaEncodingCodec Class Reference

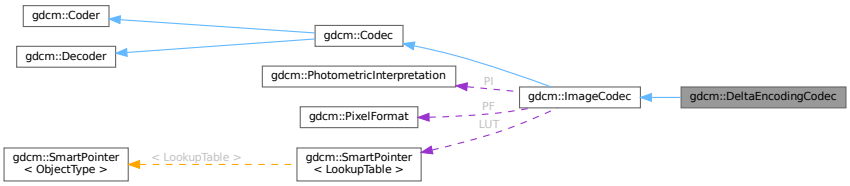
DeltaEncodingCodec compression used by some private vendor.

```
#include <gdcmDeltaEncodingCodec.h>
```

Inheritance diagram for gdcm::DeltaEncodingCodec:



Collaboration diagram for gdcm::DeltaEncodingCodec:



Public Member Functions

- DeltaEncodingCodec ()
- ~DeltaEncodingCodec ()
- bool CanDecode (TransferSyntax const &ts)
- bool Decode (DataElement const &is, DataElement &os)

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it)
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool Decode (std::istream &is, std::ostream &os)

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char ∗data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char ∗data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char ∗bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.82.1 Detailed Description

DeltaEncodingCodec compression used by some private vendor.

10.82.2 Constructor & Destructor Documentation

10.82.2.1 DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::DeltaEncodingCodec ( )
```

10.82.2.2 ~DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::~DeltaEncodingCodec ( )
```

10.82.3 Member Function Documentation

10.82.3.1 CanDecode()

```
bool gdcm::DeltaEncodingCodec::CanDecode (
            TransferSyntax const & ts )
```

10.82.3.2 Decode() [1/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            DataElement const & ,
            DataElement &  )  [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

10.82.3.3 Decode() [2/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            std::istream & is,
            std::ostream & os )  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDeltaEncodingCodec.h

10.83 gdcm::DICOMDIR Class Reference

DICOMDIR class.

```
#include <gdcmDICOMDIR.h>
```

Public Member Functions

- DICOMDIR ()=default
- DICOMDIR (FileSet fs)

10.83.1 Detailed Description

DICOMDIR class.

Structured for handling DICOMDIR

10.83.2 Constructor & Destructor Documentation

10.83.2.1 DICOMDIR() [1/2]

```
gdcm::DICOMDIR::DICOMDIR ( ) [default]
```

10.83.2.2 DICOMDIR() [2/2]

```
gdcm::DICOMDIR::DICOMDIR (
            FileSet fs ) [inline]
```

The documentation for this class was generated from the following file:

- gdcmDICOMDIR.h

10.84 gdcm::DICOMDIRGenerator Class Reference

DICOMDIRGenerator class.

```
#include <gdcmDICOMDIRGenerator.h>
```

Public Types

- typedef Directory::FilenamesType FilenamesType
- typedef Directory::FilenameType FilenameType

Public Member Functions

- DICOMDIRGenerator ()
- ~DICOMDIRGenerator ()
- bool Generate ()

  Main function to generate the DICOMDIR.
- File & GetFile ()
- void SetDescriptor (const char *d)
- void SetFile (const File &f)

  Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.
- void SetFilenames (FilenamesType const &fns)

  Set the list of filenames from which the DICOMDIR should be generated from.
- void SetRootDirectory (FilenameType const &root)

  Set the root directory from which the filenames should be considered.

Protected Member Functions

- bool AddImageDirectoryRecord ()
- bool AddPatientDirectoryRecord ()
- bool AddSeriesDirectoryRecord ()
- bool AddStudyDirectoryRecord ()
- Scanner & GetScanner ()

10.84.1 Detailed Description

DICOMDIRGenerator class.

This is a STD-GEN-CD DICOMDIR generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles

Note

PS 3.11 - 2008 / D.3.2 Physical Medium And Medium Format The STD-GEN-CD and STD-GEN-SEC-CD application profiles require the 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format, as defined in PS3.12. See also PS 3.12 - 2008 / Annex F 120mm CD-R Medium (Normative) and PS 3.10 - 2008 / 8 DICOM File Service / 8.1 FILE-SET

Warning

: PS 3.11 - 2008 / D.3.1 SOP Classes and Transfer Syntaxes Composite Image & Stand-alone Storage are required to be stored as Explicit VR Little Endian Uncompressed (1.2.840.10008.1.2.1). When a DICOM file is found using another Transfer Syntax the generator will simply stops.

- Input files should be Explicit VR Little Endian
- filenames should be valid VR::CS value (16 bytes, upper case ...)

Bug : There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Examples

GenerateDICOMDIR.cs.

10.84.2 Member Typedef Documentation

10.84.2.1 FilenamesType

```
typedef Directory::FilenamesType gdcm::DICOMDIRGenerator::FilenamesType
```

10.84.2.2 FilenameType

```
typedef Directory::FilenameType gdcm::DICOMDIRGenerator::FilenameType
```

10.84.3 Constructor & Destructor Documentation

10.84.3.1 DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::DICOMDIRGenerator ( )
```

10.84.3.2 ∼DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::∼DICOMDIRGenerator ( )
```

10.84.4 Member Function Documentation

10.84.4.1 AddImageDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddImageDirectoryRecord ( )  [protected]
```

10.84.4.2 AddPatientDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddPatientDirectoryRecord ( )  [protected]
```

10.84.4.3 AddSeriesDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddSeriesDirectoryRecord ( )  [protected]
```

10.84.4.4 AddStudyDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddStudyDirectoryRecord ( )  [protected]
```

10.84.4.5 Generate()

```
bool gdcm::DICOMDIRGenerator::Generate ( )
```

Main function to generate the DICOMDIR.

Examples

GenerateDICOMDIR.cs.

10.84.4.6 GetFile()

```
File & gdcm::DICOMDIRGenerator::GetFile ( )
```

Examples

GenerateDICOMDIR.cs.

10.84.4.7 GetScanner()

```
Scanner & gdcm::DICOMDIRGenerator::GetScanner ( )  [protected]
```

10.84.4.8 SetDescriptor()

```
void gdcm::DICOMDIRGenerator::SetDescriptor (
            const char * d )
```

Set the File Set ID.

Warning

this need to be a valid VR::CS value

Examples

GenerateDICOMDIR.cs.

10.84.4.9 SetFile()

```
void gdcm::DICOMDIRGenerator::SetFile (
            const File & f )
```

Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.

10.84.4.10 SetFilenames()

```
void gdcm::DICOMDIRGenerator::SetFilenames (
            FilenamesType const & fns )
```

Set the list of filenames from which the DICOMDIR should be generated from.

Examples

GenerateDICOMDIR.cs.

10.84.4.11 SetRootDirectory()

```
void gdcm::DICOMDIRGenerator::SetRootDirectory (
            FilenameType const & root )
```

Set the root directory from which the filenames should be considered.

The documentation for this class was generated from the following file:

- gdcmDICOMDIRGenerator.h

10.85 gdcm::Dict Class Reference

Class to represent a map of DictEntry.

```
#include <gdcmDict.h>
```

Public Types

- typedef MapDictEntry::const_iterator ConstIterator
- typedef MapDictEntry::iterator Iterator
- typedef std::map< Tag, DictEntry > MapDictEntry

Public Member Functions

- Dict ()
- Dict (const Dict &_val)=delete
- void AddDictEntry (const Tag &tag, const DictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const DictEntry & GetDictEntry (const Tag &tag) const
- const DictEntry & GetDictEntryByKeyword (const char *keyword, Tag &tag) const
- const DictEntry & GetDictEntryByName (const char *name, Tag &tag) const
- const char * GetKeywordFromTag (Tag const &tag) const

  Function to return the Keyword from a Tag.
- bool IsEmpty () const
- Dict & operator= (const Dict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const Dict &_val)

10.85.1 Detailed Description

Class to represent a map of DictEntry.

Note

bla TODO FIXME: For Element == 0x0 need to return Name = Group Length ValueRepresentation = UL Value↩ Multiplicity = 1

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

10.85.2 Member Typedef Documentation

10.85.2.1 ConstIterator

```
typedef MapDictEntry::const_iterator gdcm::Dict::ConstIterator
```

10.85.2.2 Iterator

```
typedef MapDictEntry::iterator gdcm::Dict::Iterator
```

10.85.2.3 MapDictEntry

```
typedef std::map<Tag, DictEntry> gdcm::Dict::MapDictEntry
```

10.85.3 Constructor & Destructor Documentation

10.85.3.1 Dict() [1/2]

```
gdcm::Dict::Dict ( ) [inline]
```

10.85.3.2 Dict() [2/2]

```
gdcm::Dict::Dict (
            const Dict & _val )  [delete]
```

References gdcm::operator<<().

10.85.4 Member Function Documentation

10.85.4.1 AddDictEntry()

```
void gdcm::Dict::AddDictEntry (
            const Tag & tag,
            const DictEntry & de )  [inline]
```

10.85.4.2 Begin()

```
ConstIterator gdcm::Dict::Begin ( ) const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

10.85.4.3 End()

```
ConstIterator gdcm::Dict::End ( ) const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

10.85.4.4 GetDictEntry()

```
const DictEntry & gdcm::Dict::GetDictEntry (
            const Tag & tag ) const  [inline]
```

Examples

GenFakeIdentifyFile.cxx, and PublicDict.cxx.

10.85.4.5 GetDictEntryByKeyword()

```
const DictEntry & gdcm::Dict::GetDictEntryByKeyword (
            const char * keyword,
            Tag & tag ) const  [inline]
```

Lookup DictEntry by keyword. Even if DICOM standard defines keyword as being unique. The lookup table is built on Tag. Therefore looking up a DictEntry by Keyword is more inefficient than looking up by Tag.

10.85.4.6 GetDictEntryByName()

```
const DictEntry & gdcm::Dict::GetDictEntryByName (
            const char * name,
            Tag & tag ) const  [inline]
```

Inefficient way of looking up tag by name. Technically DICOM does not guarantee uniqueness (and Curve / Overlay are there to prove it). But most of the time name is in fact uniq and can be uniquely link to a tag

Examples

ReadAndPrintAttributes.cxx.

10.85.4.7 GetKeywordFromTag()

```
const char * gdcm::Dict::GetKeywordFromTag (
            Tag const & tag ) const  [inline]
```

Function to return the Keyword from a Tag.

10.85.4.8 IsEmpty()

```
bool gdcm::Dict::IsEmpty ( ) const  [inline]
```

10.85.4.9 LoadDefault()

```
void gdcm::Dict::LoadDefault ( )  [protected]
```

10.85.4.10 operator=()

```
Dict & gdcm::Dict::operator= (
            const Dict & _val )  [delete]
```

10.85.5 Friends And Related Symbol Documentation

10.85.5.1 Dicts

```
friend class Dicts  [friend]
```

10.85.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Dict & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmDict.h

10.86 gdcm::DictConverter Class Reference

Class to convert a .dic file into something else:

```
#include <gdcmDictConverter.h>
```

Public Types

- enum OutputTypes {
  DICT_DEFAULT = 0 ,
  DICT_DEBUG ,
  DICT_XML }

Public Member Functions

- DictConverter ()
- ~DictConverter ()
- void Convert ()
- const std::string & GetDictName () const
- const std::string & GetInputFilename () const
- const std::string & GetOutputFilename () const
- int GetOutputType () const
- void SetDictName (const char *name)
- void SetInputFileName (const char *filename)
- void SetOutputFileName (const char *filename)
- void SetOutputType (int type)

Static Public Member Functions

- static bool Readuint16 (const char ∗raw, uint16_t &ov)
- static bool ReadVM (const char ∗raw, VM::VMType &type)
- static bool ReadVR (const char ∗raw, VR::VRType &type)

Protected Member Functions

- void AddGroupLength ()
- bool ConvertToCXX (const char ∗raw, std::string &cxx)
- bool ConvertToXML (const char ∗raw, std::string &cxx)
- void WriteFooter ()
- void WriteHeader ()

10.86.1 Detailed Description

Class to convert a .dic file into something else:

- CXX code : embed dict into shared lib (DICT_DEFAULT)
- Debug mode (DICT_DEBUG)
- XML dict (DICT_XML)

  Note

10.86.2 Member Enumeration Documentation

10.86.2.1 OutputTypes

`enum gdcm::DictConverter::OutputTypes`

Enumerator

DICT_DEFAULT	
DICT_DEBUG	
DICT_XML	

10.86.3 Constructor & Destructor Documentation

10.86.3.1 DictConverter()

`gdcm::DictConverter::DictConverter ( )`

10.86.3.2 ~DictConverter()

```
gdcm::DictConverter::~DictConverter ( )
```

10.86.4 Member Function Documentation

10.86.4.1 AddGroupLength()

```
void gdcm::DictConverter::AddGroupLength ( )  [protected]
```

10.86.4.2 Convert()

```
void gdcm::DictConverter::Convert ( )
```

10.86.4.3 ConvertToCXX()

```
bool gdcm::DictConverter::ConvertToCXX (
            const char * raw,
            std::string & cxx )  [protected]
```

10.86.4.4 ConvertToXML()

```
bool gdcm::DictConverter::ConvertToXML (
            const char * raw,
            std::string & cxx )  [protected]
```

10.86.4.5 GetDictName()

```
const std::string & gdcm::DictConverter::GetDictName ( ) const
```

10.86.4.6 GetInputFilename()

```
const std::string & gdcm::DictConverter::GetInputFilename ( ) const
```

10.86.4.7 GetOutputFilename()

```
const std::string & gdcm::DictConverter::GetOutputFilename ( ) const
```

10.86.4.8 GetOutputType()

```
int gdcm::DictConverter::GetOutputType ( ) const  [inline]
```

10.86.4.9 Readuint16()

```
static bool gdcm::DictConverter::Readuint16 (
            const char * raw,
            uint16_t & ov )  [static]
```

10.86.4.10 ReadVM()

```
static bool gdcm::DictConverter::ReadVM (
            const char * raw,
            VM::VMType & type )  [static]
```

10.86.4.11 ReadVR()

```
static bool gdcm::DictConverter::ReadVR (
            const char * raw,
            VR::VRType & type )  [static]
```

10.86.4.12 SetDictName()

```
void gdcm::DictConverter::SetDictName (
            const char * name )
```

10.86.4.13 SetInputFileName()

```
void gdcm::DictConverter::SetInputFileName (
            const char * filename )
```

10.86.4.14 SetOutputFileName()

```
void gdcm::DictConverter::SetOutputFileName (
            const char * filename )
```

10.86.4.15 SetOutputType()

```
void gdcm::DictConverter::SetOutputType (
            int type )  [inline]
```

10.86.4.16 WriteFooter()

```
void gdcm::DictConverter::WriteFooter ( ) [protected]
```

10.86.4.17 WriteHeader()

```
void gdcm::DictConverter::WriteHeader ( ) [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictConverter.h

10.87 gdcm::DictEntry Class Reference

Class to represent an Entry in the Dict.

```
#include <gdcmDictEntry.h>
```

Public Member Functions

- DictEntry (const char *name="", const char *keyword="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, bool ret=false)
- const char * GetKeyword () const

  same as GetName but without spaces...
- const char * GetName () const

  Set/Get Name.
- bool GetRetired () const

  Set/Get Retired flag.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool IsUnique () const
- void SetElementXX (bool v)

  Set whether element is shared in multiple elements (Source Image IDs typically)
- void SetGroupXX (bool v)

  Set whether element is shared in multiple groups (Curve/Overlay typically)
- void SetKeyword (const char *keyword)
- void SetName (const char *name)
- void SetRetired (bool retired)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- class Dict
- std::ostream & operator<< (std::ostream &_os, const DictEntry &_val)

10.87.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicDictEntry...indeed DictEntry has a notion of retired which does not exist in PrivateDictEntry...

See also

gdcm::Dict

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and TraverseModules.cxx.

10.87.2 Constructor & Destructor Documentation

10.87.2.1 DictEntry()

```
gdcm::DictEntry::DictEntry (
            const char * name = "",
            const char * keyword = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            bool ret = false )  [inline]
```

10.87.3 Member Function Documentation

10.87.3.1 GetKeyword()

```
const char * gdcm::DictEntry::GetKeyword ( ) const  [inline]
```

same as GetName but without spaces...

10.87.3.2 GetName()

```
const char * gdcm::DictEntry::GetName ( ) const  [inline]
```

Set/Get Name.

Referenced by gdcm::PrivateDict::PrintXML().

10.87.3.3 GetRetired()

```
bool gdcm::DictEntry::GetRetired ( ) const  [inline]
```

Set/Get Retired flag.

Examples

GenAllVR.cxx.

10.87.3.4 GetVM()

```
const VM & gdcm::DictEntry::GetVM ( ) const  [inline]
```

Set/Get VM.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

10.87.3.5 GetVR()

```
const VR & gdcm::DictEntry::GetVR ( ) const  [inline]
```

Set/Get VR.

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

10.87.3.6 IsUnique()

```
bool gdcm::DictEntry::IsUnique ( ) const  [inline]
```

Return whether the name of the DataElement can be considered to be unique. As of 2008 all elements name were unique (except the expclitely 'XX' ones)

10.87.3.7 SetElementXX()

```
void gdcm::DictEntry::SetElementXX (
            bool v )  [inline]
```

Set whether element is shared in multiple elements (Source Image IDs typically)

10.87.3.8 SetGroupXX()

```
void gdcm::DictEntry::SetGroupXX (
            bool v )  [inline]
```

Set whether element is shared in multiple groups (Curve/Overlay typically)

10.87.3.9 SetKeyword()

```
void gdcm::DictEntry::SetKeyword (
            const char * keyword )  [inline]
```

10.87.3.10 SetName()

```
void gdcm::DictEntry::SetName (
            const char * name )  [inline]
```

10.87.3.11 SetRetired()

```
void gdcm::DictEntry::SetRetired (
            bool retired )  [inline]
```

10.87.3.12 SetVM()

```
void gdcm::DictEntry::SetVM (
            VM const & vm )  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

10.87.3.13 SetVR()

```
void gdcm::DictEntry::SetVR (
            const VR & vr )  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

10.87.4 Friends And Related Symbol Documentation

10.87.4.1 Dict

```
friend class Dict  [friend]
```

10.87.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DictEntry & _val )  [friend]
```

The documentation for this class was generated from the following file:

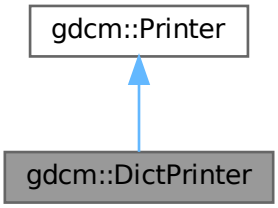
- gdcmDictEntry.h

10.88 gdcm::DictPrinter Class Reference

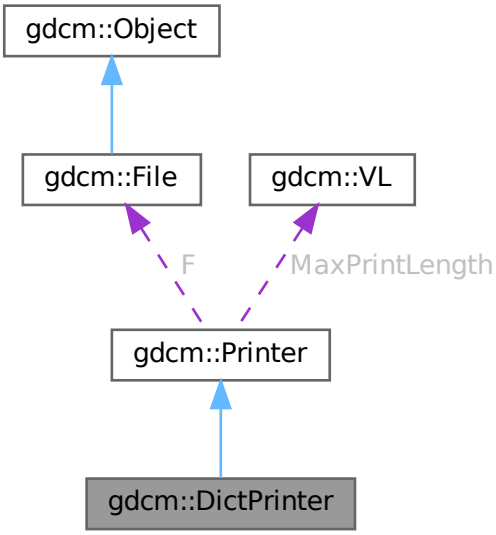
DictPrinter class.

```
#include <gdcmDictPrinter.h>
```

Inheritance diagram for gdcm::DictPrinter:



Collaboration diagram for gdcm::DictPrinter:



Public Member Functions

- DictPrinter ()
- ~DictPrinter ()=default
- void Print (std::ostream &os)

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- void PrintDataElement2 (std::ostream &os, const DataSet &ds, const DataElement &ide)
- void PrintDataSet2 (std::ostream &os, const DataSet &ds)

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

10.88.1 Detailed Description

DictPrinter class.

10.88.2 Constructor & Destructor Documentation

10.88.2.1 DictPrinter()

```
gdcm::DictPrinter::DictPrinter ( )
```

10.88.2.2 ~DictPrinter()

```
gdcm::DictPrinter::~DictPrinter ( ) [default]
```

10.88.3 Member Function Documentation

10.88.3.1 Print()

```
void gdcm::DictPrinter::Print (
            std::ostream & os )
```

10.88.3.2 PrintDataElement2()

```
void gdcm::DictPrinter::PrintDataElement2 (
            std::ostream & os,
            const DataSet & ds,
            const DataElement & ide )  [protected]
```

10.88.3.3 PrintDataSet2()

```
void gdcm::DictPrinter::PrintDataSet2 (
            std::ostream & os,
            const DataSet & ds )  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictPrinter.h

10.89 gdcm::Dicts Class Reference

Class to manipulate the sum of knowledge (all the dict user load)

```
#include <gdcmDicts.h>
```

Public Member Functions

- Dicts ()
- Dicts (const Dicts &_val)=delete
- ~Dicts ()
- const CSAHeaderDict & GetCSAHeaderDict () const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const Tag &tag, const char *owner=nullptr) const

  THREAD SAFE.
- PrivateDict & GetPrivateDict ()
- const PrivateDict & GetPrivateDict () const
- const Dict & GetPublicDict () const
- bool IsEmpty () const
- Dicts & operator= (const Dicts &_val)=delete

Protected Types

- enum ConstructorType {
  PHILIPS ,
  GEMS ,
  SIEMENS }

Protected Member Functions

- void LoadDefaults ()

Static Protected Member Functions

- static const char ∗ GetConstructorString (ConstructorType type)

Friends

- class Global
- std::ostream & operator<< (std::ostream &_os, const Dicts &d)

10.89.1 Detailed Description

Class to manipulate the sum of knowledge (all the dict user load)

Note

bla

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

10.89.2 Member Enumeration Documentation

10.89.2.1 ConstructorType

`enum gdcm::Dicts::ConstructorType [protected]`

Enumerator

PHILIPS	
GEMS	
SIEMENS	

10.89.3 Constructor & Destructor Documentation

10.89.3.1 Dicts() [1/2]

```
gdcm::Dicts::Dicts ( )
```

10.89.3.2 ~Dicts()

```
gdcm::Dicts::~Dicts ( )
```

10.89.3.3 Dicts() [2/2]

```
gdcm::Dicts::Dicts (
            const Dicts & _val )  [delete]
```

10.89.4 Member Function Documentation

10.89.4.1 GetConstructorString()

```
static const char * gdcm::Dicts::GetConstructorString (
            ConstructorType type )  [static], [protected]
```

10.89.4.2 GetCSAHeaderDict()

```
const CSAHeaderDict & gdcm::Dicts::GetCSAHeaderDict ( ) const
```

Examples

MrProtocol.cxx.

10.89.4.3 GetDictEntry() [1/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const PrivateTag & tag ) const
```

10.89.4.4 GetDictEntry() [2/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const Tag & tag,
            const char * owner = nullptr ) const
```

THREAD SAFE.

works for both public and private dicts: owner is null for public dict

Warning

owner need to be set to appropriate owner for call to work. see

Examples

PublicDict.cxx, and TraverseModules.cxx.

10.89.4.5 GetPrivateDict() [1/2]

```
PrivateDict & gdcm::Dicts::GetPrivateDict ( )
```

10.89.4.6 GetPrivateDict() [2/2]

```
const PrivateDict & gdcm::Dicts::GetPrivateDict ( ) const
```

10.89.4.7 GetPublicDict()

```
const Dict & gdcm::Dicts::GetPublicDict ( ) const
```

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

10.89.4.8 IsEmpty()

```
bool gdcm::Dicts::IsEmpty ( ) const  [inline]
```

10.89.4.9 LoadDefaults()

```
void gdcm::Dicts::LoadDefaults ( )  [protected]
```

10.89.4.10 operator=()

```
Dicts & gdcm::Dicts::operator= (
            const Dicts & _val )  [delete]
```

10.89.5 Friends And Related Symbol Documentation

10.89.5.1 Global

```
friend class Global  [friend]
```

10.89.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Dicts & d )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmDicts.h

10.90 gdcm::network::DIMSE Class Reference

DIMSE.

```
#include <gdcmDIMSE.h>
```

Public Types

- enum CommandTypes {
  C_STORE_RQ = 0x0001 ,
  C_STORE_RSP = 0x8001 ,
  C_GET_RQ = 0x0010 ,
  C_GET_RSP = 0x8010 ,
  C_FIND_RQ = 0x0020 ,
  C_FIND_RSP = 0x8020 ,
  C_MOVE_RQ = 0x0021 ,
  C_MOVE_RSP = 0x8021 ,
  C_ECHO_RQ = 0x0030 ,
  C_ECHO_RSP = 0x8030 ,
  N_EVENT_REPORT_RQ = 0x0100 ,
  N_EVENT_REPORT_RSP = 0x8100 ,
  N_GET_RQ = 0x0110 ,
  N_GET_RSP = 0x8110 ,
  N_SET_RQ = 0x0120 ,
  N_SET_RSP = 0x8120 ,
  N_ACTION_RQ = 0x0130 ,
  N_ACTION_RSP = 0x8130 ,
  N_CREATE_RQ = 0x0140 ,
  N_CREATE_RSP = 0x8140 ,
  N_DELETE_RQ = 0x0150 ,
  N_DELETE_RSP = 0x8150 ,
  C_CANCEL_RQ = 0x0FFF }

10.90.1 Detailed Description

DIMSE.

PS 3.7 - 2009 Annex E Command Dictionary (Normative) E.1 REGISTRY OF DICOM COMMAND ELEMENTS Table E.1-1 COMMAND FIELDS (PART 1)

10.90.2 Member Enumeration Documentation

10.90.2.1 CommandTypes

`enum gdcm::network::DIMSE::CommandTypes`

Enumerator

C_STORE_RQ	
C_STORE_RSP	
C_GET_RQ	
C_GET_RSP	
C_FIND_RQ	
C_FIND_RSP	
C_MOVE_RQ	
C_MOVE_RSP	
C_ECHO_RQ	
C_ECHO_RSP	
N_EVENT_REPORT_RQ	
N_EVENT_REPORT_RSP	
N_GET_RQ	
N_GET_RSP	
N_SET_RQ	
N_SET_RSP	
N_ACTION_RQ	
N_ACTION_RSP	
N_CREATE_RQ	
N_CREATE_RSP	
N_DELETE_RQ	
N_DELETE_RSP	
C_CANCEL_RQ	

The documentation for this class was generated from the following file:

- gdcmDIMSE.h

10.91 gdcm::DirectionCosines Class Reference

class to handle DirectionCosines

```
#include <gdcmDirectionCosines.h>
```

Public Member Functions

- DirectionCosines ()
- DirectionCosines (const double dircos[6])
- ~DirectionCosines ()
- double ComputeDistAlongNormal (const double ipp[3]) const

  Compute the distance along the normal.
- void Cross (double z[3]) const

  Compute Cross product.
- double CrossDot (DirectionCosines const &dc) const

  Compute the Dot product of the two cross vector of both DirectionCosines object.
- double Dot () const

  Compute Dot.
- bool IsValid () const

  Return whether or not this is a valid direction cosines.
- void Normalize ()

  Normalize in-place.
- operator const double * () const

  *Make the class behave like a const double *.*
- void Print (std::ostream &) const

  Print.
- bool SetFromString (const char *str)

Static Public Member Functions

- static double Dot (const double x[3], const double y[3])

  Compute Dot.
- static double Norm (const double v[3])

  Return norm of the vector.
- static void Normalize (double v[3])

  Normalize in-place.

10.91.1 Detailed Description

class to handle DirectionCosines

Examples

DiscriminateVolume.cxx.

10.91.2 Constructor & Destructor Documentation

10.91.2.1 DirectionCosines() [1/2]

```
gdcm::DirectionCosines::DirectionCosines ( )
```

10.91.2.2 DirectionCosines() [2/2]

```
gdcm::DirectionCosines::DirectionCosines (
            const double dircos[6] )
```

10.91.2.3 ~DirectionCosines()

```
gdcm::DirectionCosines::~DirectionCosines ( )
```

10.91.3 Member Function Documentation

10.91.3.1 ComputeDistAlongNormal()

```
double gdcm::DirectionCosines::ComputeDistAlongNormal (
            const double ipp[3] ) const
```

Compute the distance along the normal.

10.91.3.2 Cross()

```
void gdcm::DirectionCosines::Cross (
            double z[3] ) const
```

Compute Cross product.

10.91.3.3 CrossDot()

```
double gdcm::DirectionCosines::CrossDot (
            DirectionCosines const & dc ) const
```

Compute the Dot product of the two cross vector of both DirectionCosines object.

Examples

DiscriminateVolume.cxx.

10.91.3.4 Dot() [1/2]

```
double gdcm::DirectionCosines::Dot ( ) const
```

Compute Dot.

10.91.3.5 Dot() [2/2]

```
static double gdcm::DirectionCosines::Dot (
            const double x[3],
            const double y[3] )  [static]
```

Compute Dot.

10.91.3.6 IsValid()

```
bool gdcm::DirectionCosines::IsValid ( ) const
```

Return whether or not this is a valid direction cosines.

10.91.3.7 Norm()

```
static double gdcm::DirectionCosines::Norm (
            const double v[3] )  [static]
```

Return norm of the vector.

10.91.3.8 Normalize() [1/2]

```
void gdcm::DirectionCosines::Normalize ( )
```

Normalize in-place.

10.91.3.9 Normalize() [2/2]

```
static void gdcm::DirectionCosines::Normalize (
            double v[3] )  [static]
```

Normalize in-place.

10.91.3.10 operator const double ∗()

```
gdcm::DirectionCosines::operator const double * ( ) const  [inline]
```

Make the class behave like a const double ∗.

10.91.3.11 Print()

```
void gdcm::DirectionCosines::Print (
            std::ostream &  ) const
```

Print.

10.91.3.12 SetFromString()

```
bool gdcm::DirectionCosines::SetFromString (
            const char * str )
```

Initialize from string str. It requires 6 floating point separated by a backslash character.

Examples

DiscriminateVolume.cxx.

The documentation for this class was generated from the following file:

- gdcmDirectionCosines.h

10.92 gdcm::Directory Class Reference

Class for manipulation directories.

```
#include <gdcmDirectory.h>
```

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType

Public Member Functions

- Directory ()=default
- ~Directory ()=default
- FilenamesType const & GetDirectories () const

  Return the Directories traversed.
- FilenamesType const & GetFilenames () const

  Set/Get the file names within the directory.
- FilenameType const & GetToplevel () const

  Get the name of the toplevel directory.
- unsigned int Load (FilenameType const &name, bool recursive=false)
- void Print (std::ostream &os=std::cout) const

  Print.

Protected Member Functions

- unsigned int Explore (FilenameType const &name, bool recursive)

  Return number of file found when 'recursive'ly exploring directory `name`

Friends

- std::ostream & operator<< (std::ostream &_os, const Directory &d)

10.92.1 Detailed Description

Class for manipulation directories.

Note

This implementation provide a cross platform implementation for manipulating directories: basically traversing directories and harvesting files

will not take into account unix type hidden file recursive option will not look into UNIX type hidden directory (those starting with a '.')

Since python or C# provide there own equivalent implementation, in which case gdcm::Directory does not make much sense.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

10.92.2 Member Typedef Documentation

10.92.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::Directory::FilenamesType
```

10.92.2.2 FilenameType

```
typedef std::string gdcm::Directory::FilenameType
```

10.92.3 Constructor & Destructor Documentation

10.92.3.1 Directory()

```
gdcm::Directory::Directory ( )  [default]
```

10.92.3.2 ~Directory()

```
gdcm::Directory::~Directory ( )  [default]
```

10.92.4 Member Function Documentation

10.92.4.1 Explore()

```
unsigned int gdcm::Directory::Explore (
            FilenameType const & name,
            bool recursive )  [protected]
```

Return number of file found when 'recursive'ly exploring directory `name`

10.92.4.2 GetDirectories()

```
FilenamesType const & gdcm::Directory::GetDirectories ( ) const  [inline]
```

Return the Directories traversed.

10.92.4.3 GetFilenames()

```
FilenamesType const & gdcm::Directory::GetFilenames ( ) const  [inline]
```

Set/Get the file names within the directory.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

10.92.4.4 GetToplevel()

```
FilenameType const & gdcm::Directory::GetToplevel ( ) const  [inline]
```

Get the name of the toplevel directory.

10.92.4.5 Load()

```
unsigned int gdcm::Directory::Load (
            FilenameType const & name,
            bool recursive = false )
```

construct a list of filenames and subdirectory beneath directory: name

Warning

: hidden file and hidden directory are not loaded.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

10.92.4.6 Print()

```
void gdcm::Directory::Print (
            std::ostream & os = std::cout ) const
```

Print.

Examples

SortImage.cxx.

10.92.5 Friends And Related Symbol Documentation

10.92.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Directory & d )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmDirectory.h

10.93 gdcm::DirectoryHelper Class Reference

DirectoryHelper.

```
#include <gdcmDirectoryHelper.h>
```

Static Public Member Functions

- static Directory::FilenamesType GetCTImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetFilenamesFromSeriesUIDs (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string GetFrameOfReference (const std::vector< DataSet > &inDS)
- static Directory::FilenamesType GetMRImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetRTStructSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetSeriesUIDsBySOPClassUID (const std::string &inDirectory, const std::string &inSOPClassUID)
- static std::string GetSOPClassUID (const std::vector< DataSet > &inDS)
- static std::string GetStringValueFromTag (const Tag &t, const DataSet &ds)
- static std::vector< DataSet > LoadImageFromFiles (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string RetrieveSOPInstanceUIDFromIndex (int inIndex, const std::vector< DataSet > &inDS)
- static std::string RetrieveSOPInstanceUIDFromZPosition (double inZPos, const std::vector< DataSet > &inDS)

10.93.1 Detailed Description

DirectoryHelper.

this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts

10.93.2 Member Function Documentation

10.93.2.1 GetCTImageSeriesUIDs()

```
static Directory::FilenamesType gdcm::DirectoryHelper::GetCTImageSeriesUIDs (
            const std::string & inDirectory )  [static]
```

10.93.2.2 GetFilenamesFromSeriesUIDs()

```
static Directory::FilenamesType gdcm::DirectoryHelper::GetFilenamesFromSeriesUIDs (
            const std::string & inDirectory,
            const std::string & inSeriesUID )  [static]
```

10.93.2.3 GetFrameOfReference()

```
static std::string gdcm::DirectoryHelper::GetFrameOfReference (
            const std::vector< DataSet > & inDS )  [static]
```

10.93.2.4 GetMRImageSeriesUIDs()

```
static Directory::FilenamesType gdcm::DirectoryHelper::GetMRImageSeriesUIDs (
            const std::string & inDirectory )  [static]
```

10.93.2.5 GetRTStructSeriesUIDs()

```
static Directory::FilenamesType gdcm::DirectoryHelper::GetRTStructSeriesUIDs (
            const std::string & inDirectory )  [static]
```

10.93.2.6 GetSeriesUIDsBySOPClassUID()

```
static Directory::FilenamesType gdcm::DirectoryHelper::GetSeriesUIDsBySOPClassUID (
            const std::string & inDirectory,
            const std::string & inSOPClassUID )  [static]
```

10.93.2.7 GetSOPClassUID()

```
static std::string gdcm::DirectoryHelper::GetSOPClassUID (
            const std::vector< DataSet > & inDS )  [static]
```

10.93.2.8 GetStringValueFromTag()

```
static std::string gdcm::DirectoryHelper::GetStringValueFromTag (
            const Tag & t,
            const DataSet & ds )  [static]
```

10.93.2.9 LoadImageFromFiles()

```
static std::vector< DataSet > gdcm::DirectoryHelper::LoadImageFromFiles (
            const std::string & inDirectory,
            const std::string & inSeriesUID )  [static]
```

10.93.2.10 RetrieveSOPInstanceUIDFromIndex()

```
static std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromIndex (
            int inIndex,
            const std::vector< DataSet > & inDS )  [static]
```

10.93.2.11 RetrieveSOPInstanceUIDFromZPosition()

```
static std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromZPosition (
            double inZPos,
            const std::vector< DataSet > & inDS )  [static]
```

The documentation for this class was generated from the following file:

- gdcmDirectoryHelper.h

10.94 gdcm::DPath Class Reference

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.↩protocols.dicom/c/IyIH0IOBMPA`

```
#include <gdcmDPath.h>
```

Public Member Functions

- DPath ()
- ~DPath ()
- bool ConstructFromString (const char *path)
- bool Match (DPath const &other) const

  Return whether or not 'other' match the template DPath.
- bool operator< (const DPath &rhs) const
- void Print (std::ostream &) const

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

Friends

- std::ostream & operator<< (std::ostream &_os, const DPath &_val)

10.94.1 Detailed Description

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.↩protocols.dicom/c/IyIH0IOBMPA`

Examples

Cleaner.cs.

10.94.2 Constructor & Destructor Documentation

10.94.2.1 DPath()

```
gdcm::DPath::DPath ( )
```

10.94.2.2 ~DPath()

```
gdcm::DPath::~DPath ( )
```

10.94.3 Member Function Documentation

10.94.3.1 ConstructFromString()

```
bool gdcm::DPath::ConstructFromString (
            const char * path )
```

Examples

Cleaner.cs.

10.94.3.2 IsValid()

```
static bool gdcm::DPath::IsValid (
            const char * path )  [static]
```

Return if path is valid or not.

10.94.3.3 Match()

```
bool gdcm::DPath::Match (
            DPath const & other ) const
```

Return whether or not 'other' match the template DPath.

10.94.3.4 operator<()

```
bool gdcm::DPath::operator< (
            const DPath & rhs ) const
```

10.94.3.5 Print()

```
void gdcm::DPath::Print (
            std::ostream &  ) const
```

10.94.4 Friends And Related Symbol Documentation

10.94.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DPath & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmDPath.h

10.95 gdcm::DummyValueGenerator Class Reference

Class for generating dummy value.

```
#include <gdcmDummyValueGenerator.h>
```

Static Public Member Functions

- static const char * Generate (const char *input)

10.95.1 Detailed Description

Class for generating dummy value.

See also

Anonymizer

10.95.2 Member Function Documentation

10.95.2.1 Generate()

```
static const char * gdcm::DummyValueGenerator::Generate (
            const char * input )  [static]
```

Generate a dummy value from an input value. This is guarantee to always return the same output value when input is identical. Return an array of bytes that can be used for anonymization purpose, return NULL on error NOT THREAD SAFE

The documentation for this class was generated from the following file:

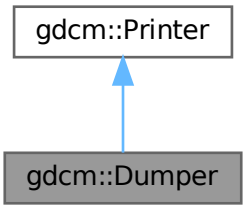
- gdcmDummyValueGenerator.h

10.96 gdcm::Dumper Class Reference

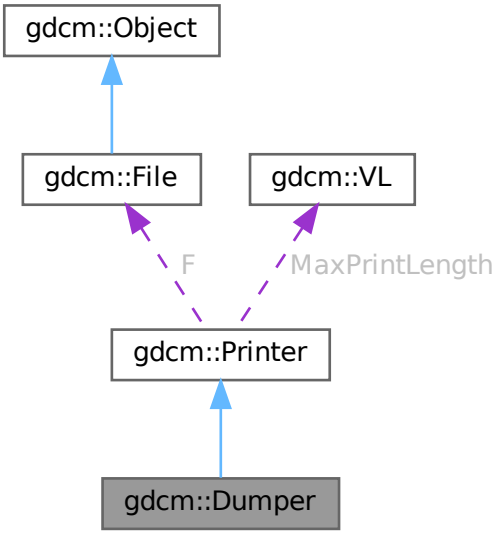
Codec class.

```
#include <gdcmDumper.h>
```

Inheritance diagram for gdcm::Dumper:



Collaboration diagram for gdcm::Dumper:



Public Member Functions

- Dumper ()
- ~Dumper ()=default

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

10.96.1 Detailed Description

Codec class.

Note

Use it to simply dump value read from the file. No interpretation is done. But it is real fast ! Almost no overhead

10.96.2 Constructor & Destructor Documentation

10.96.2.1 Dumper()

```
gdcm::Dumper::Dumper ( ) [inline]
```

10.96.2.2 ~Dumper()

```
gdcm::Dumper::~Dumper ( ) [default]
```

The documentation for this class was generated from the following file:

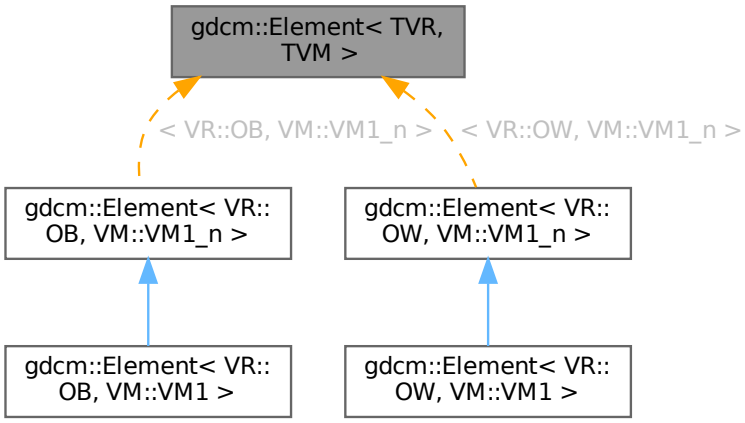
- gdcmDumper.h

10.97 gdcm::Element< TVR, TVM > Class Template Reference

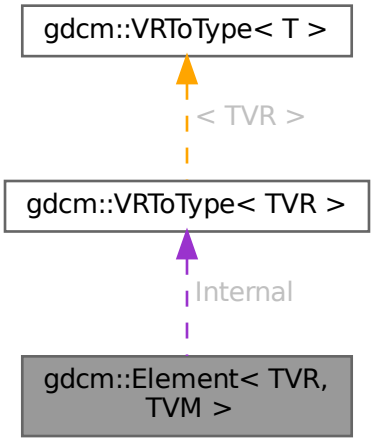
Element class.

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, TVM >:



Collaboration diagram for gdcm::Element< TVR, TVM >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

10.97.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::Element< TVR, TVM >

Element class.

Note

TODO

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, csa2img.cxx, and iU22tomultisc.cxx.

10.97.2 Member Typedef Documentation

10.97.2.1 Type

```
template<long long TVR, int TVM>
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

10.97.3 Member Function Documentation

10.97.3.1 GetAsDataElement()

```
template<long long TVR, int TVM>
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement ( ) const  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

References gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), and gdcm::DataElement::SetVR().

10.97.3.2 GetLength()

```
template<long long TVR, int TVM>
unsigned long gdcm::Element< TVR, TVM >::GetLength ( ) const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

10.97.3.3 GetValue() [1/2]

```
template<long long TVR, int TVM>
VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0 )  [inline]
```

10.97.3.4 GetValue() [2/2]

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0 ) const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and csa2img.cxx.

10.97.3.5 GetValues()

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues ( ) const  [inline]
```

10.97.3.6 GetVM()

```
template<long long TVR, int TVM>
static VM gdcm::Element< TVR, TVM >::GetVM ( )  [inline], [static]
```

10.97.3.7 GetVR()

```
template<long long TVR, int TVM>
static VR gdcm::Element< TVR, TVM >::GetVR ( )  [inline], [static]
```

10.97.3.8 operator[]()

```
template<long long TVR, int TVM>
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx ) const  [inline]
```

10.97.3.9 Print()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os ) const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

10.97.3.10 Read()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is )  [inline]
```

10.97.3.11 Set()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Set (
            Value const & v )  [inline]
```

Examples

csa2img.cxx.

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.97.3.12 SetFromDataElement()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, TVM > const & de )  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and iU22tomultisc.cxx.

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), and gdcm::DataElement::GetVR().

10.97.3.13 SetNoSwap()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.97.3.14 SetValue()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0 )  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

10.97.3.15 Write()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os ) const  [inline]
```

10.97.4 Member Data Documentation

10.97.4.1 Internal

```
template<long long TVR, int TVM>
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

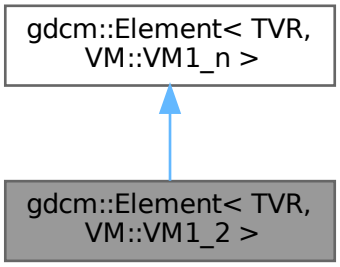
The documentation for this class was generated from the following file:

- gdcmElement.h

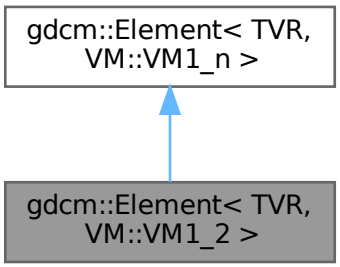
10.98 gdcm::Element< TVR, VM::VM1_2 > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_2 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM1_2 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.98.1 Member Typedef Documentation

10.98.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM1_2 >::Parent
```

10.98.2 Member Function Documentation

10.98.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_2 >::SetLength (
            int len )  [inline]
```

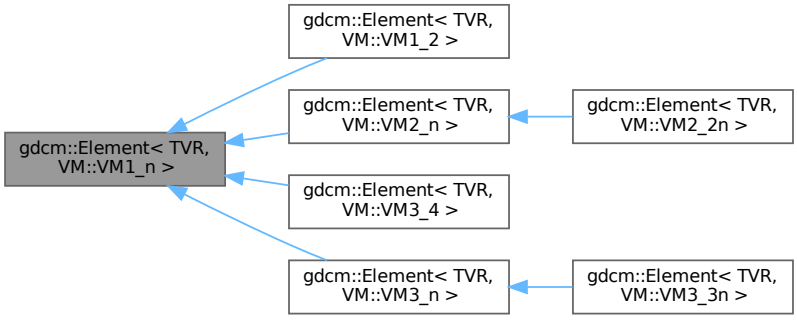
The documentation for this class was generated from the following file:

- gdcmElement.h

10.99 gdcm::Element< TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_n >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetNoSwap (Value const &v)

10.99.1 Member Typedef Documentation

10.99.1.1 Type

```
template<long long TVR>
typedef VRToType<TVR>::Type gdcm::Element< TVR, VM::VM1_n >::Type
```

10.99.2 Constructor & Destructor Documentation

10.99.2.1 Element() [1/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element ( )  [inline], [explicit]
```

10.99.2.2 ~Element()

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::~Element ( )  [inline]
```

10.99.2.3 Element() [2/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element (
            const Element< TVR, VM::VM1_n > & _val )  [inline]
```

10.99.3 Member Function Documentation

10.99.3.1 GetAsDataElement()

```
template<long long TVR>
DataElement gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement ( ) const  [inline]
```

References gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), and gdcm::DataElement::SetVR().

10.99.3.2 GetLength()

```
template<long long TVR>
unsigned long gdcm::Element< TVR, VM::VM1_n >::GetLength ( ) const  [inline]
```

10.99.3.3 GetValue() [1/2]

```
template<long long TVR>
VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0 )  [inline]
```

10.99.3.4 GetValue() [2/2]

```
template<long long TVR>
const VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0 ) const  [inline]
```

10.99.3.5 GetVM()

```
template<long long TVR>
static VM gdcm::Element< TVR, VM::VM1_n >::GetVM ( )  [inline], [static]
```

10.99.3.6 GetVR()

```
template<long long TVR>
static VR gdcm::Element< TVR, VM::VM1_n >::GetVR ( )  [inline], [static]
```

10.99.3.7 operator=()

```
template<long long TVR>
Element & gdcm::Element< TVR, VM::VM1_n >::operator= (
            const Element< TVR, VM::VM1_n > & _val )  [inline]
```

10.99.3.8 operator[]()

```
template<long long TVR>
VRToType< TVR >::Type gdcm::Element< TVR, VM::VM1_n >::operator[] (
            unsigned int idx ) const  [inline]
```

10.99.3.9 Print()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Print (
            std::ostream & _os ) const  [inline]
```

10.99.3.10 Read()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Read (
            std::istream & _is )  [inline]
```

10.99.3.11 Set()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Set (
            Value const & v )  [inline]
```

References gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), and gdcm::ByteValue::GetVoidPointer().

10.99.3.12 SetArray()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetArray (
            const Type * array,
            unsigned long len,
            bool save = false )  [inline]
```

10.99.3.13 SetFromDataElement()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement (
            DataElement< TVR, VM::VM1_n > const & de )  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), and gdcm::DataElement::GetVR().

10.99.3.14 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetLength (
            unsigned long len )  [inline]
```

10.99.3.15 SetNoSwap()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetNoSwap (
            Value const & v )  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), and gdcm::ByteValue::GetPointer().

10.99.3.16 SetValue()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0 )  [inline]
```

10.99.3.17 Write()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Write (
            std::ostream & _os ) const  [inline]
```

10.99.3.18 WriteASCII()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::WriteASCII (
            std::ostream & os ) const  [inline]
```

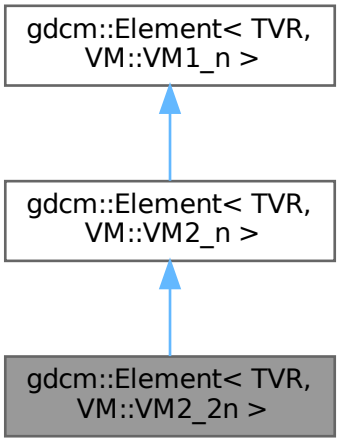
The documentation for this class was generated from the following file:

- gdcmElement.h

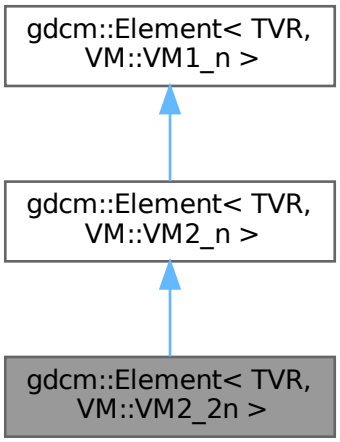
10.100 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_2n >:



Public Types

- typedef Element< TVR, VM::VM2_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM2_n >

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.100.1 Member Typedef Documentation

10.100.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM2_n> gdcm::Element< TVR, VM::VM2_2n >::Parent
```

10.100.2 Member Function Documentation

10.100.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_2n >::SetLength (
            int len )  [inline]
```

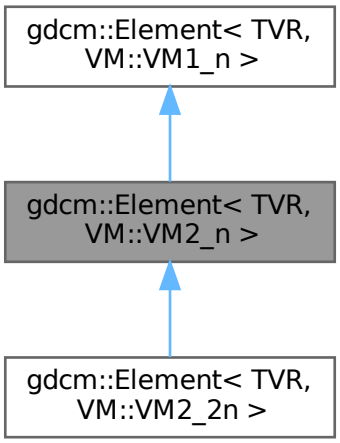
The documentation for this class was generated from the following file:

- gdcmElement.h

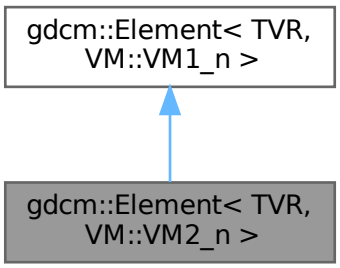
10.101 gdcm::Element< TVR, VM::VM2_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.101.1 Member Typedef Documentation

10.101.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM2_n >::Parent
```

10.101.2 Member Function Documentation

10.101.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_n >::SetLength (
            int len )  [inline]
```

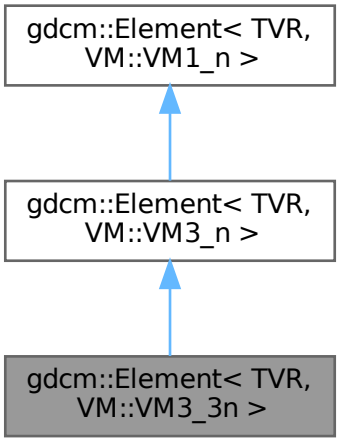
The documentation for this class was generated from the following file:

- gdcmElement.h

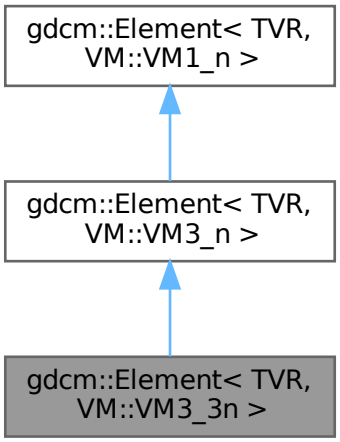
10.102 gdcm::Element< TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_3n >:



Public Types

- typedef Element< TVR, VM::VM3_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM3_n >

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.102.1 Member Typedef Documentation

10.102.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM3_n> gdcm::Element< TVR, VM::VM3_3n >::Parent
```

10.102.2 Member Function Documentation

10.102.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_3n >::SetLength (
            int len )  [inline]
```

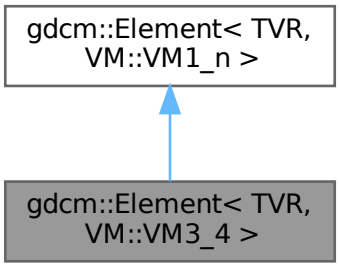
The documentation for this class was generated from the following file:

- gdcmElement.h

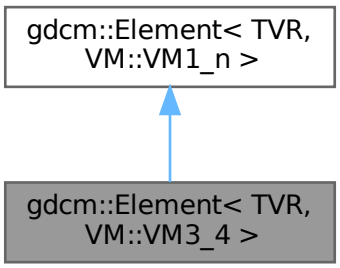
10.103 gdcm::Element< TVR, VM::VM3_4 > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_4 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_4 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.103.1 Member Typedef Documentation

10.103.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_4 >::Parent
```

10.103.2 Member Function Documentation

10.103.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_4 >::SetLength (
            int len )  [inline]
```

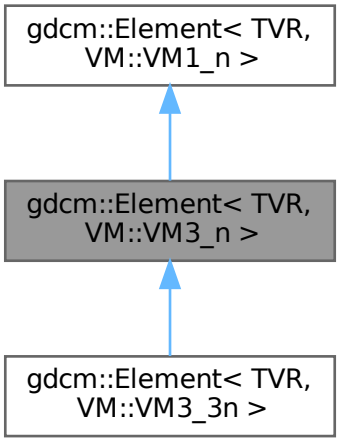
The documentation for this class was generated from the following file:

- gdcmElement.h

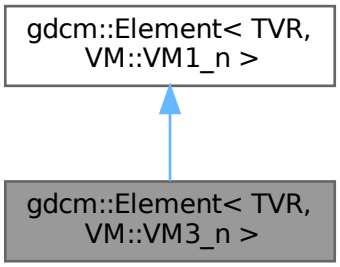
10.104 gdcm::Element< TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- void SetLength (int len)

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Additional Inherited Members

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

10.104.1 Member Typedef Documentation

10.104.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_n >::Parent
```

10.104.2 Member Function Documentation

10.104.2.1 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_n >::SetLength (
            int len )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmElement.h

10.105 gdcm::Element< VR::AS, VM::VM5 > Class Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- unsigned long GetLength () const
- void Print (std::ostream &_os) const

Public Attributes

- char Internal [VMToLength< VM::VM5 >::Length *sizeof(VRToType< VR::AS >::Type)]

10.105.1 Member Function Documentation

10.105.1.1 GetLength()

```
unsigned long gdcm::Element< VR::AS, VM::VM5 >::GetLength ( ) const  [inline]
```

10.105.1.2 Print()

```
void gdcm::Element< VR::AS, VM::VM5 >::Print (
            std::ostream & _os ) const  [inline]
```

10.105.2 Member Data Documentation

10.105.2.1 Internal

```
char gdcm::Element< VR::AS, VM::VM5 >::Internal[VMToLength< VM::VM5 >::Length *sizeof(VRToType< VR::AS >::Type)]
```

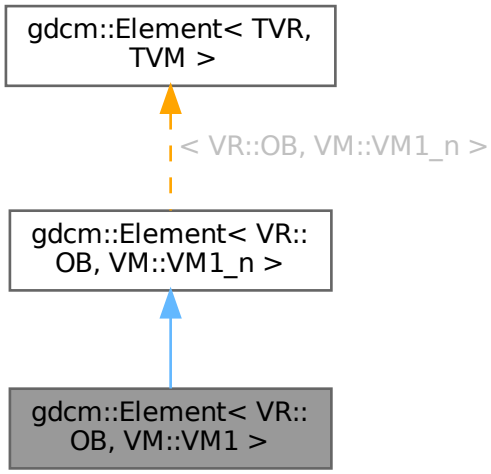
The documentation for this class was generated from the following file:

- gdcmElement.h

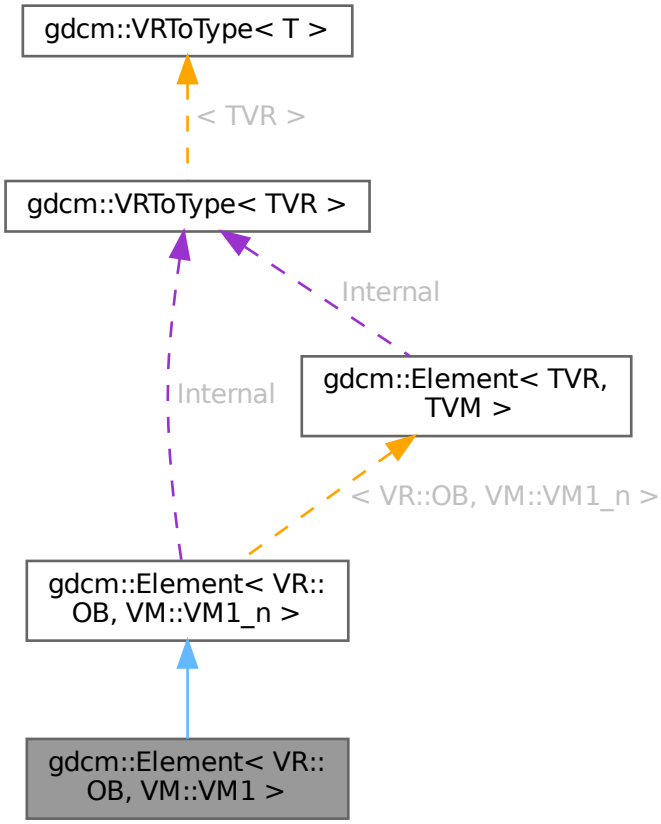
10.106 gdcm::Element< VR::OB, VM::VM1 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OB, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OB, VM::VM1 >:



Additional Inherited Members

Public Types inherited from gdcm::Element< VR::OB, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const

- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes inherited from gdcm::Element< VR::OB, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- void SetNoSwap (Value const &v)

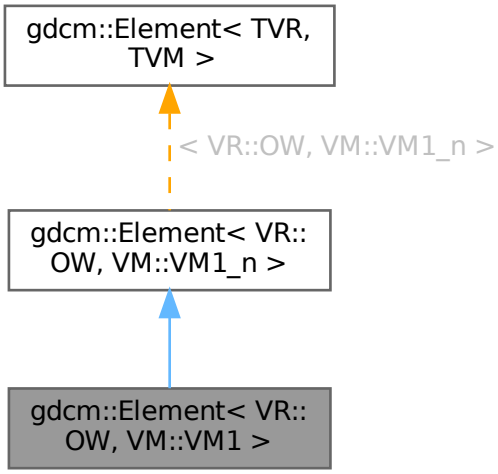
The documentation for this class was generated from the following file:

- gdcmElement.h

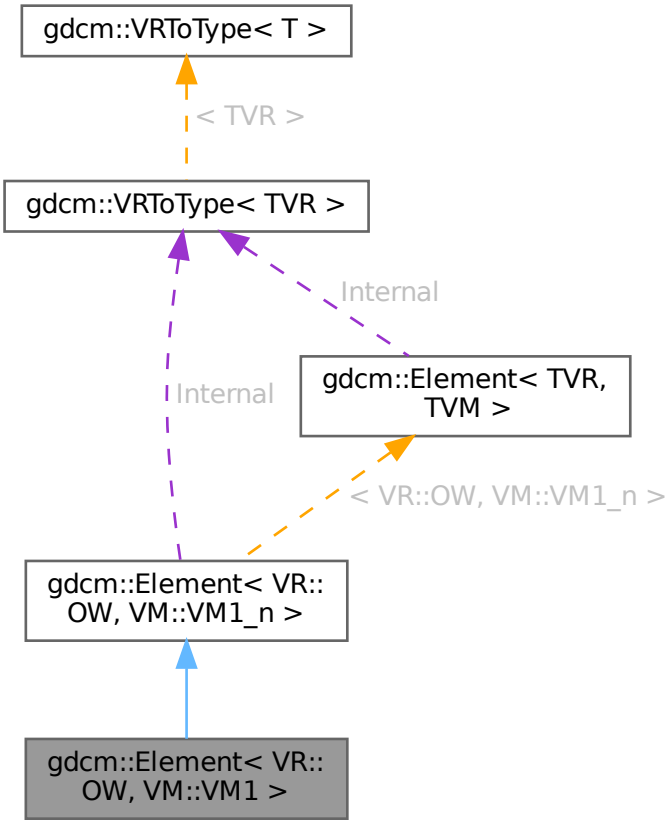
10.107 gdcm::Element< VR::OW, VM::VM1 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OW, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OW, VM::VM1 >:



Additional Inherited Members

Public Types inherited from gdcm::Element< VR::OW, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const

- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes inherited from gdcm::Element< VR::OW, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- void SetNoSwap (Value const &v)

The documentation for this class was generated from the following file:

- gdcmElement.h

10.108 gdcm::ElementDisableCombinations< TVR, TVM > Class Template Reference

A class which is used to produce compile errors for an invalid combination of template parameters.

```
#include <gdcmElement.h>
```

10.108.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::ElementDisableCombinations< TVR, TVM >

A class which is used to produce compile errors for an invalid combination of template parameters.

Invalid combinations have specialized declarations with no definition.

The documentation for this class was generated from the following file:

- gdcmElement.h

10.109 gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Reference

```
#include <gdcmElement.h>
```

The documentation for this class was generated from the following file:

- gdcmElement.h

10.110 gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Reference

```
#include <gdcmElement.h>
```

The documentation for this class was generated from the following file:

- gdcmElement.h

10.111 gdcm::EmptyMaskGenerator Class Reference

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

```
#include <gdcmEmptyMaskGenerator.h>
```

Public Types

- enum SOPClassUIDMode {
  UseOriginalSOPClassUID = 0 ,
  UseGrayscaleSecondaryImageStorage }

Public Member Functions

- EmptyMaskGenerator ()
- ~EmptyMaskGenerator ()
- bool Execute ()

  Main loop.
- void SetInputDirectory (const char *dirname)

  Specify input directory.
- void SetOutputDirectory (const char *dirname)

  Specify output directory.
- void SetSOPClassUIDMode (SOPClassUIDMode mode)

10.111.1 Detailed Description

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

The class allow two mode of operations:

- UseOriginalSOPClassUID
- UseGrayscaleSecondaryImageStorage

UseOriginalSOPClassUID is the mode where original attributes are copied from the original DICOM instance.

UseGrayscaleSecondaryImageStorage is the mode where attributes are generated so as to create a Multiframe↩ GrayscaleByteSecondaryCaptureImageStorage (MultiframeGrayscaleWordSecondaryCaptureImageStorage) instance.

In both mode:

- the Study references (StudyInstanceUID and StudyID) are preserved.
- the PatientID reference is preserved.
- the Image Type attribute will be setup so that the fourth element is set to 'MASK'.
- a new Series Instance UID is generated. It is thus required to run the process over all files using the same input Series Instance UID so that a proper mapping from the old Series UID is done to the new one. Since a new Series Instance UID is generated, there is no sense to preserve the original Frame of Reference UID, although it would have made sense here.

Examples

EmptyMask.cxx.

10.111.2 Member Enumeration Documentation

10.111.2.1 SOPClassUIDMode

`enum gdcm::EmptyMaskGenerator::SOPClassUIDMode`

Enumerator

UseOriginalSOPClassUID	
UseGrayscaleSecondaryImageStorage	

10.111.3 Constructor & Destructor Documentation

10.111.3.1 EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::EmptyMaskGenerator ( )
```

10.111.3.2 ~EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::~EmptyMaskGenerator ( )
```

10.111.4 Member Function Documentation

10.111.4.1 Execute()

```
bool gdcm::EmptyMaskGenerator::Execute ( )
```

Main loop.

Examples

EmptyMask.cxx.

10.111.4.2 SetInputDirectory()

```
void gdcm::EmptyMaskGenerator::SetInputDirectory (
            const char * dirname )
```

Specify input directory.

Examples

EmptyMask.cxx.

10.111.4.3 SetOutputDirectory()

```
void gdcm::EmptyMaskGenerator::SetOutputDirectory (
            const char * dirname )
```

Specify output directory.

Examples

EmptyMask.cxx.

10.111.4.4 SetSOPClassUIDMode()

```
void gdcm::EmptyMaskGenerator::SetSOPClassUIDMode (
            SOPClassUIDMode mode )
```

Select generation of SOP Class UID method: Default is UseOriginalSOPClassUID

Examples

EmptyMask.cxx.

The documentation for this class was generated from the following file:

- gdcmEmptyMaskGenerator.h

10.112 gdcm::EncapsulatedDocument Class Reference

EncapsulatedDocument.

```
#include <gdcmEncapsulatedDocument.h>
```

Public Member Functions

- EncapsulatedDocument ()=default

10.112.1 Detailed Description

EncapsulatedDocument.

10.112.2 Constructor & Destructor Documentation

10.112.2.1 EncapsulatedDocument()

```
gdcm::EncapsulatedDocument::EncapsulatedDocument ( ) [default]
```

The documentation for this class was generated from the following file:

- gdcmEncapsulatedDocument.h

10.113 gdcm::EncodingImplementation< T > Class Template Reference

EncodingImplementation.

10.113.1 Detailed Description

template<long long T>
class gdcm::EncodingImplementation< T >

EncodingImplementation.

Note

TODO

The documentation for this class was generated from the following file:

- gdcmElement.h

10.114 gdcm::EncodingImplementation< VR::VRASCII > Class Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- template<> void Write (const double *data, unsigned long length, std::ostream &_os)

Static Public Member Functions

- template<typename T >
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T >
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T >
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T >
  static void Write (const T *data, unsigned long length, std::ostream &_os)

10.114.1 Member Function Documentation

10.114.1.1 Read()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRASCII >::Read (
            T * data,
            unsigned long length,
            std::istream & _is )  [inline], [static]
```

10.114.1.2 ReadComputeLength()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is )  [inline], [static]
```

References gdcm::backslash().

10.114.1.3 ReadNoSwap()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRASCII >::ReadNoSwap (
            T * data,
            unsigned long length,
            std::istream & _is )  [inline], [static]
```

10.114.1.4 Write() [1/2]

```
template<>
void gdcm::EncodingImplementation< VR::VRASCII >::Write (
            const double * data,
            unsigned long length,
            std::ostream & _os )  [inline]
```

References gdcm::x16printf().

10.114.1.5 Write() [2/2]

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRASCII >::Write (
            const T * data,
            unsigned long length,
            std::ostream & _os )  [inline], [static]
```

The documentation for this class was generated from the following file:

- gdcmElement.h

10.115 gdcm::EncodingImplementation< VR::VRBINARY > Class Reference

```
#include <gdcmElement.h>
```

Static Public Member Functions

- template<typename T >
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T >
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T >
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T >
  static void Write (const T *data, unsigned long length, std::ostream &_os)

10.115.1 Member Function Documentation

10.115.1.1 Read()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRBINARY >::Read (
            T * data,
            unsigned long length,
            std::istream & _is )  [inline], [static]
```

10.115.1.2 ReadComputeLength()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRBINARY >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is )  [inline], [static]
```

10.115.1.3 ReadNoSwap()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRBINARY >::ReadNoSwap (
            T * data,
            unsigned long length,
            std::istream & _is )  [inline], [static]
```

10.115.1.4 Write()

```
template<typename T >
static void gdcm::EncodingImplementation< VR::VRBINARY >::Write (
            const T * data,
            unsigned long length,
            std::ostream & _os )  [inline], [static]
```

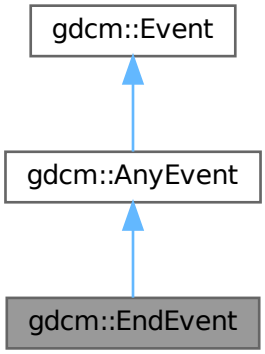
The documentation for this class was generated from the following file:

- gdcmElement.h

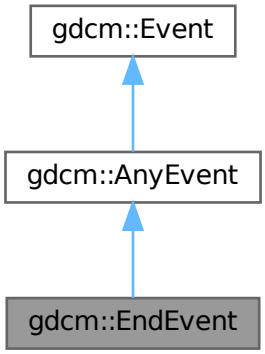
10.116 gdcm::EndEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::EndEvent:



Collaboration diagram for gdcm::EndEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.117 gdcm::EnumeratedValues Class Reference

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

```
#include <gdcmEnumeratedValues.h>
```

Public Member Functions

- EnumeratedValues ()=default

10.117.1 Detailed Description

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

1. Patient Sex (0010, 0040) is an example of a Data Element having Enumerated Values. It is defined to have a Value that is either "M", "F", or "O" (see PS 3.3). No other Value shall be given to this Data Element.
2. Future modifications of this standard may add to the set of allowed values for Data Elements with Enumerated Values. Such additions by themselves may or may not require a change in SOP Class UIDs, depending on the semantics of the Data Element.

10.117.2 Constructor & Destructor Documentation

10.117.2.1 EnumeratedValues()

```
gdcm::EnumeratedValues::EnumeratedValues ( ) [default]
```

The documentation for this class was generated from the following file:

- gdcmEnumeratedValues.h

10.118 gdcm::EquipmentManufacturer Class Reference

```
#include <gdcmEquipmentManufacturer.h>
```

Public Types

- enum Type {
  UNKNOWN = 0 ,
  FUJI ,
  GEMS ,
  HITACHI ,
  KODAK ,
  MARCONI ,
  PMS ,
  SIEMENS ,
  TOSHIBA ,
  AGFA ,
  SAMSUNG ,
  UIH }

Static Public Member Functions

- static Type Compute (DataSet const &ds)
- static const char * TypeToString (Type type)

10.118.1 Detailed Description

The intent is for private tags handling. This class is not meant to handle all possible vendors in the world, simply those well known where we intend to read private tags afterwards (typically SIEMENS+CSA, GEMS+PDB ...)

10.118.2 Member Enumeration Documentation

10.118.2.1 Type

```
enum gdcm::EquipmentManufacturer::Type
```

Enumerator

UNKNOWN	
FUJI	
GEMS	
HITACHI	
KODAK	
MARCONI	
PMS	
SIEMENS	
TOSHIBA	
AGFA	
SAMSUNG	
UIH	

10.118.3 Member Function Documentation

10.118.3.1 Compute()

```
static Type gdcm::EquipmentManufacturer::Compute (
            DataSet const & ds )  [static]
```

10.118.3.2 TypeToString()

```
static const char * gdcm::EquipmentManufacturer::TypeToString (
            Type type )  [static]
```

The documentation for this class was generated from the following file:

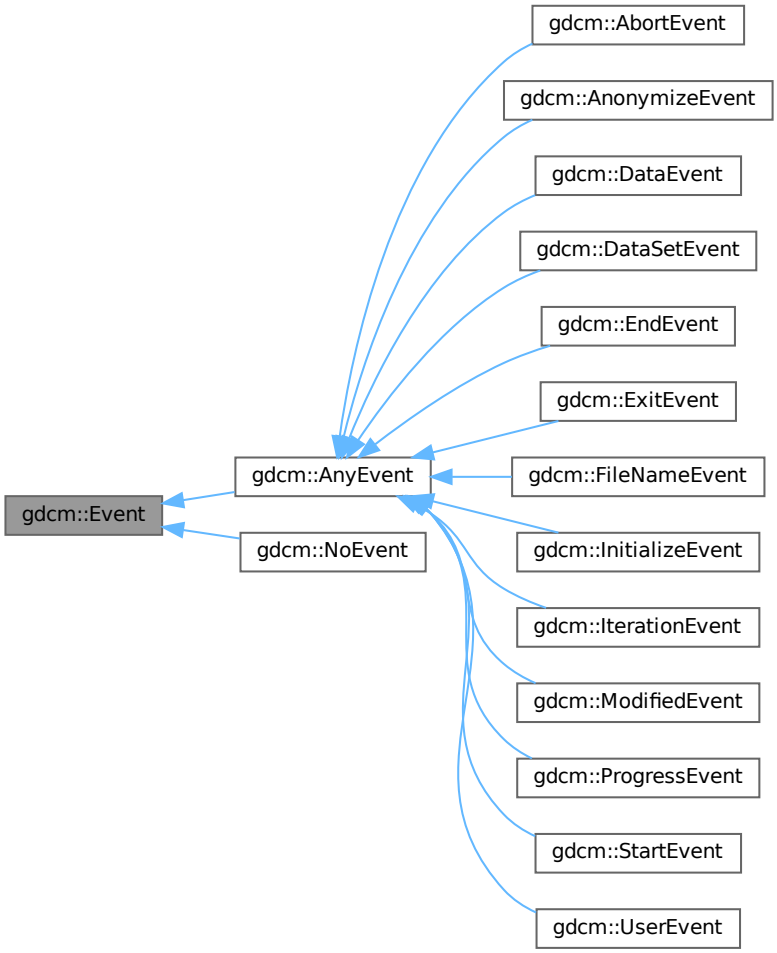
- gdcmEquipmentManufacturer.h

10.119 gdcm::Event Class Reference

superclass for callback/observer methods

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::Event:



Public Member Functions

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.119.1 Detailed Description

superclass for callback/observer methods

See also

Command Subject

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

10.119.2 Constructor & Destructor Documentation

10.119.2.1 Event() [1/2]

```
gdcm::Event::Event ( )
```

10.119.2.2 ~Event()

```
virtual gdcm::Event::~Event ( )  [virtual]
```

10.119.2.3 Event() [2/2]

```
gdcm::Event::Event (
            const Event &  )
```

10.119.3 Member Function Documentation

10.119.3.1 CheckEvent()

```
virtual bool gdcm::Event::CheckEvent (
            const Event *  ) const  [pure virtual]
```

Check if given event matches or derives from this event.

10.119.3.2 GetEventName()

```
virtual const char * gdcm::Event::GetEventName ( ) const  [pure virtual]
```

Return the StringName associated with the event.

Implemented in gdcm::DataEvent, gdcm::FileNameEvent, gdcm::ProgressEvent, gdcm::DataSetEvent, and gdcm::AnonymizeEvent.

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, and ScanDirectory.cs.

10.119.3.3 MakeObject()

```
virtual Event * gdcm::Event::MakeObject ( ) const  [pure virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implemented in gdcm::DataEvent, gdcm::FileNameEvent, gdcm::ProgressEvent, gdcm::DataSetEvent, and gdcm::AnonymizeEvent.

10.119.3.4 operator=()

```
void gdcm::Event::operator= (
            const Event &  )  [delete]
```

10.119.3.5 Print()

```
virtual void gdcm::Event::Print (
            std::ostream & os ) const  [virtual]
```

Print Event information. This method can be overridden by specific Event subtypes. The default is to print out the type of the event.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

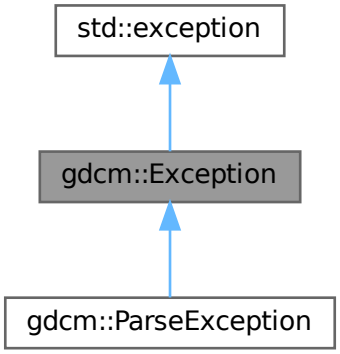
- gdcmEvent.h

10.120 gdcm::Exception Class Reference

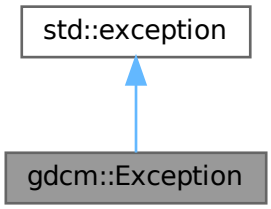
Exception.

```
#include <gdcmException.h>
```

Inheritance diagram for gdcm::Exception:



Collaboration diagram for gdcm::Exception:



Public Member Functions

- Exception (const char ∗desc="None", const char ∗file=__FILE__, unsigned int lineNumber=__LINE__, const char ∗func="")
- ∼Exception () override throw ()
- const char ∗ GetDescription () const

  Return the Description.
- const char ∗ what () const override throw ()

  what implementation

10.120.1 Detailed Description

Exception.

Standard exception handling object.

Note

Its copy-constructor and assignment operator are generated by the compiler.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileChangeTS.cs, and FileChangeTSLossy.cs.

10.120.2 Constructor & Destructor Documentation

10.120.2.1 Exception()

```
gdcm::Exception::Exception (
            const char * desc = "None",
            const char * file = __FILE__,
            unsigned int lineNumber = __LINE__,
            const char * func = "" )  [inline], [explicit]
```

Explicit constructor, initializing the description and the text returned by what().

Note

The last parameter is ignored for the time being. It may be used to specify the function where the exception was thrown.

10.120.2.2 ~Exception()

```
gdcm::Exception::~Exception ( ) throw ( )   [inline], [override]
```

10.120.3 Member Function Documentation

10.120.3.1 GetDescription()

```
const char * gdcm::Exception::GetDescription ( ) const  [inline]
```

Return the Description.

Referenced by gdcm::SequenceOfItems::Read().

10.120.3.2 what()

```
const char * gdcm::Exception::what ( ) const throw ( )   [inline], [override]
```

what implementation

Referenced by gdcm::SequenceOfFragments::ReadValue().

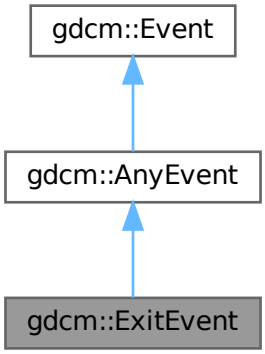
The documentation for this class was generated from the following file:

- gdcmException.h

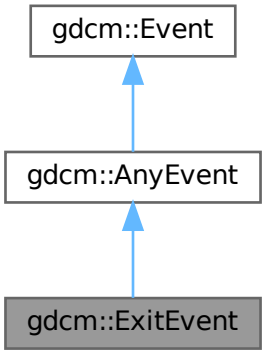
10.121 gdcm::ExitEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::ExitEvent:



Collaboration diagram for gdcm::ExitEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

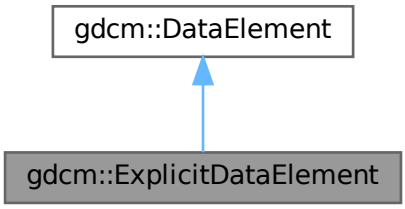
- gdcmEvent.h

10.122 gdcm::ExplicitDataElement Class Reference

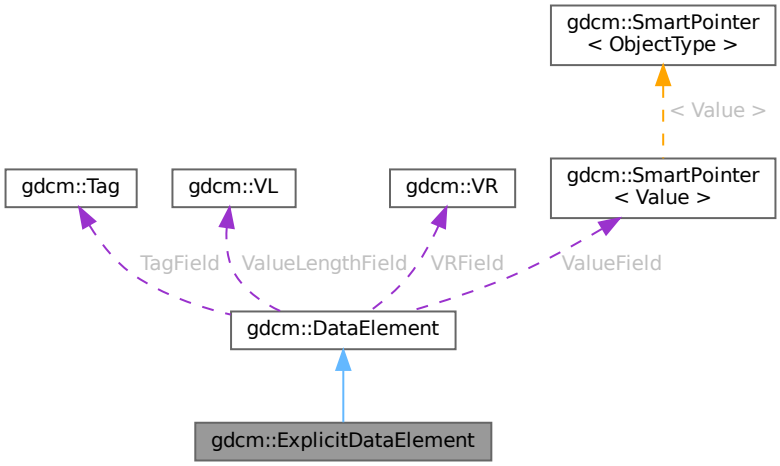
Class to read/write a DataElement as Explicit Data Element.

```
#include <gdcmExplicitDataElement.h>
```

Inheritance diagram for gdcm::ExplicitDataElement:



Collaboration diagram for gdcm::ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- template<typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const

- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.122.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

bla

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadAndDumpDICOMDIR2.cxx.

10.122.2 Member Function Documentation

10.122.2.1 GetLength()

```
VL gdcm::ExplicitDataElement::GetLength ( ) const
```

10.122.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::ExplicitDataElement::Read (
            std::istream & is )
```

10.122.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::ExplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.122.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::ExplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.122.2.5 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::ExplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length )
```

10.122.2.6 Write()

```
template<typename TSwap >
const std::ostream & gdcm::ExplicitDataElement::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

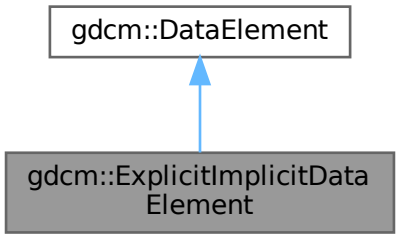
- gdcmExplicitDataElement.h

10.123 gdcm::ExplicitImplicitDataElement Class Reference

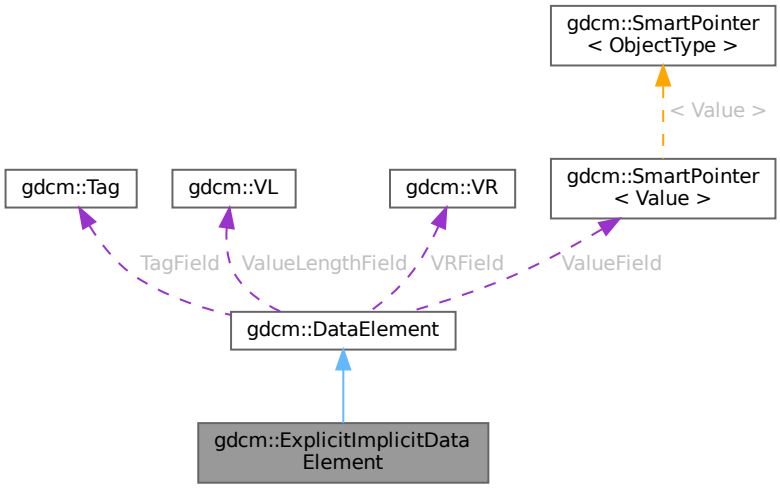
Class to read/write a DataElement as ExplicitImplicit Data Element.

```
#include <gdcmExplicitImplicitDataElement.h>
```

Inheritance diagram for gdcm::ExplicitImplicitDataElement:



Collaboration diagram for gdcm::ExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()

- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.123.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

Note

This only happen for some Philips images Should I derive from ExplicitDataElement instead ? This is the class that is the closest the GDCM1.x parser. At each element we try first to read it as explicit, if this fails, then we try again as an implicit element.

10.123.2 Member Function Documentation

10.123.2.1 GetLength()

```
VL gdcm::ExplicitImplicitDataElement::GetLength ( ) const
```

10.123.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::ExplicitImplicitDataElement::Read (
            std::istream & is )
```

10.123.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::ExplicitImplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.123.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::ExplicitImplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.123.2.5 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::ExplicitImplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmExplicitImplicitDataElement.h

10.124 gdcm::Fiducials Class Reference

Fiducials.

```
#include <gdcmFiducials.h>
```

Public Member Functions

- Fiducials ()=default

10.124.1 Detailed Description

Fiducials.

10.124.2 Constructor & Destructor Documentation

10.124.2.1 Fiducials()

```
gdcm::Fiducials::Fiducials ( )  [default]
```

The documentation for this class was generated from the following file:

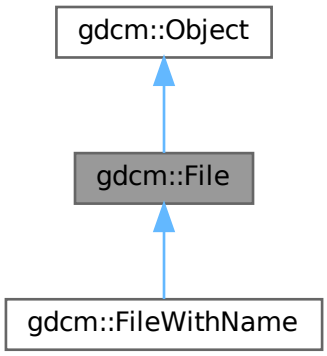
- gdcmFiducials.h

10.125 gdcm::File Class Reference

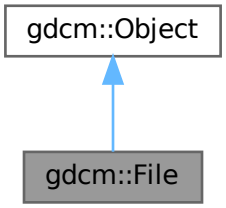
a DICOM File

```
#include <gdcmFile.h>
```

Inheritance diagram for gdcm::File:



Collaboration diagram for gdcm::File:



Public Member Functions

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.

- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Friends

- std::ostream & operator<< (std::ostream &os, const File &val)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.125.1 Detailed Description

a DICOM File

See PS 3.10 File: A File is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the File. Files are identified by a unique File ID and may by written, read and/or deleted.

See also

Reader Writer

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpCSA.cs, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cx FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SimplePrintPatientName.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

10.125.2 Constructor & Destructor Documentation

10.125.2.1 File()

```
gdcm::File::File ( )
```

10.125.2.2 ~File()

```
gdcm::File::~File ( ) [override]
```

References gdcm::operator<<().

10.125.3 Member Function Documentation

10.125.3.1 GetDataSet() [1/2]

```
DataSet & gdcm::File::GetDataSet ( ) [inline]
```

Get Data Set.

10.125.3.2 GetDataSet() [2/2]

```
const DataSet & gdcm::File::GetDataSet ( ) const  [inline]
```

Get Data Set.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.125.3.3 GetHeader() [1/2]

```
FileMetaInformation & gdcm::File::GetHeader ( )  [inline]
```

Get File Meta Information.

10.125.3.4 GetHeader() [2/2]

```
const FileMetaInformation & gdcm::File::GetHeader ( ) const  [inline]
```

Get File Meta Information.

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, StandardizeFiles.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.125.3.5 Read()

```
std::istream & gdcm::File::Read (
            std::istream & is )
```

Read.

10.125.3.6 SetDataSet()

```
void gdcm::File::SetDataSet (
            const DataSet & ds )  [inline]
```

Set Data Set.

10.125.3.7 SetHeader()

```
void gdcm::File::SetHeader (
            const FileMetaInformation & fmi )  [inline]
```

Set File Meta Information.

10.125.3.8 Write()

```
std::ostream const & gdcm::File::Write (
            std::ostream & os ) const
```

Write.

10.125.4 Friends And Related Symbol Documentation

10.125.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const File & val )  [friend]
```

The documentation for this class was generated from the following file:

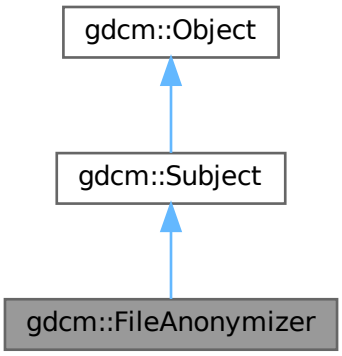
- gdcmFile.h

10.126 gdcm::FileAnonymizer Class Reference

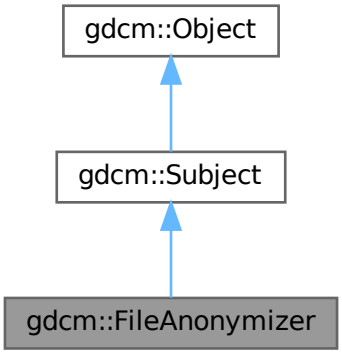
FileAnonymizer.

```
#include <gdcmFileAnonymizer.h>
```

Inheritance diagram for gdcm::FileAnonymizer:



Collaboration diagram for gdcm::FileAnonymizer:



Public Member Functions

- FileAnonymizer ()
- ~FileAnonymizer () override
- void Empty (Tag const &t)
- void Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- void Replace (Tag const &t, const char *value_data, VL const &vl)
- void Replace (Tag const &t, const char *value_str)
- void SetInputFileName (const char *filename_native)

  Set input filename.
- void SetOutputFileName (const char *filename_native)

  Set output filename.
- bool Write ()

  Write the output file.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.126.1 Detailed Description

FileAnonymizer.

This Anonymizer is a file-based Anonymizer. It requires a valid DICOM file and will use the Value Length to skip over any information.

It will not load the DICOM dataset taken from SetInputFileName() into memory and should consume much less memory than Anonymizer.

Warning

: Each time you call Replace() with a value. This value will copied, and stored in memory. The behavior is not ideal for extremely large data (larger than memory size). This class is really meant to take a large DICOM input file and then only changed some small attribute.

caveats:

- This class will NOT work with unordered attributes in a DICOM File,
- This class does neither recompute nor update the Group Length element,
- This class currently does not update the File Meta Information header.
- Only strict inplace Replace operation is supported when input and output file are the same.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

10.126.2 Constructor & Destructor Documentation

10.126.2.1 FileAnonymizer()

```
gdcm::FileAnonymizer::FileAnonymizer ( )
```

10.126.2.2 ~FileAnonymizer()

```
gdcm::FileAnonymizer::~FileAnonymizer ( )  [override]
```

10.126.3 Member Function Documentation

10.126.3.1 Empty()

```
void gdcm::FileAnonymizer::Empty (
            Tag const & t )
```

Make Tag t empty Warning: does not handle SQ element

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

10.126.3.2 Remove()

```
void gdcm::FileAnonymizer::Remove (
            Tag const & t )
```

remove a tag (even a SQ can be removed)

Examples

FileAnonymize.cs.

10.126.3.3 Replace() [1/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_data,
            VL const & vl )
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

10.126.3.4 Replace() [2/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_str )
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII WARNING: Do not ever try to write a value in a SQ Data Element !

Examples

FileAnonymize.cs.

10.126.3.5 SetInputFileName()

```
void gdcm::FileAnonymizer::SetInputFileName (
            const char * filename_native )
```

Set input filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

10.126.3.6 SetOutputFileName()

```
void gdcm::FileAnonymizer::SetOutputFileName (
            const char * filename_native )
```

Set output filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

10.126.3.7 Write()

```
bool gdcm::FileAnonymizer::Write ( )
```

Write the output file.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

The documentation for this class was generated from the following file:

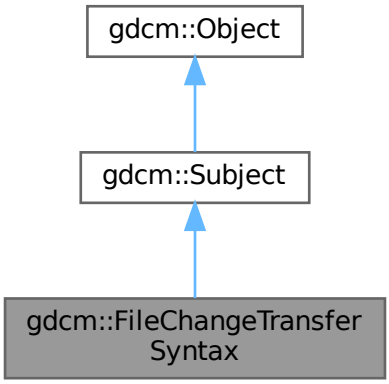
- gdcmFileAnonymizer.h

10.127 gdcm::FileChangeTransferSyntax Class Reference

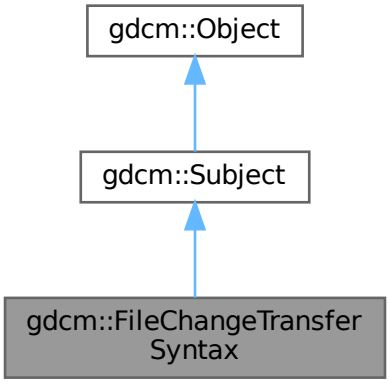
FileChangeTransferSyntax.

```
#include <gdcmFileChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::FileChangeTransferSyntax:



Collaboration diagram for gdcm::FileChangeTransferSyntax:



Public Member Functions

- FileChangeTransferSyntax ()
- ~FileChangeTransferSyntax () override
- bool Change ()

  Change the transfer syntax.
- ImageCodec * GetCodec ()
- void SetInputFileName (const char *filename_native)

  Set input filename (raw DICOM)
- void SetOutputFileName (const char *filename_native)

  Set output filename (target compressed DICOM)
- void SetTransferSyntax (TransferSyntax const &ts)

  Specify the Target Transfer Syntax.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileChangeTransferSyntax > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.127.1 Detailed Description

FileChangeTransferSyntax.

This class is a file-based (limited) replacement of the in-memory ImageChangeTransferSyntax.

This class provide a file-based compression-only mechanism. It will take in an uncompressed DICOM image file (Pixel Data element). Then produced as output a compressed DICOM file (Transfer Syntax will be updated).

Currently it supports the following transfer syntax:

- JPEGLosslessProcess14_1

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

10.127.2 Constructor & Destructor Documentation

10.127.2.1 FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::FileChangeTransferSyntax ( )
```

10.127.2.2 ~FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::~FileChangeTransferSyntax ( ) [override]
```

10.127.3 Member Function Documentation

10.127.3.1 Change()

```
bool gdcm::FileChangeTransferSyntax::Change ( )
```

Change the transfer syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

10.127.3.2 GetCodec()

```
ImageCodec * gdcm::FileChangeTransferSyntax::GetCodec ( )
```

Retrieve the actual codec (valid after calling SetTransferSyntax) Only advanced users should call this function.

Examples

FileChangeTSLossy.cs.

10.127.3.3 New()

```
static SmartPointer< FileChangeTransferSyntax > gdcm::FileChangeTransferSyntax::New ( ) [inline],
[static]
```

for wrapped language: instantiate a reference counted object

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

10.127.3.4 SetInputFileName()

```
void gdcm::FileChangeTransferSyntax::SetInputFileName (
            const char * filename_native )
```

Set input filename (raw DICOM)

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

10.127.3.5 SetOutputFileName()

```
void gdcm::FileChangeTransferSyntax::SetOutputFileName (
            const char * filename_native )
```

Set output filename (target compressed DICOM)

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

10.127.3.6 SetTransferSyntax()

```
void gdcm::FileChangeTransferSyntax::SetTransferSyntax (
            TransferSyntax const & ts )
```

Specify the Target Transfer Syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

The documentation for this class was generated from the following file:

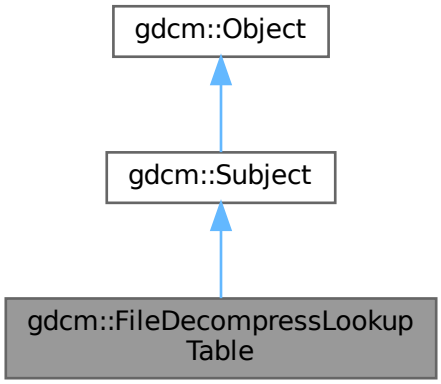
- gdcmFileChangeTransferSyntax.h

10.128 gdcm::FileDecompressLookupTable Class Reference

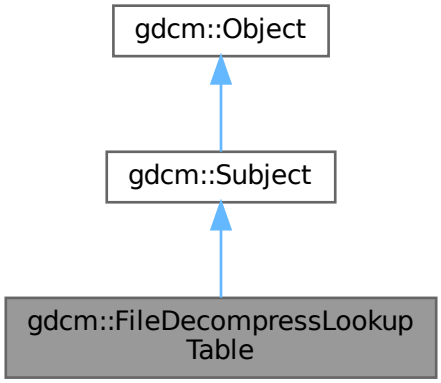
FileDecompressLookupTable class.

```
#include <gdcmFileDecompressLookupTable.h>
```

Inheritance diagram for gdcm::FileDecompressLookupTable:



Collaboration diagram for gdcm::FileDecompressLookupTable:



Public Member Functions

- FileDecompressLookupTable ()=default
- ~FileDecompressLookupTable () override=default
- bool Change ()

  Decompress.
- File & GetFile ()
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetFile (const File &f)

  Set/Get File.
- void SetPixmap (Pixmap const &img)

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.128.1 Detailed Description

FileDecompressLookupTable class.

It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

10.128.2 Constructor & Destructor Documentation

10.128.2.1 FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::FileDecompressLookupTable ( ) [default]
```

10.128.2.2 ~FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::~FileDecompressLookupTable ( ) [override], [default]
```

10.128.3 Member Function Documentation

10.128.3.1 Change()

```
bool gdcm::FileDecompressLookupTable::Change ( )
```

Decompress.

10.128.3.2 GetFile()

```
File & gdcm::FileDecompressLookupTable::GetFile ( )  [inline]
```

10.128.3.3 GetPixmap() [1/2]

```
Pixmap & gdcm::FileDecompressLookupTable::GetPixmap ( )  [inline]
```

10.128.3.4 GetPixmap() [2/2]

```
const Pixmap & gdcm::FileDecompressLookupTable::GetPixmap ( ) const  [inline]
```

10.128.3.5 SetFile()

```
void gdcm::FileDecompressLookupTable::SetFile (
            const File & f )  [inline]
```

Set/Get File.

10.128.3.6 SetPixmap()

```
void gdcm::FileDecompressLookupTable::SetPixmap (
            Pixmap const & img )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileDecompressLookupTable.h

10.129 gdcm::FileDerivation Class Reference

FileDerivation class.

```
#include <gdcmFileDerivation.h>
```

Public Member Functions

- FileDerivation ()
- ~FileDerivation ()
- bool AddReference (const char *referencedsopclassuid, const char *referencedsopinstanceuid)
- bool Derive ()

  Change.
- File & GetFile ()
- const File & GetFile () const
- void SetAppendDerivationHistory (bool b)
- void SetDerivationCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Derivation Code Sequence Code Value. Eg 113040.
- void SetDerivationDescription (const char *dd)

  Specify the Derivation Description. Eg "lossy conversion".
- void SetFile (const File &f)

  Set/Get File.
- void SetPurposeOfReferenceCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Purpose Of Reference Code Value. Eg. 121320.

Protected Member Functions

- bool AddDerivationDescription ()
- bool AddPurposeOfReferenceCodeSequence (DataSet &ds)
- bool AddSourceImageSequence ()

10.129.1 Detailed Description

FileDerivation class.

See PS 3.16 - 2008 For the list of Code Value that can be used for in Derivation Code Sequence

URL: `http://medical.nema.org/medical/dicom/2008/08_16pu.pdf`

DICOM Part 16 has two Context Groups CID 7202 and CID 7203 which contain a set of codes defining reason for a source image reference (ie. reason code for referenced image sequence) and a coded description of the deriation applied to the new image data from the original. Both these context groups are extensible.

File Derivation is compulsory when creating a lossy derived image.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

10.129.2 Constructor & Destructor Documentation

10.129.2.1 FileDerivation()

```
gdcm::FileDerivation::FileDerivation ( )
```

10.129.2.2 ~FileDerivation()

```
gdcm::FileDerivation::~FileDerivation ( )
```

10.129.3 Member Function Documentation

10.129.3.1 AddDerivationDescription()

```
bool gdcm::FileDerivation::AddDerivationDescription ( )  [protected]
```

10.129.3.2 AddPurposeOfReferenceCodeSequence()

```
bool gdcm::FileDerivation::AddPurposeOfReferenceCodeSequence (
            DataSet & ds )  [protected]
```

10.129.3.3 AddReference()

```
bool gdcm::FileDerivation::AddReference (
            const char * referencedsopclassuid,
            const char * referencedsopinstanceuid )
```

Create the proper reference. Need to pass the original SOP Class UID and the original SOP Instance UID, so that those value can be used as Reference.

Warning

referencedsopclassuid and referencedsopinstanceuid needs to be \0 padded. This is not compatible with how ByteValue->GetPointer works.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

10.129.3.4 AddSourceImageSequence()

```
bool gdcm::FileDerivation::AddSourceImageSequence ( )  [protected]
```

10.129.3.5 Derive()

```
bool gdcm::FileDerivation::Derive ( )
```

Change.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

10.129.3.6 GetFile() [1/2]

```
File & gdcm::FileDerivation::GetFile ( )  [inline]
```

Examples

GenFakeImage.cxx, and ReformatFile.cs.

10.129.3.7 GetFile() [2/2]

```
const File & gdcm::FileDerivation::GetFile ( ) const  [inline]
```

10.129.3.8 SetAppendDerivationHistory()

```
void gdcm::FileDerivation::SetAppendDerivationHistory (
            bool b )
```

Specify if Derivation history should be appended (default false) When false, this is an error if input already has a derivation history When true, both Purpose of Reference Code Value and Derivation Code Sequence Code Value can have their history appended.

10.129.3.9 SetDerivationCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetDerivationCodeSequenceCodeValue (
            unsigned int codevalue )
```

Specify the Derivation Code Sequence Code Value. Eg 113040.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

10.129.3.10 SetDerivationDescription()

```
void gdcm::FileDerivation::SetDerivationDescription (
            const char * dd )
```

Specify the Derivation Description. Eg "lossy conversion".

10.129.3.11 SetFile()

```
void gdcm::FileDerivation::SetFile (
            const File & f )  [inline]
```

Set/Get File.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

10.129.3.12 SetPurposeOfReferenceCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetPurposeOfReferenceCodeSequenceCodeValue (
            unsigned int codevalue )
```

Specify the Purpose Of Reference Code Value. Eg. 121320.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

The documentation for this class was generated from the following file:

- gdcmFileDerivation.h

10.130 gdcm::FileExplicitFilter Class Reference

FileExplicitFilter class.

```
#include <gdcmFileExplicitFilter.h>
```

Public Member Functions

- FileExplicitFilter ()
- ~FileExplicitFilter ()=default
- bool Change ()

  Set FMI Transfer Syntax.
- File & GetFile ()
- void SetChangePrivateTags (bool b)

  Decide whether or not to VR'ify private tags.
- void SetFile (const File &f)

  Set/Get File.
- void SetRecomputeItemLength (bool b)

  By default set Sequence & Item length to Undefined to avoid recomputing length:
- void SetRecomputeSequenceLength (bool b)
- void SetUseVRUN (bool b)

  When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

Protected Member Functions

- bool ChangeFMI ()
- bool ProcessDataSet (DataSet &ds, Dicts const &dicts)

10.130.1 Detailed Description

FileExplicitFilter class.

After changing a file from Implicit to Explicit representation (see ImageChangeTransferSyntax) one operation is to make sure the VR of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the VR is not stored directly in the file.

Warning

changing an implicit dataset to an explicit dataset is NOT a trivial task of simply changing the VR to the dict one:

- One has to make sure SQ is properly set
- One has to recompute the explicit length SQ
- One has to make sure that VR is valid for the encoding
- One has to make sure that VR 16bits can store the original value length

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

10.130.2 Constructor & Destructor Documentation

10.130.2.1 FileExplicitFilter()

```
gdcm::FileExplicitFilter::FileExplicitFilter ( ) [inline]
```

10.130.2.2 ~FileExplicitFilter()

```
gdcm::FileExplicitFilter::~FileExplicitFilter ( ) [default]
```

10.130.3 Member Function Documentation

10.130.3.1 Change()

```
bool gdcm::FileExplicitFilter::Change ( )
```

Set FMI Transfer Syntax.

Change

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

10.130.3.2 ChangeFMI()

```
bool gdcm::FileExplicitFilter::ChangeFMI ( ) [protected]
```

10.130.3.3 GetFile()

```
File & gdcm::FileExplicitFilter::GetFile ( ) [inline]
```

10.130.3.4 ProcessDataSet()

```
bool gdcm::FileExplicitFilter::ProcessDataSet (
            DataSet & ds,
            Dicts const & dicts ) [protected]
```

10.130.3.5 SetChangePrivateTags()

```
void gdcm::FileExplicitFilter::SetChangePrivateTags (
            bool b ) [inline]
```

Decide whether or not to VR'ify private tags.

10.130.3.6 SetFile()

```
void gdcm::FileExplicitFilter::SetFile (
            const File & f ) [inline]
```

Set/Get File.

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

10.130.3.7 SetRecomputeItemLength()

```
void gdcm::FileExplicitFilter::SetRecomputeItemLength (
            bool b )
```

By default set Sequence & Item length to Undefined to avoid recomputing length:

10.130.3.8 SetRecomputeSequenceLength()

```
void gdcm::FileExplicitFilter::SetRecomputeSequenceLength (
            bool b )
```

10.130.3.9 SetUseVRUN()

```
void gdcm::FileExplicitFilter::SetUseVRUN (
            bool b )  [inline]
```

When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

The documentation for this class was generated from the following file:

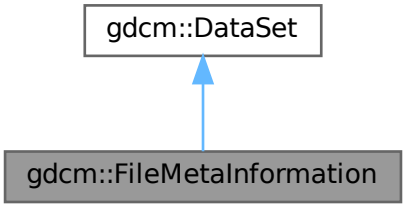
- gdcmFileExplicitFilter.h

10.131 gdcm::FileMetaInformation Class Reference

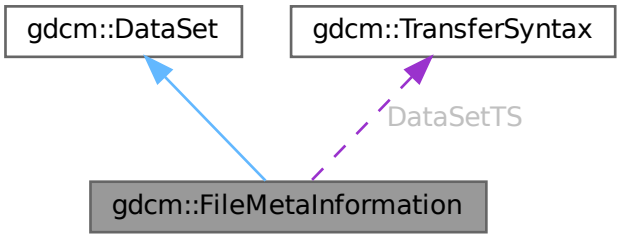
Class to represent a File Meta Information.

```
#include <gdcmFileMetaInformation.h>
```

Inheritance diagram for gdcm::FileMetaInformation:



Collaboration diagram for gdcm::FileMetaInformation:



Public Member Functions

- FileMetaInformation ()
- FileMetaInformation (FileMetaInformation const &fmi)=default
- ~FileMetaInformation ()
- void FillFromDataSet (DataSet const &ds)

  Construct a FileMetaInformation from an already existing DataSet:
- const TransferSyntax & GetDataSetTransferSyntax () const
- VL GetFullLength () const
- MediaStorage GetMediaStorage () const
- std::string GetMediaStorageAsString () const
- TransferSyntax::NegociatedType GetMetaInformationTS () const
- Preamble & GetPreamble ()
- const Preamble & GetPreamble () const

  Get Preamble.
- void Insert (const DataElement &de)
- bool IsValid () const
- FileMetaInformation & operator= (const FileMetaInformation &fmi)=default
- std::istream & Read (std::istream &is)

  Read.
- std::istream & ReadCompat (std::istream &is)
- void Replace (const DataElement &de)
- void SetDataSetTransferSyntax (const TransferSyntax &ts)
- void SetPreamble (const Preamble &p)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE >
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE >
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const

- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadNested (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE , typename TSwap >
  std::ostream const & Write (std::ostream &os) const

Static Public Member Functions

- static void AppendImplementationClassUID (const char *imp)
- static const char * GetImplementationClassUID ()
- static const char * GetImplementationVersionName ()
- static const char * GetSourceApplicationEntityTitle ()
- static void SetImplementationClassUID (const char *imp)

  Override the GDCM default values:
- static void SetImplementationVersionName (const char *version)
- static void SetSourceApplicationEntityTitle (const char *title)

Protected Member Functions

- void ComputeDataSetMediaStorageSOPClass ()
- void ComputeDataSetTransferSyntax ()
- void Default ()
- template<typename TSwap >
  std::istream & ReadCompatInternal (std::istream &is)

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Static Protected Member Functions

- static const char * GetFileMetaInformationVersion ()
- static const char * GetGDCMImplementationClassUID ()
- static const char * GetGDCMImplementationVersionName ()
- static const char * GetGDCMSourceApplicationEntityTitle ()

Protected Attributes

- MediaStorage::MSType DataSetMS
- TransferSyntax DataSetTS
- TransferSyntax::NegociatedType MetaInformationTS

Friends

- std::ostream & operator<< (std::ostream &_os, const FileMetaInformation &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

10.131.1 Detailed Description

Class to represent a File Meta Information.

FileMetaInformation is a Explicit Structured Set. Whenever the file contains an ImplicitDataElement DataSet, a conversion will take place.

Definition: The File Meta Information includes identifying information on the encapsulated Data Set. This header consists of a 128 byte File Preamble, followed by a 4 byte DICOM prefix, followed by the File Meta Elements shown in Table 7.1-1. This header shall be present in every DICOM file.

See also

Writer Reader

Examples

ClinicalTrialIdentificationWorkflow.cs, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, and StandardizeFiles.cs.

10.131.2 Constructor & Destructor Documentation

10.131.2.1 FileMetaInformation() [1/2]

```
gdcm::FileMetaInformation::FileMetaInformation ( )
```

10.131.2.2 ~FileMetaInformation()

```
gdcm::FileMetaInformation::~FileMetaInformation ( )
```

References gdcm::operator<<().

10.131.2.3 FileMetaInformation() [2/2]

```
gdcm::FileMetaInformation::FileMetaInformation (
            FileMetaInformation const & fmi )  [default]
```

10.131.3 Member Function Documentation

10.131.3.1 AppendImplementationClassUID()

```
static void gdcm::FileMetaInformation::AppendImplementationClassUID (
            const char * imp )  [static]
```

10.131.3.2 ComputeDataSetMediaStorageSOPClass()

```
void gdcm::FileMetaInformation::ComputeDataSetMediaStorageSOPClass ( ) [protected]
```

10.131.3.3 ComputeDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::ComputeDataSetTransferSyntax ( ) [protected]
```

10.131.3.4 Default()

```
void gdcm::FileMetaInformation::Default ( ) [protected]
```

10.131.3.5 FillFromDataSet()

```
void gdcm::FileMetaInformation::FillFromDataSet (
            DataSet const & ds )
```

Construct a FileMetaInformation from an already existing DataSet:

10.131.3.6 GetDataSetTransferSyntax()

```
const TransferSyntax & gdcm::FileMetaInformation::GetDataSetTransferSyntax ( ) const [inline]
```

Examples

GetJPEGSamplePrecision.cxx, and MergeTwoFiles.cxx.

10.131.3.7 GetFileMetaInformationVersion()

```
static const char * gdcm::FileMetaInformation::GetFileMetaInformationVersion ( ) [static], [protected]
```

10.131.3.8 GetFullLength()

```
VL gdcm::FileMetaInformation::GetFullLength ( ) const [inline]
```

References gdcm::VL::GetLength().

10.131.3.9 GetGDCMImplementationClassUID()

```
static const char * gdcm::FileMetaInformation::GetGDCMImplementationClassUID ( ) [static], [protected]
```

10.131.3.10 GetGDCMImplementationVersionName()

```
static const char * gdcm::FileMetaInformation::GetGDCMImplementationVersionName ( ) [static],
[protected]
```

10.131.3.11 GetGDCMSourceApplicationEntityTitle()

```
static const char * gdcm::FileMetaInformation::GetGDCMSourceApplicationEntityTitle ( ) [static],
[protected]
```

10.131.3.12 GetImplementationClassUID()

```
static const char * gdcm::FileMetaInformation::GetImplementationClassUID ( ) [static]
```

10.131.3.13 GetImplementationVersionName()

```
static const char * gdcm::FileMetaInformation::GetImplementationVersionName ( ) [static]
```

10.131.3.14 GetMediaStorage()

```
MediaStorage gdcm::FileMetaInformation::GetMediaStorage ( ) const
```

10.131.3.15 GetMediaStorageAsString()

```
std::string gdcm::FileMetaInformation::GetMediaStorageAsString ( ) const
```

10.131.3.16 GetMetaInformationTS()

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::GetMetaInformationTS ( ) const [inline]
```

10.131.3.17 GetPreamble() [1/2]

```
Preamble & gdcm::FileMetaInformation::GetPreamble ( ) [inline]
```

10.131.3.18 GetPreamble() [2/2]

```
const Preamble & gdcm::FileMetaInformation::GetPreamble ( ) const [inline]
```

Get Preamble.

10.131.3.19 GetSourceApplicationEntityTitle()

```
static const char * gdcm::FileMetaInformation::GetSourceApplicationEntityTitle ( ) [static]
```

10.131.3.20 Insert()

```
void gdcm::FileMetaInformation::Insert (
            const DataElement & de ) [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), and gdcm::DataElement::GetTag().

10.131.3.21 IsValid()

```
bool gdcm::FileMetaInformation::IsValid ( ) const [inline]
```

10.131.3.22 operator=()

```
FileMetaInformation & gdcm::FileMetaInformation::operator= (
            const FileMetaInformation & fmi ) [default]
```

10.131.3.23 Read()

```
std::istream & gdcm::FileMetaInformation::Read (
            std::istream & is )
```

Read.

10.131.3.24 ReadCompat()

```
std::istream & gdcm::FileMetaInformation::ReadCompat (
            std::istream & is )
```

10.131.3.25 ReadCompatInternal()

```
template<typename TSwap >
std::istream & gdcm::FileMetaInformation::ReadCompatInternal (
            std::istream & is ) [protected]
```

10.131.3.26 Replace()

```
void gdcm::FileMetaInformation::Replace (
            const DataElement & de )  [inline]
```

Examples

LargeVRDSExplicit.cxx.

References gdcm::DataElement::GetTag().

10.131.3.27 SetDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::SetDataSetTransferSyntax (
            const TransferSyntax & ts )
```

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.131.3.28 SetImplementationClassUID()

```
static void gdcm::FileMetaInformation::SetImplementationClassUID (
            const char * imp )  [static]
```

Override the GDCM default values:

10.131.3.29 SetImplementationVersionName()

```
static void gdcm::FileMetaInformation::SetImplementationVersionName (
            const char * version )  [static]
```

10.131.3.30 SetPreamble()

```
void gdcm::FileMetaInformation::SetPreamble (
            const Preamble & p )  [inline]
```

10.131.3.31 SetSourceApplicationEntityTitle()

```
static void gdcm::FileMetaInformation::SetSourceApplicationEntityTitle (
            const char * title )  [static]
```

Examples

ClinicalTrialIdentificationWorkflow.cs, FixJAIBugJPEGLS.cxx, GenerateDICOMDIR.cs, ReformatFile.cs, and StandardizeFiles.cs.

10.131.3.32 Write()

```
std::ostream & gdcm::FileMetaInformation::Write (
            std::ostream & os ) const
```

Write.

10.131.4 Friends And Related Symbol Documentation

10.131.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileMetaInformation & _val )  [friend]
```

10.131.5 Member Data Documentation

10.131.5.1 DataSetMS

```
MediaStorage::MSType gdcm::FileMetaInformation::DataSetMS  [protected]
```

10.131.5.2 DataSetTS

```
TransferSyntax gdcm::FileMetaInformation::DataSetTS  [protected]
```

10.131.5.3 MetaInformationTS

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::MetaInformationTS  [protected]
```

The documentation for this class was generated from the following file:

- gdcmFileMetaInformation.h

10.132 gdcm::Filename Class Reference

Class to manipulate file name's.

```
#include <gdcmFilename.h>
```

Public Member Functions

- Filename (const char *filename="")
- bool EndWith (const char ending[ ]) const

  Does the filename ends with a particular string ?
- const char * GetExtension ()

  return only the extension part of a filename
- const char * GetFileName () const

  Return the full filename.
- const char * GetName ()

  return only the name part of a filename
- const char * GetPath ()

  Return only the path component of a filename.
- bool IsEmpty () const

  return whether the filename is empty
- bool IsIdentical (Filename const &fn) const
- operator const char * () const
- const char * ToUnixSlashes ()

  Convert backslash (windows style) to UNIX style slash.
- const char * ToWindowsSlashes ()

  Convert forward slash (UNIX style) to windows style slash.

Static Public Member Functions

- static const char * Join (const char *path, const char *filename)

10.132.1 Detailed Description

Class to manipulate file name's.

Note

OS independent representation of a filename (to query path, name and extension from a filename)

Examples

ClinicalTrialIdentificationWorkflow.cs.

10.132.2 Constructor & Destructor Documentation

10.132.2.1 Filename()

```
gdcm::Filename::Filename (
            const char * filename = "" )  [inline]
```

10.132.3 Member Function Documentation

10.132.3.1 EndWith()

```
bool gdcm::Filename::EndWith (
            const char ending[] ) const
```

Does the filename ends with a particular string ?

10.132.3.2 GetExtension()

```
const char * gdcm::Filename::GetExtension ( )
```

return only the extension part of a filename

10.132.3.3 GetFileName()

```
const char * gdcm::Filename::GetFileName ( ) const  [inline]
```

Return the full filename.

10.132.3.4 GetName()

```
const char * gdcm::Filename::GetName ( )
```

return only the name part of a filename

10.132.3.5 GetPath()

```
const char * gdcm::Filename::GetPath ( )
```

Return only the path component of a filename.

Examples

ClinicalTrialIdentificationWorkflow.cs.

10.132.3.6 IsEmpty()

```
bool gdcm::Filename::IsEmpty ( ) const  [inline]
```

return whether the filename is empty

10.132.3.7 IsIdentical()

```
bool gdcm::Filename::IsIdentical (
            Filename const & fn ) const
```

10.132.3.8 Join()

```
static const char * gdcm::Filename::Join (
            const char * path,
            const char * filename )  [static]
```

Join two paths NOT THREAD SAFE

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.132.3.9 operator const char *()

```
gdcm::Filename::operator const char * ( ) const  [inline]
```

Simple operator to allow Filename myfilename("..."); const char * s = myfilename;

10.132.3.10 ToUnixSlashes()

```
const char * gdcm::Filename::ToUnixSlashes ( )
```

Convert backslash (windows style) to UNIX style slash.

10.132.3.11 ToWindowsSlashes()

```
const char * gdcm::Filename::ToWindowsSlashes ( )
```

Convert forward slash (UNIX style) to windows style slash.

The documentation for this class was generated from the following file:

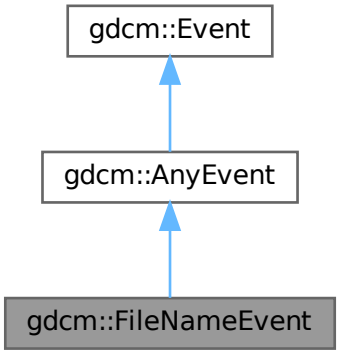
- gdcmFilename.h

10.133 gdcm::FileNameEvent Class Reference

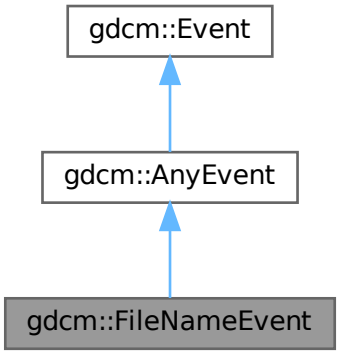
FileNameEvent.

```
#include <gdcmFileNameEvent.h>
```

Inheritance diagram for gdcm::FileNameEvent:



Collaboration diagram for gdcm::FileNameEvent:



Public Types

- typedef FileNameEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- FileNameEvent (const char ∗s="")
- FileNameEvent (const Self &s)
- ∼FileNameEvent () override=default
- bool CheckEvent (const ::gdcm::Event ∗e) const override
- const char ∗ GetEventName () const override
- const char ∗ GetFileName () const
- ::gdcm::Event ∗ MakeObject () const override
- void operator= (const Self &)=delete
- void SetFileName (const char ∗f)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ∼Event ()
- virtual bool CheckEvent (const Event ∗) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.133.1 Detailed Description

FileNameEvent.

Special type of event triggered during processing of FileSet

See also

AnyEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.133.2 Member Typedef Documentation

10.133.2.1 Self

```
typedef FileNameEvent gdcm::FileNameEvent::Self
```

10.133.2.2 Superclass

```
typedef AnyEvent gdcm::FileNameEvent::Superclass
```

10.133.3 Constructor & Destructor Documentation

10.133.3.1 FileNameEvent() [1/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const char * s = "" )  [inline]
```

10.133.3.2 ~FileNameEvent()

```
gdcm::FileNameEvent::~FileNameEvent ( )  [override], [default]
```

10.133.3.3 FileNameEvent() [2/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const Self & s )  [inline]
```

10.133.4 Member Function Documentation

10.133.4.1 CheckEvent()

```
bool gdcm::FileNameEvent::CheckEvent (
            const ::gdcm::Event * e ) const  [inline], [override]
```

10.133.4.2 GetEventName()

```
const char * gdcm::FileNameEvent::GetEventName ( ) const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

10.133.4.3 GetFileName()

```
const char * gdcm::FileNameEvent::GetFileName ( ) const  [inline]
```

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.133.4.4 MakeObject()

```
::gdcm::Event * gdcm::FileNameEvent::MakeObject ( ) const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

10.133.4.5 operator=()

```
void gdcm::FileNameEvent::operator= (
            const Self &  )  [delete]
```

10.133.4.6 SetFileName()

```
void gdcm::FileNameEvent::SetFileName (
            const char * f )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileNameEvent.h

10.134 gdcm::FilenameGenerator Class Reference

FilenameGenerator.

```
#include <gdcmFilenameGenerator.h>
```

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType
- typedef FilenamesType::size_type SizeType

Public Member Functions

- FilenameGenerator ()
- ~FilenameGenerator ()=default
- bool Generate ()

  Generate (return success)
- const char * GetFilename (SizeType n) const

  Get a particular filename (call after Generate)
- FilenamesType const & GetFilenames () const

  Return all filenames.
- SizeType GetNumberOfFilenames () const
- const char * GetPattern () const
- const char * GetPrefix () const
- void SetNumberOfFilenames (SizeType nfiles)

  Set/Get the number of filenames to generate.
- void SetPattern (const char *pattern)

  Set/Get pattern.
- void SetPrefix (const char *prefix)

  Set/Get prefix.

10.134.1 Detailed Description

FilenameGenerator.

class to generate filenames based on a pattern (C-style)

Output will be:

for i = 0, number of filenames: outfilename[i] = prefix + (pattern % i)

where pattern % i means C-style snprintf of Pattern using value 'i'

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.2 Member Typedef Documentation

10.134.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::FilenameGenerator::FilenamesType
```

10.134.2.2 FilenameType

```
typedef std::string gdcm::FilenameGenerator::FilenameType
```

10.134.2.3 SizeType

```
typedef FilenamesType::size_type gdcm::FilenameGenerator::SizeType
```

10.134.3 Constructor & Destructor Documentation

10.134.3.1 FilenameGenerator()

```
gdcm::FilenameGenerator::FilenameGenerator ( ) [inline]
```

10.134.3.2 ~FilenameGenerator()

```
gdcm::FilenameGenerator::~FilenameGenerator ( ) [default]
```

10.134.4 Member Function Documentation

10.134.4.1 Generate()

```
bool gdcm::FilenameGenerator::Generate ( )
```

Generate (return success)

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.4.2 GetFilename()

```
const char * gdcm::FilenameGenerator::GetFilename (
            SizeType n ) const
```

Get a particular filename (call after Generate)

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.4.3 GetFilenames()

```
FilenamesType const & gdcm::FilenameGenerator::GetFilenames ( ) const [inline]
```

Return all filenames.

10.134.4.4 GetNumberOfFilenames()

```
SizeType gdcm::FilenameGenerator::GetNumberOfFilenames ( ) const
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.4.5 GetPattern()

```
const char * gdcm::FilenameGenerator::GetPattern ( ) const  [inline]
```

10.134.4.6 GetPrefix()

```
const char * gdcm::FilenameGenerator::GetPrefix ( ) const  [inline]
```

10.134.4.7 SetNumberOfFilenames()

```
void gdcm::FilenameGenerator::SetNumberOfFilenames (
            SizeType nfiles )
```

Set/Get the number of filenames to generate.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.4.8 SetPattern()

```
void gdcm::FilenameGenerator::SetPattern (
            const char * pattern )  [inline]
```

Set/Get pattern.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.134.4.9 SetPrefix()

```
void gdcm::FilenameGenerator::SetPrefix (
            const char * prefix )  [inline]
```

Set/Get prefix.

The documentation for this class was generated from the following file:

- gdcmFilenameGenerator.h

10.135 gdcm::FileSet Class Reference

```
#include <gdcmFileSet.h>
```

Public Types

- typedef std::vector< FileType > FilesType
- typedef std::string FileType

Public Member Functions

- FileSet ()
- bool AddFile (const char *filename)
- void AddFile (File const &)
- FilesType const & GetFiles () const
- void SetFiles (FilesType const &files)

Friends

- std::ostream & operator<< (std::ostream &_os, const FileSet &d)

10.135.1 Detailed Description

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which File IDs are unique.

10.135.2 Member Typedef Documentation

10.135.2.1 FilesType

```
typedef std::vector<FileType> gdcm::FileSet::FilesType
```

10.135.2.2 FileType

```
typedef std::string gdcm::FileSet::FileType
```

10.135.3 Constructor & Destructor Documentation

10.135.3.1 FileSet()

```
gdcm::FileSet::FileSet ( ) [inline]
```

10.135.4 Member Function Documentation

10.135.4.1 AddFile() [1/2]

```
bool gdcm::FileSet::AddFile (
            const char * filename )
```

Add a file 'filename' to the list of files. Return true on success, false in case filename could not be found on system.

10.135.4.2 AddFile() [2/2]

```
void gdcm::FileSet::AddFile (
            File const & ) [inline]
```

Deprecated . Does nothing

10.135.4.3 GetFiles()

```
FilesType const & gdcm::FileSet::GetFiles ( ) const [inline]
```

10.135.4.4 SetFiles()

```
void gdcm::FileSet::SetFiles (
            FilesType const & files )
```

10.135.5 Friends And Related Symbol Documentation

10.135.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileSet & d )  [friend]
```

The documentation for this class was generated from the following file:

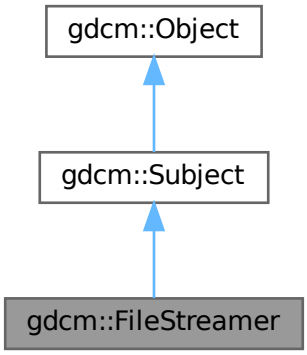
- gdcmFileSet.h

10.136 gdcm::FileStreamer Class Reference

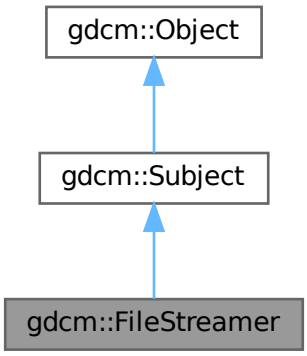
FileStreamer.

```
#include <gdcmFileStreamer.h>
```

Inheritance diagram for gdcm::FileStreamer:



Collaboration diagram for gdcm::FileStreamer:



Public Member Functions

- FileStreamer ()
- ~FileStreamer () override
- bool AppendToDataElement (const Tag &t, const char *array, size_t len)

  Append to previously started Tag t.
- bool AppendToGroupDataElement (const PrivateTag &pt, const char *array, size_t len)

  Append to previously started private creator.
- bool CheckDataElement (const Tag &t)
- void CheckTemplateFileName (bool check)
- bool ReserveDataElement (size_t len)
- bool ReserveGroupDataElement (unsigned short ndataelement)
- void SetOutputFileName (const char *filename_native)

  Set output filename (target file)
- void SetTemplateFileName (const char *filename_native)

  Set input DICOM template filename.
- bool StartDataElement (const Tag &t)
- bool StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_t startoffset=0)
- bool StopDataElement (const Tag &t)

  Stop appending to tag t. This will compute the proper attribute length.
- bool StopGroupDataElement (const PrivateTag &pt)

  Stop appending to private creator.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)

- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileStreamer > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.136.1 Detailed Description

FileStreamer.

This class let a user create a massive DICOM DataSet from a template DICOM file, by appending chunks of data.

This class support two mode of operation:

1. Creating a single DataElement by appending chunk after chunk of data.
2. Creating a set of DataElement within the same group, using a private creator for start. New DataElement are added any time the user defined maximum size for data element is reached.

Warning

any existing DataElement is removed, pick carefully which DataElement to add.

Examples

FileStreaming.cs.

10.136.2 Constructor & Destructor Documentation

10.136.2.1 FileStreamer()

```
gdcm::FileStreamer::FileStreamer ( )
```

10.136.2.2 ~FileStreamer()

```
gdcm::FileStreamer::~FileStreamer ( ) [override]
```

10.136.3 Member Function Documentation

10.136.3.1 AppendToDataElement()

```
bool gdcm::FileStreamer::AppendToDataElement (
            const Tag & t,
            const char * array,
            size_t len )
```

Append to previously started Tag t.

10.136.3.2 AppendToGroupDataElement()

```
bool gdcm::FileStreamer::AppendToGroupDataElement (
            const PrivateTag & pt,
            const char * array,
            size_t len )
```

Append to previously started private creator.

Examples

FileStreaming.cs.

10.136.3.3 CheckDataElement()

```
bool gdcm::FileStreamer::CheckDataElement (
            const Tag & t )
```

Decide to check the Data Element to be written (default: off) The implementation has default strategy for checking validity of DataElement. Currently it only support checking for the following tags:

- (7fe0,0010) Pixel Data

10.136.3.4 CheckTemplateFileName()

```
void gdcm::FileStreamer::CheckTemplateFileName (
            bool check )
```

Instead of simply blindly copying the input DICOM Template file, GDCM will be used to check the input file, and correct any issues recognized within the file. Only use if you do not have control over the input template file.

10.136.3.5 New()

```
static SmartPointer< FileStreamer > gdcm::FileStreamer::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

10.136.3.6 ReserveDataElement()

```
bool gdcm::FileStreamer::ReserveDataElement (
            size_t len )
```

Add a hint on the final size of the dataelement. When optimally chosen, this reduce the number of file in-place copying. Should be called before StartDataElement

10.136.3.7 ReserveGroupDataElement()

```
bool gdcm::FileStreamer::ReserveGroupDataElement (
            unsigned short ndataelement )
```

Optimisation: pre-allocate the number of dataelement within the private group (ndataelement <= 256). Should be called before StartGroupDataElement

10.136.3.8 SetOutputFileName()

```
void gdcm::FileStreamer::SetOutputFileName (
            const char * filename_native )
```

Set output filename (target file)

Examples

FileStreaming.cs.

10.136.3.9 SetTemplateFileName()

```
void gdcm::FileStreamer::SetTemplateFileName (
            const char * filename_native )
```

Set input DICOM template filename.

Examples

FileStreaming.cs.

10.136.3.10 StartDataElement()

```
bool gdcm::FileStreamer::StartDataElement (
            const Tag & t )
```

Start Single Data Element Operation This will delete any existing Tag t. Need to call it only once.

10.136.3.11 StartGroupDataElement()

```
bool gdcm::FileStreamer::StartGroupDataElement (
            const PrivateTag & pt,
            size_t maxsizede = 0,
            uint8_t startoffset = 0 )
```

Start Private Group (multiple DataElement) Operation. Each newly added DataElement will have a length lower than

Parameters

maxsizede	. When not specified, maxsizede is set to maximum size allowed by DICOM (= 2^32). startoffset can be used to specify the very first element you want to start with (instead of the first possible). Value should be in [0x0, 0xff] This will find the first available private creator.

Bug maxsizede should be a value lower than the actual total size of the buffer to be copied

Examples

FileStreaming.cs.

10.136.3.12 StopDataElement()

```
bool gdcm::FileStreamer::StopDataElement (
            const Tag & t )
```

Stop appending to tag t. This will compute the proper attribute length.

10.136.3.13 StopGroupDataElement()

```
bool gdcm::FileStreamer::StopGroupDataElement (
            const PrivateTag & pt )
```

Stop appending to private creator.

Examples

FileStreaming.cs.

The documentation for this class was generated from the following file:

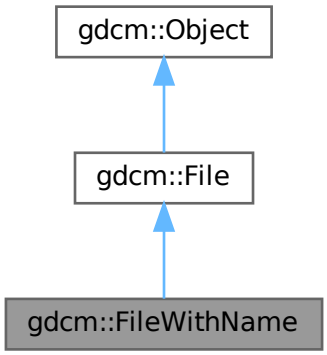
- gdcmFileStreamer.h

10.137 gdcm::FileWithName Class Reference

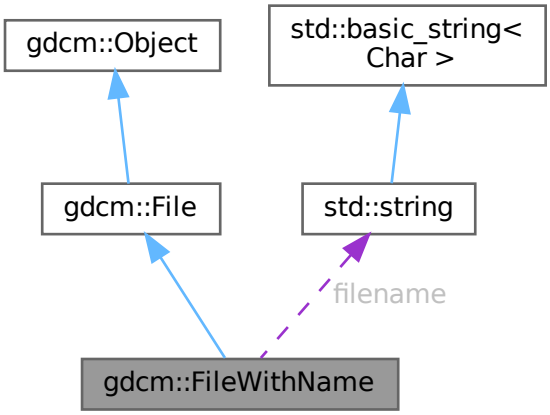
FileWithName.

```
#include <gdcmSerieHelper.h>
```

Inheritance diagram for gdcm::FileWithName:



Collaboration diagram for gdcm::FileWithName:



Public Member Functions

- FileWithName (File &f)

Public Member Functions inherited from gdcm::File

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.
- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Public Attributes

- std::string filename

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.137.1 Detailed Description

FileWithName.

Backward only class do not use in newer code

10.137.2 Constructor & Destructor Documentation

10.137.2.1 FileWithName()

```
gdcm::FileWithName::FileWithName (
            File & f )  [inline]
```

10.137.3 Member Data Documentation

10.137.3.1 filename

```
std::string gdcm::FileWithName::filename
```

The documentation for this class was generated from the following file:

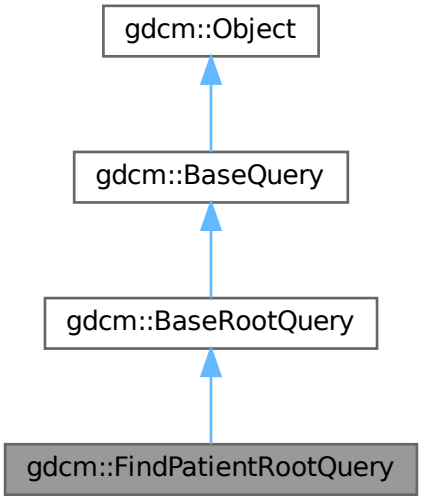
- gdcmSerieHelper.h

10.138 gdcm::FindPatientRootQuery Class Reference

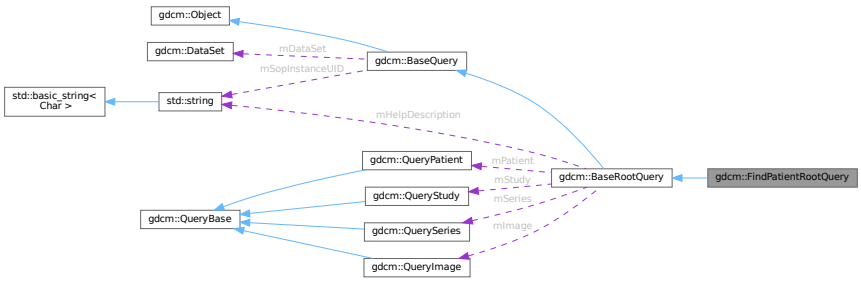
PatientRootQuery.

```
#include <gdcmFindPatientRootQuery.h>
```

Inheritance diagram for gdcm::FindPatientRootQuery:



Collaboration diagram for gdcm::FindPatientRootQuery:



Public Member Functions

- FindPatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.138.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

10.138.2 Constructor & Destructor Documentation

10.138.2.1 FindPatientRootQuery()

```
gdcm::FindPatientRootQuery::FindPatientRootQuery ( )
```

10.138.3 Member Function Documentation

10.138.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindPatientRootQuery::GetAbstractSyntaxUID ( ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.138.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindPatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

10.138.3.3 InitializeDataSet()

```
void gdcm::FindPatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

10.138.3.4 ValidateQuery()

```
bool gdcm::FindPatientRootQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

10.138.4 Friends And Related Symbol Documentation

10.138.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

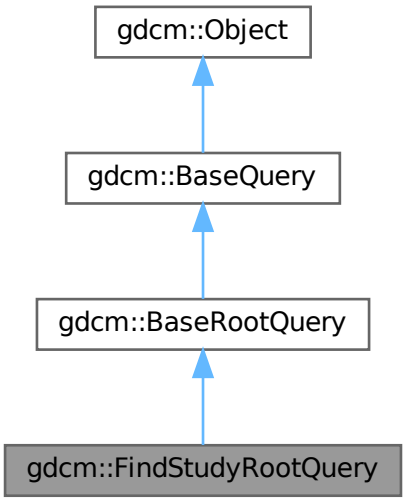
- gdcmFindPatientRootQuery.h

10.139 gdcm::FindStudyRootQuery Class Reference

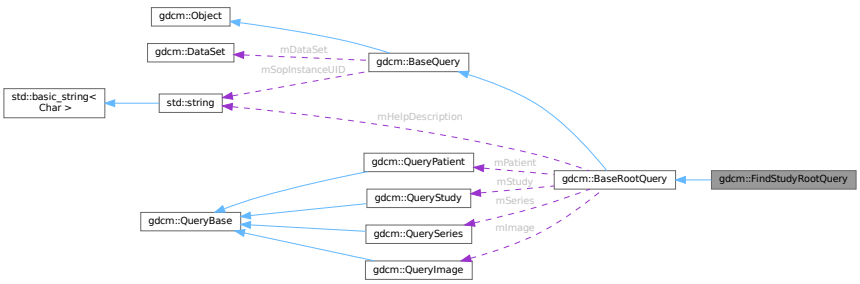
FindStudyRootQuery.

```
#include <gdcmFindStudyRootQuery.h>
```

Inheritance diagram for gdcm::FindStudyRootQuery:



Collaboration diagram for gdcm::FindStudyRootQuery:



Public Member Functions

- FindStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.139.1 Detailed Description

FindStudyRootQuery.

contains: the class which will produce a dataset for C-FIND with study root

10.139.2 Constructor & Destructor Documentation

10.139.2.1 FindStudyRootQuery()

```
gdcm::FindStudyRootQuery::FindStudyRootQuery ( )
```

10.139.3 Member Function Documentation

10.139.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindStudyRootQuery::GetAbstractSyntaxUID ( ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.139.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

10.139.3.3 InitializeDataSet()

```
void gdcm::FindStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

10.139.3.4 ValidateQuery()

```
bool gdcm::FindStudyRootQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

have to be able to ensure that (0008,0052) is set that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional)

Implements gdcm::BaseRootQuery.

10.139.4 Friends And Related Symbol Documentation

10.139.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

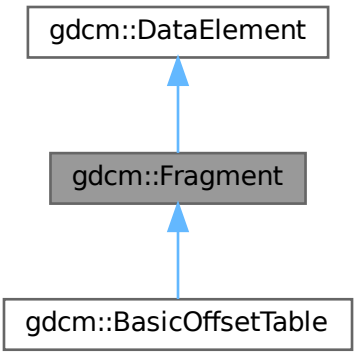
- gdcmFindStudyRootQuery.h

10.140 gdcm::Fragment Class Reference

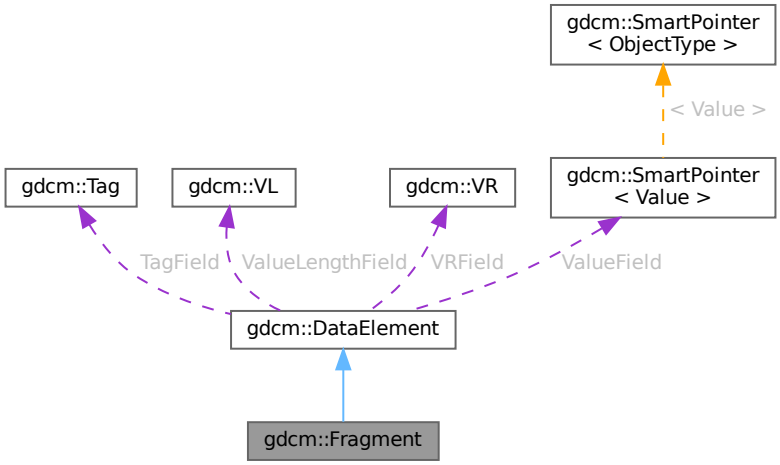
Class to represent a Fragment.

```
#include <gdcmFragment.h>
```

Inheritance diagram for gdcm::Fragment:



Collaboration diagram for gdcm::Fragment:



Public Member Functions

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap >
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)

- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Fragment &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.140.1 Detailed Description

Class to represent a Fragment.

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and MpegVideoInfo.cs.

10.140.2 Constructor & Destructor Documentation

10.140.2.1 Fragment()

```
gdcm::Fragment::Fragment ( ) [inline]
```

10.140.3 Member Function Documentation

10.140.3.1 ComputeLength()

```
VL gdcm::Fragment::ComputeLength ( ) const
```

10.140.3.2 GetLength()

```
VL gdcm::Fragment::GetLength ( ) const
```

10.140.3.3 Read()

```
template<typename TSwap >
std::istream & gdcm::Fragment::Read (
            std::istream & is ) [inline]
```

Referenced by gdcm::SequenceOfFragments::ReadValue().

10.140.3.4 ReadBacktrack()

```
template<typename TSwap >
std::istream & gdcm::Fragment::ReadBacktrack (
            std::istream & is ) [inline]
```

References gdcmErrorMacro, gdcmWarningMacro, and gdcm::ParseException::SetLastElement().

Referenced by gdcm::SequenceOfFragments::ReadValue().

10.140.3.5 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::Fragment::ReadPreValue (
            std::istream & is ) [inline]
```

10.140.3.6 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::Fragment::ReadValue (
            std::istream & is )  [inline]
```

References gdcmWarningMacro, and gdcm::ParseException::SetLastElement().

10.140.3.7 Write()

```
template<typename TSwap >
std::ostream & gdcm::Fragment::Write (
            std::ostream & os ) const  [inline]
```

References gdcm::ByteValue::ComputeLength(), gdcm::ByteValue::GetLength(), gdcm::ByteValue::Write(), and gdcm::VL::Write().

10.140.4 Friends And Related Symbol Documentation

10.140.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Fragment & val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmFragment.h

10.141 gdcm::Global Class Reference

Global.

```
#include <gdcmGlobal.h>
```

Public Member Functions

- Global ()
- Global (const Global &_val)=delete
- ~Global ()
- bool Append (const char *path)
- Defs const & GetDefs () const
- Dicts & GetDicts ()
- Dicts const & GetDicts () const
- bool LoadResourcesFiles ()
- Global & operator= (const Global &_val)=delete
- bool Prepend (const char *path)

Static Public Member Functions

- static Global & GetInstance ()

  return the singleton instance

Protected Member Functions

- const char ∗ Locate (const char ∗resfile) const

  Locate a resource file.

Friends

- std::ostream & operator<< (std::ostream &_os, const Global &g)

10.141.1 Detailed Description

Global.

Note

Global should be included in any translation unit that will use Dict or that implements the singleton pattern. It makes sure that the Dict singleton is created before and destroyed after all other singletons in GDCM.

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

10.141.2 Constructor & Destructor Documentation

10.141.2.1 Global() [1/2]

```
gdcm::Global::Global ( )
```

10.141.2.2 ∼Global()

```
gdcm::Global::~Global ( )
```

10.141.2.3 Global() [2/2]

```
gdcm::Global::Global (
            const Global & _val )  [delete]
```

10.141.3 Member Function Documentation

10.141.3.1 Append()

```
bool gdcm::Global::Append (
            const char * path )
```

Append path at the end of the path list

Warning

not thread safe !

10.141.3.2 GetDefs()

```
Defs const & gdcm::Global::GetDefs ( ) const
```

retrieve the default/internal (Part 3) You need to explicitly call LoadResourcesFiles before

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

10.141.3.3 GetDicts() [1/2]

```
Dicts & gdcm::Global::GetDicts ( )
```

10.141.3.4 GetDicts() [2/2]

```
Dicts const & gdcm::Global::GetDicts ( ) const
```

retrieve the default/internal dicts (Part 6) This dict is filled up at load time

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, MrProtocol.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

10.141.3.5 GetInstance()

```
static Global & gdcm::Global::GetInstance ( )  [static]
```

return the singleton instance

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, MrProtocol.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

10.141.3.6 LoadResourcesFiles()

```
bool gdcm::Global::LoadResourcesFiles ( )
```

Load all internal XML files, resource path need to have been set before calling this member function (see Append/↩ Prepend members func)

Warning

not thread safe !

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

10.141.3.7 Locate()

```
const char * gdcm::Global::Locate (
            const char * resfile ) const  [protected]
```

Locate a resource file.

10.141.3.8 operator=()

```
Global & gdcm::Global::operator= (
            const Global & _val )  [delete]
```

10.141.3.9 Prepend()

```
bool gdcm::Global::Prepend (
            const char * path )
```

Prepend path at the beginning of the path list

Warning

not thread safe !

10.141.4 Friends And Related Symbol Documentation

10.141.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Global & g )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmGlobal.h

10.142 gdcm::GroupDict Class Reference

Class to represent the mapping from group number to its abbreviation and name.

```
#include <gdcmGroupDict.h>
```

Public Types

- typedef std::vector< std::string > GroupStringVector

Public Member Functions

- GroupDict ()
- ~GroupDict ()=default
- std::string const & GetAbbreviation (uint16_t num) const
- std::string const & GetName (uint16_t num) const
- size_t Size () const

Protected Member Functions

- void Add (std::string const &abbreviation, std::string const &name)
- void Insert (uint16_t num, std::string const &abbreviation, std::string const &name)

Friends

- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)

10.142.1 Detailed Description

Class to represent the mapping from group number to its abbreviation and name.

Note

Should I rewrite this class to use a std::map instead of std::vector for problem of memory consumption ?

10.142.2 Member Typedef Documentation

10.142.2.1 GroupStringVector

```
typedef std::vector<std::string> gdcm::GroupDict::GroupStringVector
```

10.142.3 Constructor & Destructor Documentation

10.142.3.1 GroupDict()

```
gdcm::GroupDict::GroupDict ( ) [inline]
```

10.142.3.2 ~GroupDict()

```
gdcm::GroupDict::~GroupDict ( ) [default]
```

References gdcm::operator<<().

10.142.4 Member Function Documentation

10.142.4.1 Add()

```
void gdcm::GroupDict::Add (
            std::string const & abbreviation,
            std::string const & name ) [protected]
```

10.142.4.2 GetAbbreviation()

```
std::string const & gdcm::GroupDict::GetAbbreviation (
            uint16_t num ) const
```

10.142.4.3 GetName()

```
std::string const & gdcm::GroupDict::GetName (
            uint16_t num ) const
```

10.142.4.4 Insert()

```
void gdcm::GroupDict::Insert (
            uint16_t num,
            std::string const & abbreviation,
            std::string const & name ) [protected]
```

10.142.4.5 Size()

```
size_t gdcm::GroupDict::Size ( ) const [inline]
```

10.142.5 Friends And Related Symbol Documentation

10.142.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const GroupDict & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmGroupDict.h

10.143 gdcm::IconImageFilter Class Reference

IconImageFilter.

```
#include <gdcmIconImageFilter.h>
```

Public Member Functions

- IconImageFilter ()
- ~IconImageFilter ()
- bool Extract ()

  Extract all Icon found in File.
- File & GetFile ()
- const File & GetFile () const
- IconImage & GetIconImage (unsigned int i) const
- unsigned int GetNumberOfIconImages () const

  Retrieve extract IconImage (need to call Extract first)
- void SetFile (const File &f)

  Set/Get File.

Protected Member Functions

- void ExtractIconImages ()
- void ExtractVeproIconImages ()

10.143.1 Detailed Description

IconImageFilter.

This filter will extract icons from a File This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12

Implementation details: This filter supports the following Icons:

- (0088,0200) Icon Image Sequence
- (0009,10,GEIIS) GE IIS Thumbnail Sequence
- (6003,10,GEMS_Ultrasound_ImageGroup_001) GEMS Image Thumbnail Sequence
- (0055,30,VEPRO VIF 3.0 DATA) Icon Data
- (0055,30,VEPRO VIM 5.0 DATA) ICONDATA2

Warning

the icon stored in those private attribute do not conform to definition of Icon Image Sequence (do not simply copy/paste). For example some private icon can be expressed as 12bits pixel, while the DICOM standard only allow 8bits icons.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

10.143.2 Constructor & Destructor Documentation

10.143.2.1 IconImageFilter()

```
gdcm::IconImageFilter::IconImageFilter ( )
```

10.143.2.2 ~IconImageFilter()

```
gdcm::IconImageFilter::~IconImageFilter ( )
```

10.143.3 Member Function Documentation

10.143.3.1 Extract()

```
bool gdcm::IconImageFilter::Extract ( )
```

Extract all Icon found in File.

Examples

ExtractIconFromFile.cxx.

10.143.3.2 ExtractIconImages()

```
void gdcm::IconImageFilter::ExtractIconImages ( )  [protected]
```

10.143.3.3 ExtractVeproIconImages()

```
void gdcm::IconImageFilter::ExtractVeproIconImages ( )  [protected]
```

10.143.3.4 GetFile() [1/2]

```
File & gdcm::IconImageFilter::GetFile ( )  [inline]
```

10.143.3.5 GetFile() [2/2]

```
const File & gdcm::IconImageFilter::GetFile ( ) const  [inline]
```

10.143.3.6 GetIconImage()

```
IconImage & gdcm::IconImageFilter::GetIconImage (
            unsigned int i ) const
```

Examples

ExtractIconFromFile.cxx.

10.143.3.7 GetNumberOfIconImages()

```
unsigned int gdcm::IconImageFilter::GetNumberOfIconImages ( ) const
```

Retrieve extract IconImage (need to call Extract first)

Examples

ExtractIconFromFile.cxx.

10.143.3.8 SetFile()

```
void gdcm::IconImageFilter::SetFile (
            const File & f )  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageFilter.h

10.144 gdcm::IconImageGenerator Class Reference

IconImageGenerator.

```
#include <gdcmIconImageGenerator.h>
```

Public Member Functions

- IconImageGenerator ()
- ~IconImageGenerator ()
- void AutoPixelMinMax (bool b)
- void ConvertRGBToPaletteColor (bool b)
- bool Generate ()

  Generate Icon.
- const IconImage & GetIconImage () const

  Retrieve generated Icon.
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetOutputDimensions (const unsigned int dims[2])

  Set Target dimension of output Icon.
- void SetOutsideValuePixel (double v)
- void SetPixelMinMax (double min, double max)
- void SetPixmap (const Pixmap &p)

  Set/Get File.

10.144.1 Detailed Description

IconImageGenerator.

This filter will generate a valid Icon from the Pixel Data element (an instance of Pixmap). To generate a valid Icon, one is only allowed the following Photometric Interpretation:

- MONOCHROME1
- MONOCHROME2
- PALETTE_COLOR

The Pixel Bits Allocated is restricted to 8bits, therefore 16 bits image needs to be rescaled. By default the filter will use the full scalar range of 16bits image to rescale to unsigned 8bits. This may not be ideal for some situation, in which case the API SetPixelMinMax can be used to overwrite the default min,max interval used.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

10.144.2 Constructor & Destructor Documentation

10.144.2.1 IconImageGenerator()

```
gdcm::IconImageGenerator::IconImageGenerator ( )
```

10.144.2.2 ~IconImageGenerator()

```
gdcm::IconImageGenerator::~IconImageGenerator ( )
```

10.144.3 Member Function Documentation

10.144.3.1 AutoPixelMinMax()

```
void gdcm::IconImageGenerator::AutoPixelMinMax (
            bool b )
```

Instead of explicitly specifying the min/max value for the rescale operation, let the internal mechanism compute the min/max of icon and rescale to best appropriate.

Examples

ExtractIconFromFile.cxx.

10.144.3.2 ConvertRGBToPaletteColor()

```
void gdcm::IconImageGenerator::ConvertRGBToPaletteColor (
            bool b )
```

Converting from RGB to PALETTE_COLOR can be a slow operation. However DICOM standard requires that color icon be described as palette. Set this boolean to false only if you understand the consequences. default value is true, false generates invalid Icon Image Sequence

10.144.3.3 Generate()

```
bool gdcm::IconImageGenerator::Generate ( )
```

Generate Icon.

Examples

ExtractIconFromFile.cxx.

10.144.3.4 GetIconImage()

```
const IconImage & gdcm::IconImageGenerator::GetIconImage ( ) const  [inline]
```

Retrieve generated Icon.

Examples

ExtractIconFromFile.cxx.

10.144.3.5 GetPixmap() [1/2]

```
Pixmap & gdcm::IconImageGenerator::GetPixmap ( )  [inline]
```

10.144.3.6 GetPixmap() [2/2]

```
const Pixmap & gdcm::IconImageGenerator::GetPixmap ( ) const  [inline]
```

10.144.3.7 SetOutputDimensions()

```
void gdcm::IconImageGenerator::SetOutputDimensions (
            const unsigned int dims[2] )
```

Set Target dimension of output Icon.

Examples

ExtractIconFromFile.cxx.

10.144.3.8 SetOutsideValuePixel()

```
void gdcm::IconImageGenerator::SetOutsideValuePixel (
            double v )
```

Set a pixel value that should be discarded. This happen typically for CT image, where a pixel has been used to pad outside the image (see Pixel Padding Value). Requires AutoPixelMinMax(true)

10.144.3.9 SetPixelMinMax()

```
void gdcm::IconImageGenerator::SetPixelMinMax (
            double min,
            double max )
```

Override default min/max to compute best rescale for 16bits -> 8bits downscale. Typically those value can be read from the SmallestImagePixelValue LargestImagePixelValue DICOM attribute.

10.144.3.10 SetPixmap()

```
void gdcm::IconImageGenerator::SetPixmap (
            const Pixmap & p )  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageGenerator.h

10.145 gdcm::ignore_char Struct Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- ignore_char (char c)

Public Attributes

- char m_char

10.145.1 Constructor & Destructor Documentation

10.145.1.1 ignore_char()

```
gdcm::ignore_char::ignore_char (
            char c )  [inline]
```

10.145.2 Member Data Documentation

10.145.2.1 m_char

```
char gdcm::ignore_char::m_char
```

Referenced by gdcm::operator>>().

The documentation for this struct was generated from the following file:

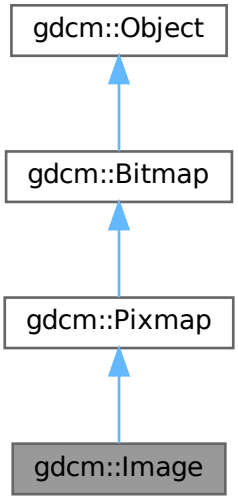
- gdcmElement.h

10.146 gdcm::Image Class Reference

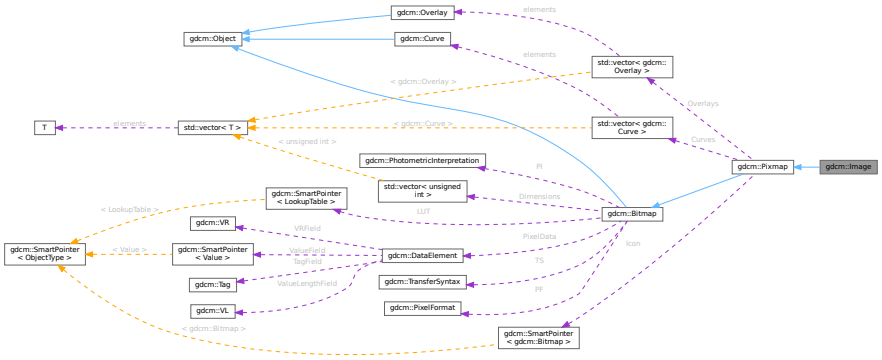
Image.

```
#include <gdcmImage.h>
```

Inheritance diagram for gdcm::Image:



Collaboration diagram for gdcm::Image:



Public Member Functions

- Image ()
- ~Image () override=default
- const double * GetDirectionCosines () const
- double GetDirectionCosines (unsigned int idx) const
- double GetIntercept () const
- const double * GetOrigin () const
- double GetOrigin (unsigned int idx) const
- double GetSlope () const
- const double * GetSpacing () const
- double GetSpacing (unsigned int idx) const
- void Print (std::ostream &os) const override

  print
- void SetDirectionCosines (const double dircos[6])
- void SetDirectionCosines (const float dircos[6])
- void SetDirectionCosines (unsigned int idx, double dircos)
- void SetIntercept (double intercept)

  intercept
- void SetOrigin (const double origin[3])
- void SetOrigin (const float origin[3])
- void SetOrigin (unsigned int idx, double ori)
- void SetSlope (double slope)

  slope
- void SetSpacing (const double spacing[3])
- void SetSpacing (unsigned int idx, double spacing)

Public Member Functions inherited from gdcm::Pixmap

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char ∗buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char ∗buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char ∗buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char ∗buffer, bool &lossyflag) const
- bool TryPVRGCodec (char ∗buffer, bool &lossyflag) const
- bool TryRAWCodec (char ∗buffer, bool &lossyflag) const
- bool TryRLECodec (char ∗buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::Pixmap

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

10.146.1 Detailed Description

Image.

This is the container for an Image in the general sense. From this container you should be able to request information like:

- Origin
- Dimension
- PixelFormat ... But also to retrieve the image as a raw buffer (char ∗) Since we have to deal with both RAW data and JPEG stream (which internally encode all the above information) this API might seems redundant. One way to solve that would be to subclass Image with JPEGImage which would from the stream extract the header info and fill it to please Image...well except origin for instance

Basically you can see it as a storage for the Pixel Data element (7fe0,0010).

Warning

This class does some heuristics to guess the Spacing but is not compatible with DICOM CP-586. In case of doubt use PixmapReader instead

See also

ImageReader PixmapReader

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GenFakeImage.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

10.146.2 Constructor & Destructor Documentation

10.146.2.1 Image()

```
gdcm::Image::Image ( ) [inline]
```

10.146.2.2 ∼Image()

```
gdcm::Image::~Image ( ) [override], [default]
```

10.146.3 Member Function Documentation

10.146.3.1 GetDirectionCosines() [1/2]

```
const double * gdcm::Image::GetDirectionCosines ( ) const
```

Return a 6-tuples specifying the direction cosines A default value of (1,0,0,0,1,0) will be return when the direction cosines was not specified.

10.146.3.2 GetDirectionCosines() [2/2]

```
double gdcm::Image::GetDirectionCosines (
            unsigned int idx ) const
```

10.146.3.3 GetIntercept()

```
double gdcm::Image::GetIntercept ( ) const  [inline]
```

10.146.3.4 GetOrigin() [1/2]

```
const double * gdcm::Image::GetOrigin ( ) const
```

Return a 3-tuples specifying the origin Will return (0,0,0) if the origin was not specified.

Examples

HelloVizWorld.cxx.

10.146.3.5 GetOrigin() [2/2]

```
double gdcm::Image::GetOrigin (
            unsigned int idx ) const
```

10.146.3.6 GetSlope()

```
double gdcm::Image::GetSlope ( ) const  [inline]
```

10.146.3.7 GetSpacing() [1/2]

```
const double * gdcm::Image::GetSpacing ( ) const
```

Return a 3-tuples specifying the spacing NOTE: 3rd value can be an arbitrary 1 value when the spacing was not specified (ex. 2D image). WARNING: when the spacing is not specifier, a default value of 1 will be returned

10.146.3.8 GetSpacing() [2/2]

```
double gdcm::Image::GetSpacing (
            unsigned int idx ) const
```

10.146.3.9 Print()

```
void gdcm::Image::Print (
            std::ostream & os ) const  [override], [virtual]
```

print

Reimplemented from gdcm::Bitmap.

Examples

CompressImage.cxx, and PatchFile.cxx.

10.146.3.10 SetDirectionCosines() [1/3]

```
void gdcm::Image::SetDirectionCosines (
            const double dircos[6] )
```

10.146.3.11 SetDirectionCosines() [2/3]

```
void gdcm::Image::SetDirectionCosines (
            const float dircos[6] )
```

10.146.3.12 SetDirectionCosines() [3/3]

```
void gdcm::Image::SetDirectionCosines (
            unsigned int idx,
            double dircos )
```

10.146.3.13 SetIntercept()

```
void gdcm::Image::SetIntercept (
            double intercept )  [inline]
```

intercept

Examples

TemplateEmptyImage.cxx.

10.146.3.14 SetOrigin() [1/3]

```
void gdcm::Image::SetOrigin (
            const double origin[3] )
```

10.146.3.15 SetOrigin() [2/3]

```
void gdcm::Image::SetOrigin (
            const float origin[3] )
```

10.146.3.16 SetOrigin() [3/3]

```
void gdcm::Image::SetOrigin (
            unsigned int idx,
            double ori )
```

10.146.3.17 SetSlope()

```
void gdcm::Image::SetSlope (
            double slope )  [inline]
```

slope

Examples

TemplateEmptyImage.cxx.

10.146.3.18 SetSpacing() [1/2]

```
void gdcm::Image::SetSpacing (
            const double spacing[3] )
```

Examples

csa2img.cxx, and iU22tomultisc.cxx.

10.146.3.19 SetSpacing() [2/2]

```
void gdcm::Image::SetSpacing (
            unsigned int idx,
            double spacing )
```

The documentation for this class was generated from the following file:

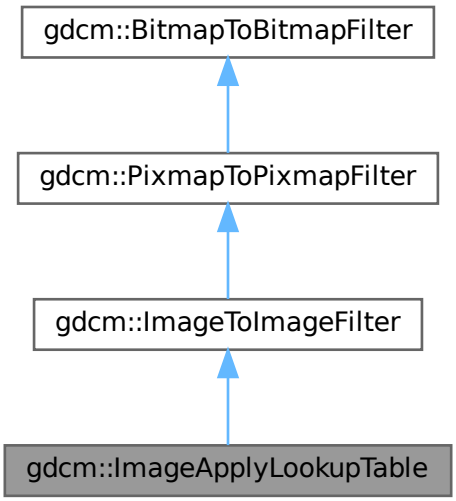
- gdcmImage.h

10.147 gdcm::ImageApplyLookupTable Class Reference

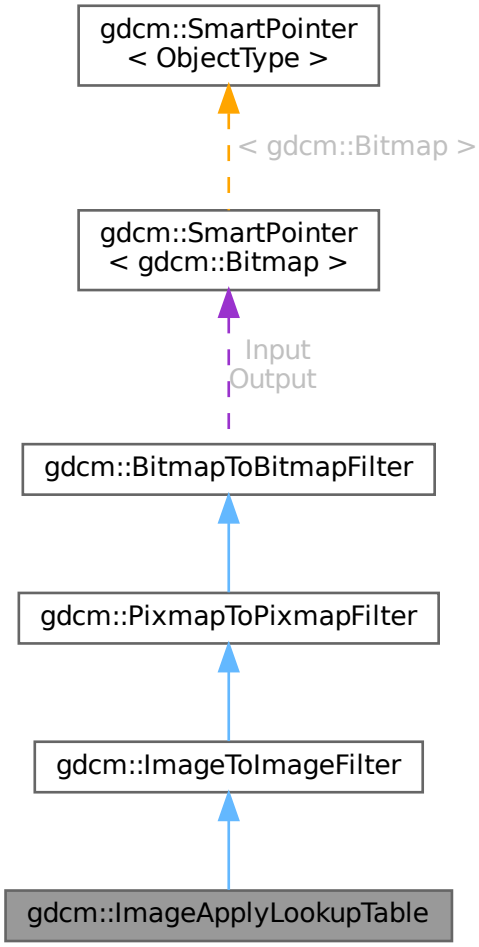
ImageApplyLookupTable class.

```
#include <gdcmImageApplyLookupTable.h>
```

Inheritance diagram for gdcm::ImageApplyLookupTable:



Collaboration diagram for gdcm::ImageApplyLookupTable:



Public Member Functions

- ImageApplyLookupTable ()
- ~ImageApplyLookupTable ()
- bool Apply ()

  Apply.
- void SetRGB8 (bool b)

  RGB8 ?

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()

- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.147.1 Detailed Description

ImageApplyLookupTable class.

It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

10.147.2 Constructor & Destructor Documentation

10.147.2.1 ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::ImageApplyLookupTable ( )
```

10.147.2.2 ~ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::~ImageApplyLookupTable ( )
```

10.147.3 Member Function Documentation

10.147.3.1 Apply()

```
bool gdcm::ImageApplyLookupTable::Apply ( )
```

Apply.

10.147.3.2 SetRGB8()

```
void gdcm::ImageApplyLookupTable::SetRGB8 (
            bool b )
```

RGB8 ?

The documentation for this class was generated from the following file:

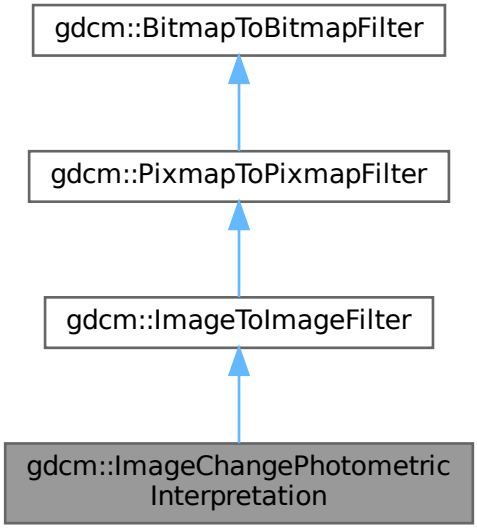
- gdcmImageApplyLookupTable.h

10.148 gdcm::ImageChangePhotometricInterpretation Class Reference

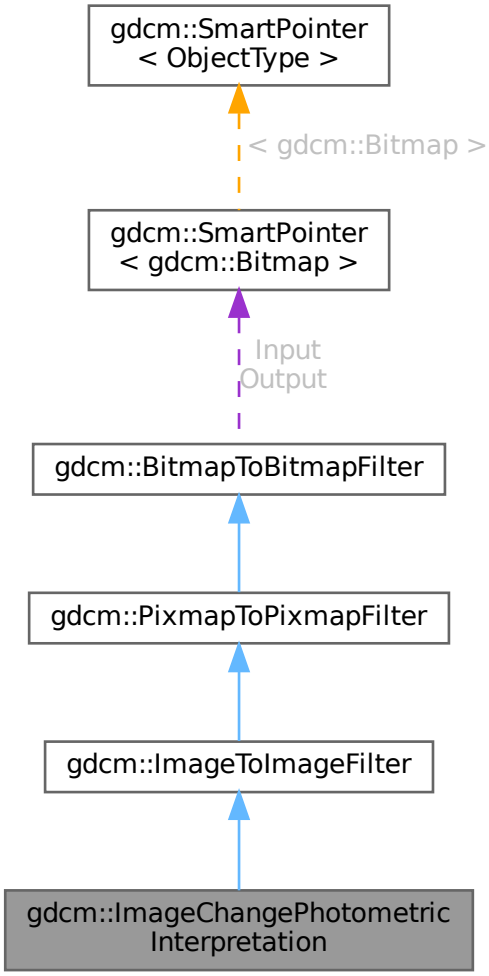
ImageChangePhotometricInterpretation class.

```
#include <gdcmImageChangePhotometricInterpretation.h>
```

Inheritance diagram for gdcm::ImageChangePhotometricInterpretation:



Collaboration diagram for gdcm::ImageChangePhotometricInterpretation:



Public Member Functions

- ImageChangePhotometricInterpretation ()
- ~ImageChangePhotometricInterpretation ()=default
- bool Change ()

  Change.
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)

  Set/Get requested PhotometricInterpretation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T >
  static void RGB2YBR (T ybr[3], const T rgb[3], unsigned short storedbits=8)
- template<typename T >
  static void YBR2RGB (T rgb[3], const T ybr[3], unsigned short storedbits=8)

Protected Member Functions

- bool ChangeMonochrome ()
- bool ChangeRGB2YBR ()
- bool ChangeYBR2RGB ()

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.148.1 Detailed Description

ImageChangePhotometricInterpretation class.

Class to change the Photometric Interpretation of an input DICOM

10.148.2 Constructor & Destructor Documentation

10.148.2.1 ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::ImageChangePhotometricInterpretation ( ) [inline]
```

10.148.2.2 ~ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::~ImageChangePhotometricInterpretation ( ) [default]
```

10.148.3 Member Function Documentation

10.148.3.1 Change()

```
bool gdcm::ImageChangePhotometricInterpretation::Change ( )
```

Change.

10.148.3.2 ChangeMonochrome()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeMonochrome ( ) [protected]
```

10.148.3.3 ChangeRGB2YBR()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeRGB2YBR ( ) [protected]
```

10.148.3.4 ChangeYBR2RGB()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeYBR2RGB ( ) [protected]
```

10.148.3.5 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageChangePhotometricInterpretation::GetPhotometric↩
Interpretation ( ) const [inline]
```

10.148.3.6 RGB2YBR()

```
template<typename T >
void gdcm::ImageChangePhotometricInterpretation::RGB2YBR (
            T ybr[3],
            const T rgb[3],
            unsigned short storedbits = 8 )  [static]
```

colorspace conversion (based on CCIR Recommendation 601-2) -> T.871

References gdcm::Round().

10.148.3.7 SetPhotometricInterpretation()

```
void gdcm::ImageChangePhotometricInterpretation::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi )  [inline]
```

Set/Get requested PhotometricInterpretation.

10.148.3.8 YBR2RGB()

```
template<typename T >
void gdcm::ImageChangePhotometricInterpretation::YBR2RGB (
            T rgb[3],
            const T ybr[3],
            unsigned short storedbits = 8 )  [static]
```

References gdcm::Round().

The documentation for this class was generated from the following file:

- gdcmImageChangePhotometricInterpretation.h

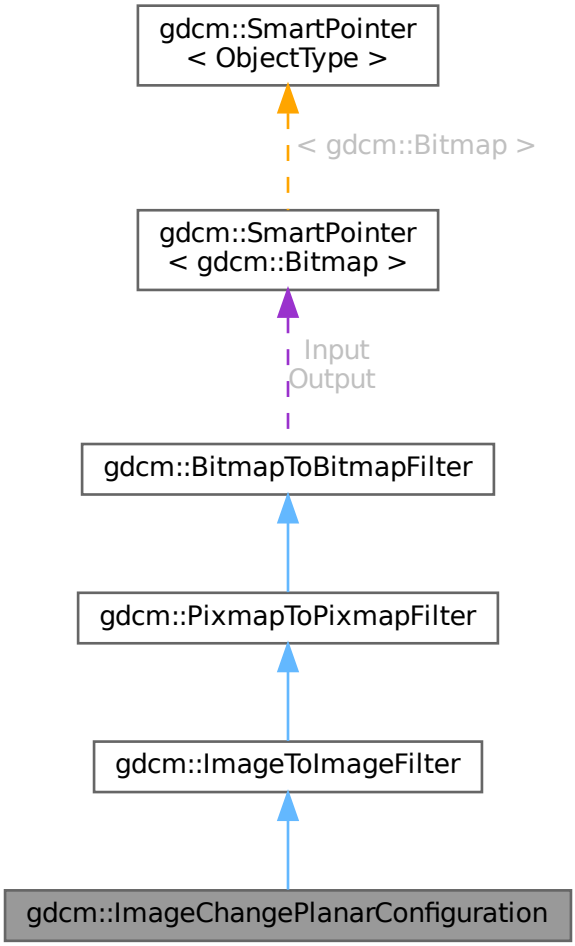
10.149 gdcm::ImageChangePlanarConfiguration Class Reference

ImageChangePlanarConfiguration class.

```
#include <gdcmImageChangePlanarConfiguration.h>
```

Inheritance diagram for gdcm::ImageChangePlanarConfiguration:

Collaboration diagram for gdcm::ImageChangePlanarConfiguration:



Public Member Functions

- ImageChangePlanarConfiguration ()
- ~ImageChangePlanarConfiguration ()=default
- bool Change ()

  Change.
- unsigned int GetPlanarConfiguration () const
- void SetPlanarConfiguration (unsigned int pc)

  Set/Get requested PlanarConfigation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T >
  static size_t RGBPixelsToRGBPlanes (T *r, T *g, T *b, const T *rgb, size_t s)
- template<typename T >
  static size_t RGBPlanesToRGBPixels (T *out, const T *r, const T *g, const T *b, size_t s)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.149.1 Detailed Description

ImageChangePlanarConfiguration class.

Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0

10.149.2 Constructor & Destructor Documentation

10.149.2.1 ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::ImageChangePlanarConfiguration ( ) [inline]
```

10.149.2.2 ∼ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::∼ImageChangePlanarConfiguration ( ) [default]
```

10.149.3 Member Function Documentation

10.149.3.1 Change()

```
bool gdcm::ImageChangePlanarConfiguration::Change ( )
```

Change.

10.149.3.2 GetPlanarConfiguration()

```
unsigned int gdcm::ImageChangePlanarConfiguration::GetPlanarConfiguration ( ) const [inline]
```

10.149.3.3 RGBPixelsToRGBPlanes()

```
template<typename T >
size_t gdcm::ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes (
            T * r,
            T * g,
            T * b,
            const T * rgb,
            size_t s ) [static]
```

Convert a regular RGB pixel image (R,G,B,R,G,B...) into a planar R,G,B image (R,R..,G,G...B,B)

Warning

this works on a frame basis, you need to loop over all frames in multiple frames image to apply this function

10.149.3.4 RGBPlanesToRGBPixels()

```
template<typename T >
size_t gdcm::ImageChangePlanarConfiguration::RGBPlanesToRGBPixels (
            T * out,
            const T * r,
            const T * g,
            const T * b,
            size_t s )  [static]
```

s is the size of one plane (r,g or b). Thus the output buffer needs to be at least 3∗s bytes long s can be seen as the number of RGB pixels in the output

10.149.3.5 SetPlanarConfiguration()

```
void gdcm::ImageChangePlanarConfiguration::SetPlanarConfiguration (
            unsigned int pc )  [inline]
```

Set/Get requested PlanarConfigation.

The documentation for this class was generated from the following file:

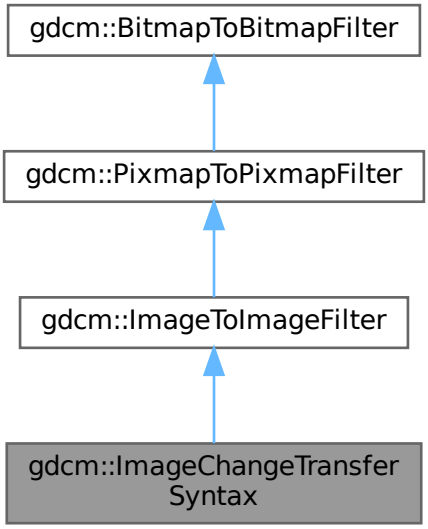
- gdcmImageChangePlanarConfiguration.h

10.150 gdcm::ImageChangeTransferSyntax Class Reference

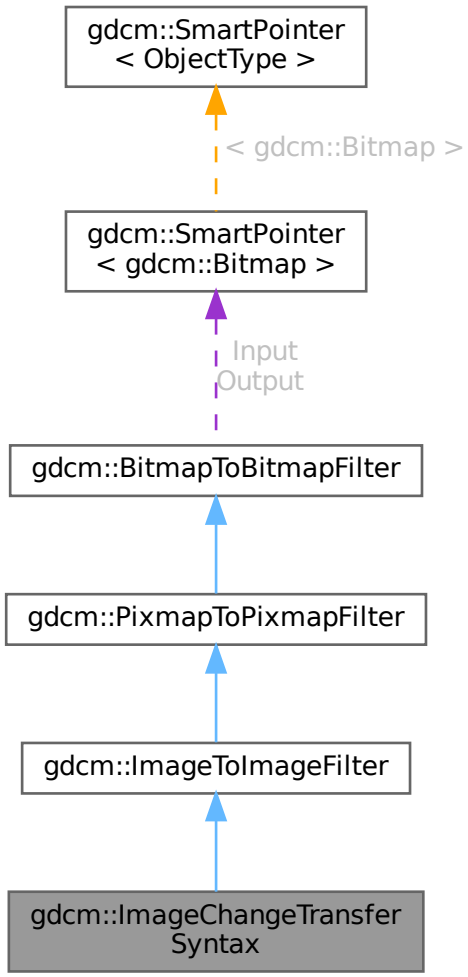
ImageChangeTransferSyntax class.

```
#include <gdcmImageChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::ImageChangeTransferSyntax:



Collaboration diagram for gdcm::ImageChangeTransferSyntax:



Public Member Functions

- ImageChangeTransferSyntax ()
- ~ImageChangeTransferSyntax ()=default
- bool Change ()

  Change.
- const TransferSyntax & GetTransferSyntax () const

  Get Transfer Syntax.
- void SetCompressIconImage (bool b)
- void SetForce (bool f)
- void SetTransferSyntax (const TransferSyntax &ts)

  Set target Transfer Syntax.
- void SetUserCodec (ImageCodec *ic)

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Member Functions

- bool TryJPEG2000Codec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGLSCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRAWCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRLECodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.150.1 Detailed Description

ImageChangeTransferSyntax class.

Class to change the transfer syntax of an input DICOM

If only Force param is set but no input TransferSyntax is set, it is assumed that user only wants to inspect encapsulated stream (advanced dev. option).

When using UserCodec it is very important that the TransferSyntax (as set in SetTransferSyntax) is actually understood by UserCodec (ie. UserCodec->CanCode(TransferSyntax)). Otherwise the behavior is to use a default codec.

See also

JPEGCodec JPEGLSCodec JPEG2000Codec

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

10.150.2 Constructor & Destructor Documentation

10.150.2.1 ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::ImageChangeTransferSyntax ( ) [inline]
```

10.150.2.2 ~ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::~ImageChangeTransferSyntax ( ) [default]
```

10.150.3 Member Function Documentation

10.150.3.1 Change()

```
bool gdcm::ImageChangeTransferSyntax::Change ( )
```

Change.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

10.150.3.2 GetTransferSyntax()

```
const TransferSyntax & gdcm::ImageChangeTransferSyntax::GetTransferSyntax ( ) const  [inline]
```

Get Transfer Syntax.

10.150.3.3 SetCompressIconImage()

```
void gdcm::ImageChangeTransferSyntax::SetCompressIconImage (
            bool b )  [inline]
```

Decide whether or not to also compress the Icon Image using the same Transfer Syntax. Default is to simply decompress icon image

Examples

StandardizeFiles.cs.

10.150.3.4 SetForce()

```
void gdcm::ImageChangeTransferSyntax::SetForce (
            bool f )  [inline]
```

When target Transfer Syntax is identical to input target syntax, no operation is actually done. This is an issue when someone wants to re-compress using GDCM internal implementation a JPEG (for example) image

Examples

StandardizeFiles.cs.

10.150.3.5 SetTransferSyntax()

```
void gdcm::ImageChangeTransferSyntax::SetTransferSyntax (
            const TransferSyntax & ts )  [inline]
```

Set target Transfer Syntax.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

10.150.3.6 SetUserCodec()

```
void gdcm::ImageChangeTransferSyntax::SetUserCodec (
            ImageCodec * ic )  [inline]
```

Allow user to specify exactly which codec to use. this is needed to specify special qualities or compression option.

Warning

if the codec 'ic' is not compatible with the TransferSyntax requested, it will not be used. It is the user responsibility to check that UserCodec->CanCode(TransferSyntax)

Examples

CompressLossyJPEG.cs.

10.150.3.7 TryJPEG2000Codec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEG2000Codec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output )  [protected]
```

10.150.3.8 TryJPEGCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output )  [protected]
```

10.150.3.9 TryJPEGLSCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGLSCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output )  [protected]
```

10.150.3.10 TryRAWCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRAWCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output )  [protected]
```

10.150.3.11 TryRLECodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRLECodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output )  [protected]
```

The documentation for this class was generated from the following file:

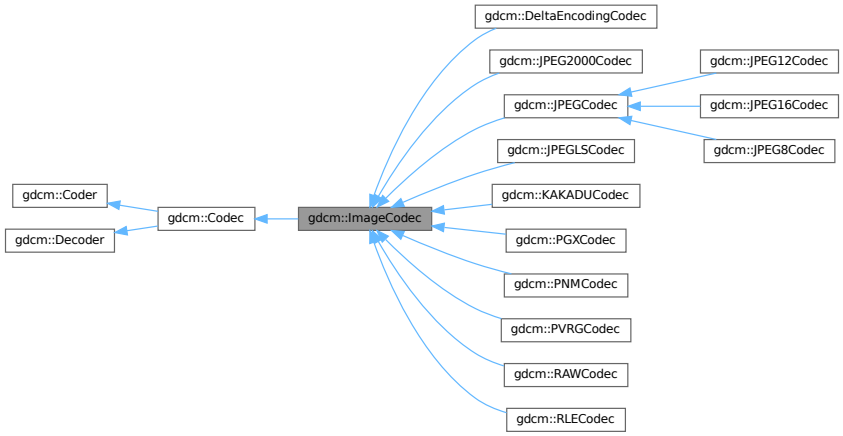
- gdcmImageChangeTransferSyntax.h

10.151 gdcm::ImageCodec Class Reference

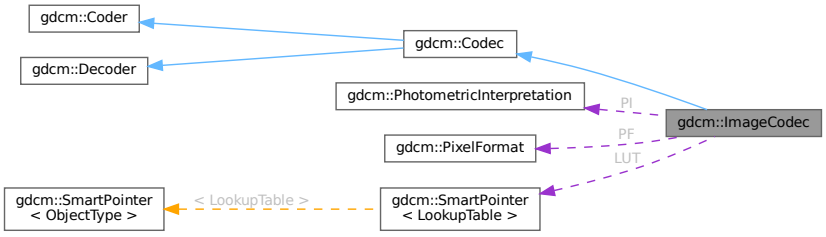
ImageCodec.

```
#include <gdcmImageCodec.h>
```

Inheritance diagram for gdcm::ImageCodec:



Collaboration diagram for gdcm::ImageCodec:



Public Member Functions

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it)
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- virtual bool AppendFrameEncode (std::ostream &out, const char ∗data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char ∗data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char ∗bv, unsigned long len, std::ostream &os)

Protected Attributes

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class FileChangeTransferSyntax
- class ImageChangePhotometricInterpretation

10.151.1 Detailed Description

ImageCodec.

Note

Main codec, this is a central place for all implementation

Examples

FileChangeTSLossy.cs.

10.151.2 Member Typedef Documentation

10.151.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::ImageCodec::LUTPtr  [protected]
```

10.151.3 Constructor & Destructor Documentation

10.151.3.1 ImageCodec()

```
gdcm::ImageCodec::ImageCodec ( )
```

10.151.3.2 ~ImageCodec()

```
gdcm::ImageCodec::~ImageCodec ( )  [override]
```

10.151.4 Member Function Documentation

10.151.4.1 AppendFrameEncode()

```
virtual bool gdcm::ImageCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.4.2 AppendRowEncode()

```
virtual bool gdcm::ImageCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.4.3 CanCode()

```
bool gdcm::ImageCodec::CanCode (
            TransferSyntax const &  ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Implements gdcm::Coder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.4 CanDecode()

```
bool gdcm::ImageCodec::CanDecode (
            TransferSyntax const &  ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Implements gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.5 CleanupUnusedBits()

```
bool gdcm::ImageCodec::CleanupUnusedBits (
            char * data,
            size_t datalen )
```

10.151.4.6 Clone()

```
virtual ImageCodec * gdcm::ImageCodec::Clone ( ) const  [pure virtual]
```

Implemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.7 Decode()

```
bool gdcm::ImageCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.8 DecodeByStreams()

```
bool gdcm::ImageCodec::DecodeByStreams (
            std::istream & is_,
            std::ostream & os )  [override], [protected], [virtual]
```

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.9 DoByteSwap()

```
bool gdcm::ImageCodec::DoByteSwap (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.10 DoInvertMonochrome()

```
bool gdcm::ImageCodec::DoInvertMonochrome (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.11 DoOverlayCleanup()

```
bool gdcm::ImageCodec::DoOverlayCleanup (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.12 DoPaddedCompositePixelCode()

```
bool gdcm::ImageCodec::DoPaddedCompositePixelCode (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.13 DoPlanarConfiguration()

```
bool gdcm::ImageCodec::DoPlanarConfiguration (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.14 DoSimpleCopy()

```
bool gdcm::ImageCodec::DoSimpleCopy (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.15 DoYBR()

```
bool gdcm::ImageCodec::DoYBR (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.16 DoYBRFull422()

```
bool gdcm::ImageCodec::DoYBRFull422 (
            std::istream & is_,
            std::ostream & os )  [protected]
```

10.151.4.17 GetDimensions()

```
const unsigned int * gdcm::ImageCodec::GetDimensions ( ) const  [inline]
```

10.151.4.18 GetHeaderInfo()

```
virtual bool gdcm::ImageCodec::GetHeaderInfo (
            std::istream & is_,
            TransferSyntax & ts )  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::RAWCodec, and gdcm::RLECodec.

10.151.4.19 GetLossyFlag()

```
bool gdcm::ImageCodec::GetLossyFlag ( ) const
```

10.151.4.20 GetLUT()

```
const LookupTable & gdcm::ImageCodec::GetLUT ( ) const  [inline]
```

10.151.4.21 GetNeedByteSwap()

```
bool gdcm::ImageCodec::GetNeedByteSwap ( ) const  [inline]
```

10.151.4.22 GetNumberOfDimensions()

```
unsigned int gdcm::ImageCodec::GetNumberOfDimensions ( ) const
```

10.151.4.23 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageCodec::GetPhotometricInterpretation ( ) const
```

10.151.4.24 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::ImageCodec::GetPixelFormat ( )  [inline]
```

Examples

GetJPEGSamplePrecision.cxx.

10.151.4.25 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::ImageCodec::GetPixelFormat ( ) const  [inline]
```

10.151.4.26 GetPlanarConfiguration()

```
unsigned int gdcm::ImageCodec::GetPlanarConfiguration ( ) const  [inline]
```

10.151.4.27 IsFrameEncoder()

```
virtual bool gdcm::ImageCodec::IsFrameEncoder ( )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.4.28 IsLossy()

```
bool gdcm::ImageCodec::IsLossy ( ) const
```

10.151.4.29 IsRowEncoder()

```
virtual bool gdcm::ImageCodec::IsRowEncoder ( )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.4.30 IsValid()

```
virtual bool gdcm::ImageCodec::IsValid (
            PhotometricInterpretation const & pi )  [protected], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

10.151.4.31 SetDimensions() [1/2]

```
void gdcm::ImageCodec::SetDimensions (
            const std::vector< unsigned int > & d )
```

10.151.4.32 SetDimensions() [2/2]

```
void gdcm::ImageCodec::SetDimensions (
            const unsigned int d[3] )
```

Examples

ExtractIconFromFile.cxx.

10.151.4.33 SetLossyFlag()

```
void gdcm::ImageCodec::SetLossyFlag (
            bool l )
```

10.151.4.34 SetLUT()

```
void gdcm::ImageCodec::SetLUT (
            LookupTable const & lut )  [inline]
```

Examples

ExtractIconFromFile.cxx.

10.151.4.35 SetNeedByteSwap()

```
void gdcm::ImageCodec::SetNeedByteSwap (
            bool b )  [inline]
```

10.151.4.36 SetNeedOverlayCleanup()

```
void gdcm::ImageCodec::SetNeedOverlayCleanup (
            bool b )  [inline]
```

10.151.4.37 SetNumberOfDimensions()

```
void gdcm::ImageCodec::SetNumberOfDimensions (
            unsigned int dim )
```

10.151.4.38 SetPhotometricInterpretation()

```
void gdcm::ImageCodec::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi )
```

Examples

ExtractIconFromFile.cxx.

10.151.4.39 SetPixelFormat()

```
virtual void gdcm::ImageCodec::SetPixelFormat (
            PixelFormat const & pf )  [inline], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

Examples

ExtractIconFromFile.cxx.

10.151.4.40 SetPlanarConfiguration()

```
void gdcm::ImageCodec::SetPlanarConfiguration (
            unsigned int pc )  [inline]
```

10.151.4.41 StartEncode()

```
virtual bool gdcm::ImageCodec::StartEncode (
            std::ostream & os )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.4.42 StopEncode()

```
virtual bool gdcm::ImageCodec::StopEncode (
            std::ostream & os )  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

10.151.5 Friends And Related Symbol Documentation

10.151.5.1 FileChangeTransferSyntax

```
friend class FileChangeTransferSyntax  [friend]
```

This is a high level API to encode in a streaming fashion. Each plugin will handle differently the caching mechanism so that a limited memory is used when compressing dataset. Codec will fall into two categories:

- Full row encoder: only a single scanline (row) of data is needed to be loaded at a time;
- Full frame encoder (default): a complete frame (row x col) is needed to be loaded at a time

10.151.5.2 ImageChangePhotometricInterpretation

```
friend class ImageChangePhotometricInterpretation  [friend]
```

10.151.6 Member Data Documentation

10.151.6.1 Dimensions

```
unsigned int gdcm::ImageCodec::Dimensions[3]  [protected]
```

10.151.6.2 LossyFlag

```
bool gdcm::ImageCodec::LossyFlag  [protected]
```

10.151.6.3 LUT

```
LUTPtr gdcm::ImageCodec::LUT [protected]
```

10.151.6.4 NeedByteSwap

```
bool gdcm::ImageCodec::NeedByteSwap [protected]
```

10.151.6.5 NeedOverlayCleanup

```
bool gdcm::ImageCodec::NeedOverlayCleanup [protected]
```

10.151.6.6 NumberOfDimensions

```
unsigned int gdcm::ImageCodec::NumberOfDimensions [protected]
```

10.151.6.7 PF

```
PixelFormat gdcm::ImageCodec::PF [protected]
```

10.151.6.8 PI

```
PhotometricInterpretation gdcm::ImageCodec::PI [protected]
```

10.151.6.9 PlanarConfiguration

```
unsigned int gdcm::ImageCodec::PlanarConfiguration [protected]
```

10.151.6.10 RequestPaddedCompositePixelCode

```
bool gdcm::ImageCodec::RequestPaddedCompositePixelCode [protected]
```

10.151.6.11 RequestPlanarConfiguration

```
bool gdcm::ImageCodec::RequestPlanarConfiguration [protected]
```

The documentation for this class was generated from the following file:

- gdcmImageCodec.h

10.152 gdcm::ImageConverter Class Reference

Image Converter.

```
#include <gdcmImageConverter.h>
```

Public Member Functions

- ImageConverter ()
- ~ImageConverter ()
- void Convert ()
- const Image & GetOuput () const
- void SetInput (Image const &input)

10.152.1 Detailed Description

Image Converter.

Note

This is the class used to convert from on Image to another This is typically used to convert let say YBR JPEG compressed Image to a RAW RGB Image. So that the buffer can be directly pass to third party application. This filter is application level and not integrated directly in GDCM

10.152.2 Constructor & Destructor Documentation

10.152.2.1 ImageConverter()

```
gdcm::ImageConverter::ImageConverter ( )
```

10.152.2.2 ~ImageConverter()

```
gdcm::ImageConverter::~ImageConverter ( )
```

10.152.3 Member Function Documentation

10.152.3.1 Convert()

```
void gdcm::ImageConverter::Convert ( )
```

10.152.3.2 GetOuput()

```
const Image & gdcm::ImageConverter::GetOuput ( ) const
```

10.152.3.3 SetInput()

```
void gdcm::ImageConverter::SetInput (
            Image const & input )
```

The documentation for this class was generated from the following file:

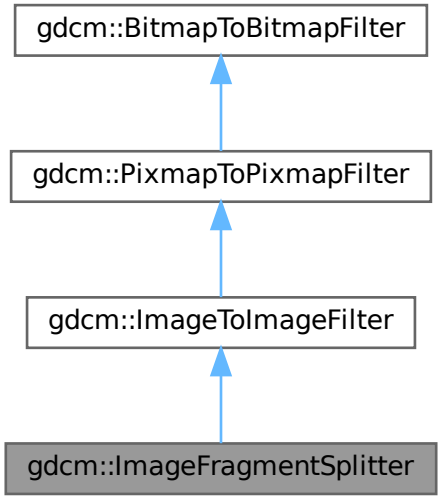
- gdcmImageConverter.h

10.153 gdcm::ImageFragmentSplitter Class Reference

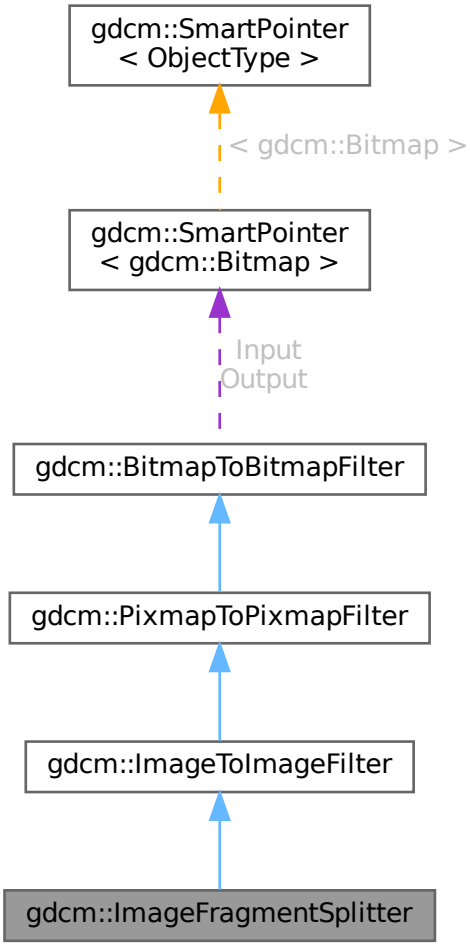
ImageFragmentSplitter class.

```
#include <gdcmImageFragmentSplitter.h>
```

Inheritance diagram for gdcm::ImageFragmentSplitter:



Collaboration diagram for gdcm::ImageFragmentSplitter:



Public Member Functions

- ImageFragmentSplitter ()
- ~ImageFragmentSplitter ()=default
- unsigned int GetFragmentSizeMax () const
- void SetForce (bool f)
- void SetFragmentSizeMax (unsigned int fragsize)

  FragmentSizeMax needs to be an even number.
- bool Split ()

  Split.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.153.1 Detailed Description

ImageFragmentSplitter class.

For single frame image, DICOM standard allow splitting the frame into multiple fragments

10.153.2 Constructor & Destructor Documentation

10.153.2.1 ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::ImageFragmentSplitter ( ) [inline]
```

10.153.2.2 ~ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::~ImageFragmentSplitter ( ) [default]
```

10.153.3 Member Function Documentation

10.153.3.1 GetFragmentSizeMax()

```
unsigned int gdcm::ImageFragmentSplitter::GetFragmentSizeMax ( ) const [inline]
```

10.153.3.2 SetForce()

```
void gdcm::ImageFragmentSplitter::SetForce (
            bool f ) [inline]
```

When file already has all it's segment < FragmentSizeMax there is not need to run the filter. Unless the user explicitly say 'force' recomputation !

10.153.3.3 SetFragmentSizeMax()

```
void gdcm::ImageFragmentSplitter::SetFragmentSizeMax (
            unsigned int fragsize )
```

FragmentSizeMax needs to be an even number.

10.153.3.4 Split()

```
bool gdcm::ImageFragmentSplitter::Split ( )
```

Split.

The documentation for this class was generated from the following file:

- gdcmImageFragmentSplitter.h

10.154 gdcm::ImageHelper Class Reference

ImageHelper (internal class, not intended for user level)

```
#include <gdcmImageHelper.h>
```

Static Public Member Functions

- static MediaStorage ComputeMediaStorageFromModality (const char *modality, unsigned int dimension=2, PixelFormat const &pf=PixelFormat(), PhotometricInterpretation const &pi=PhotometricInterpretation(), double rescaleintercept=0, double rescaleslope=1)

  Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.
- static bool ComputeSpacingFromImagePositionPatient (const std::vector< double > &imageposition, std::vector< double > &spacing)

  DO NOT USE.
- static std::vector< unsigned int > GetDimensionsValue (const File &f)
- static bool GetDirectionCosinesFromDataSet (DataSet const &ds, std::vector< double > &dircos)
- static std::vector< double > GetDirectionCosinesValue (File const &f)
- static bool GetForcePixelSpacing ()
- static bool GetForceRescaleInterceptSlope ()
- static SmartPointer< LookupTable > GetLUT (File const &f)

  returns the lookup table of an image file
- static std::vector< double > GetOriginValue (File const &f)

  Set/Get Origin (IPP) from/to a file.
- static PhotometricInterpretation GetPhotometricInterpretationValue (File const &f)
- static PixelFormat GetPixelFormatValue (const File &f)
- static unsigned int GetPlanarConfigurationValue (const File &f)
- static bool GetPMSRescaleInterceptSlope ()
- static const ByteValue * GetPointerFromElement (Tag const &tag, File const &f)
- static bool GetRealWorldValueMappingContent (File const &f, RealWorldValueMappingContent &rwvmc)
- static std::vector< double > GetRescaleInterceptSlopeValue (File const &f)
- static bool GetSecondaryCaptureImagePlaneModule ()
- static std::vector< double > GetSpacingValue (File const &f)

  Set/Get Spacing from/to a File.
- static void SetDimensionsValue (File &f, const Pixmap &img)
- static void SetDirectionCosinesValue (DataSet &ds, const std::vector< double > &dircos)
- static void SetForcePixelSpacing (bool)
- static void SetForceRescaleInterceptSlope (bool)
- static void SetOriginValue (DataSet &ds, const Image &img)
- static void SetPMSRescaleInterceptSlope (bool)
- static void SetRescaleInterceptSlopeValue (File &f, const Image &img)
- static void SetSecondaryCaptureImagePlaneModule (bool)
- static void SetSpacingValue (DataSet &ds, const std::vector< double > &spacing)

Static Protected Member Functions

- static Tag GetSpacingTagFromMediaStorage (MediaStorage const &ms)
- static Tag GetZSpacingTagFromMediaStorage (MediaStorage const &ms)

10.154.1 Detailed Description

ImageHelper (internal class, not intended for user level)

Helper for writing World images in DICOM. DICOM has a 'template' approach to image where MR Image Storage are distinct object from Enhanced MR Image Storage. For example the Pixel Spacing in one object is not at the same position (ie Tag) as in the other this class is the central (read: fragile) place where all the dispatching is done from a unified view of a world image (typically VTK or ITK point of view) down to the low level DICOM point of view.

Warning

: do not expect the API of this class to be maintained at any point, since as Modalities are added the API might have to be augmented or behavior changed to cope with new modalities.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and ExtractOneFrame.cs.

10.154.2 Member Function Documentation

10.154.2.1 ComputeMediaStorageFromModality()

```
static MediaStorage gdcm::ImageHelper::ComputeMediaStorageFromModality (
            const char * modality,
            unsigned int dimension = 2,
            PixelFormat const & pf = PixelFormat(),
            PhotometricInterpretation const & pi = PhotometricInterpretation(),
            double rescaleintercept = 0,
            double rescaleslope = 1 )  [static]
```

Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.

10.154.2.2 ComputeSpacingFromImagePositionPatient()

```
static bool gdcm::ImageHelper::ComputeSpacingFromImagePositionPatient (
            const std::vector< double > & imageposition,
            std::vector< double > & spacing )  [static]
```

DO NOT USE.

10.154.2.3 GetDimensionsValue()

```
static std::vector< unsigned int > gdcm::ImageHelper::GetDimensionsValue (
            const File & f )  [static]
```

This function checks tags (0x0028, 0x0010) and (0x0028, 0x0011) for the rows and columns of the image in pixels (as opposed to actual distances). The output is {col , row}

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.154.2.4 GetDirectionCosinesFromDataSet()

```
static bool gdcm::ImageHelper::GetDirectionCosinesFromDataSet (
            DataSet const & ds,
            std::vector< double > & dircos )  [static]
```

10.154.2.5 GetDirectionCosinesValue()

```
static std::vector< double > gdcm::ImageHelper::GetDirectionCosinesValue (
            File const & f )  [static]
```

Get Direction Cosines (IOP) from/to a file Requires a file because mediastorage must be known

10.154.2.6 GetForcePixelSpacing()

```
static bool gdcm::ImageHelper::GetForcePixelSpacing ( )  [static]
```

10.154.2.7 GetForceRescaleInterceptSlope()

```
static bool gdcm::ImageHelper::GetForceRescaleInterceptSlope ( )  [static]
```

10.154.2.8 GetLUT()

```
static SmartPointer< LookupTable > gdcm::ImageHelper::GetLUT (
            File const & f )  [static]
```

returns the lookup table of an image file

10.154.2.9 GetOriginValue()

```
static std::vector< double > gdcm::ImageHelper::GetOriginValue (
            File const & f )  [static]
```

Set/Get Origin (IPP) from/to a file.

10.154.2.10 GetPhotometricInterpretationValue()

```
static PhotometricInterpretation gdcm::ImageHelper::GetPhotometricInterpretationValue (
            File const & f )  [static]
```

Examples

ExtractImageRegion.cs.

10.154.2.11 GetPixelFormatValue()

```
static PixelFormat gdcm::ImageHelper::GetPixelFormatValue (
            const File & f )  [static]
```

This function returns pixel information about an image from its dataset That includes samples per pixel and bit depth (in that order)

10.154.2.12 GetPlanarConfigurationValue()

```
static unsigned int gdcm::ImageHelper::GetPlanarConfigurationValue (
            const File & f )  [static]
```

10.154.2.13 GetPMSRescaleInterceptSlope()

```
static bool gdcm::ImageHelper::GetPMSRescaleInterceptSlope ( )  [static]
```

10.154.2.14 GetPointerFromElement()

```
static const ByteValue * gdcm::ImageHelper::GetPointerFromElement (
            Tag const & tag,
            File const & f )  [static]
```

10.154.2.15 GetRealWorldValueMappingContent()

```
static bool gdcm::ImageHelper::GetRealWorldValueMappingContent (
            File const & f,
            RealWorldValueMappingContent & rwvmc )  [static]
```

10.154.2.16 GetRescaleInterceptSlopeValue()

```
static std::vector< double > gdcm::ImageHelper::GetRescaleInterceptSlopeValue (
            File const & f )  [static]
```

Set/Get shift/scale from/to a file

Warning

this function reads/sets the Slope/Intercept in appropriate class storage, but also Grid Scaling in RT Dose Storage Can't take a dataset because the mediastorage of the file must be known

10.154.2.17 GetSecondaryCaptureImagePlaneModule()

```
static bool gdcm::ImageHelper::GetSecondaryCaptureImagePlaneModule ( )  [static]
```

10.154.2.18 GetSpacingTagFromMediaStorage()

```
static Tag gdcm::ImageHelper::GetSpacingTagFromMediaStorage (
            MediaStorage const & ms )  [static], [protected]
```

10.154.2.19 GetSpacingValue()

```
static std::vector< double > gdcm::ImageHelper::GetSpacingValue (
            File const & f )  [static]
```

Set/Get Spacing from/to a File.

10.154.2.20 GetZSpacingTagFromMediaStorage()

```
static Tag gdcm::ImageHelper::GetZSpacingTagFromMediaStorage (
            MediaStorage const & ms )  [static], [protected]
```

10.154.2.21 SetDimensionsValue()

```
static void gdcm::ImageHelper::SetDimensionsValue (
            File & f,
            const Pixmap & img )  [static]
```

10.154.2.22 SetDirectionCosinesValue()

```
static void gdcm::ImageHelper::SetDirectionCosinesValue (
            DataSet & ds,
            const std::vector< double > & dircos )  [static]
```

Set Direction Cosines (IOP) from/to a file When IOD does not defines what is IOP (eg. typically Secondary Capture Image Storage) this call will simply remove the IOP attribute. Else in case of MR/CT image storage, this call will properly lookup the correct attribute to store the IOP.

10.154.2.23 SetForcePixelSpacing()

```
static void gdcm::ImageHelper::SetForcePixelSpacing (
            bool  )  [static]
```

GDCM 1.x compatibility issue: When using ReWrite an MR Image Storage would be rewritten as Secondary Capture Object while still having a Pixel Spacing tag (0028,0030). If you have deal with those files, use this very special flag to handle them Unless explicitly set elsewhere by the standard, it will use value from 0028,0030 / 0018,0088 for the Pixel Spacing of the Image

10.154.2.24 SetForceRescaleInterceptSlope()

```
static void gdcm::ImageHelper::SetForceRescaleInterceptSlope (
            bool  )  [static]
```

GDCM 1.x compatibility issue: Do not use anymore. This hack was used for some MR Image Storage generated by Philips Modality. When "Combine MR Rescaling" is set to TRUE, rescaling is removed. But when set to FALSE, the Modality LUT was exported. Internally GDCM now handles this gracefully.

10.154.2.25 SetOriginValue()

```
static void gdcm::ImageHelper::SetOriginValue (
            DataSet & ds,
            const Image & img )  [static]
```

10.154.2.26 SetPMSRescaleInterceptSlope()

```
static void gdcm::ImageHelper::SetPMSRescaleInterceptSlope (
            bool  )  [static]
```

Since GDCM 2.6.1 Philips Medical System are read using the Private Field For Rescale Slope/Intercept by default. This mechanism can be deactivated using the following API: This option has no effect when ForceRescaleInterceptSlope is set to true GDCM will only read those private attribute but never write them out.

10.154.2.27 SetRescaleInterceptSlopeValue()

```
static void gdcm::ImageHelper::SetRescaleInterceptSlopeValue (
            File & f,
            const Image & img )  [static]
```

10.154.2.28 SetSecondaryCaptureImagePlaneModule()

```
static void gdcm::ImageHelper::SetSecondaryCaptureImagePlaneModule (
            bool  )  [static]
```

Opt into Image Plane Module for Secondary Capture Image Storage Enable reading Image Position Patient (IPP), Image Orientation Patient (IOP) and Pixel Spacing (0028,0030) This is a custom extension for some existing dataset (academic)

10.154.2.29 SetSpacingValue()

```
static void gdcm::ImageHelper::SetSpacingValue (
            DataSet & ds,
            const std::vector< double > & spacing )  [static]
```

Warning

You need to call SetSpacingValue after SetOriginValue / SetDirectionCosinesValue

The documentation for this class was generated from the following file:

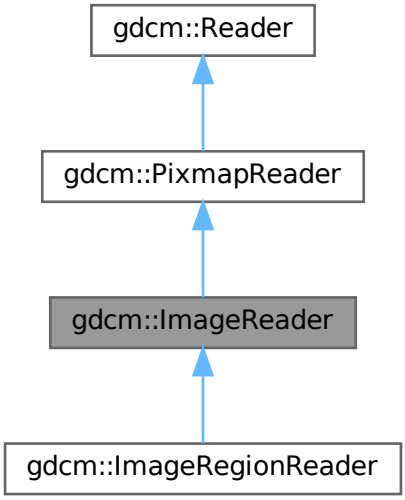
- gdcmImageHelper.h

10.155 gdcm::ImageReader Class Reference

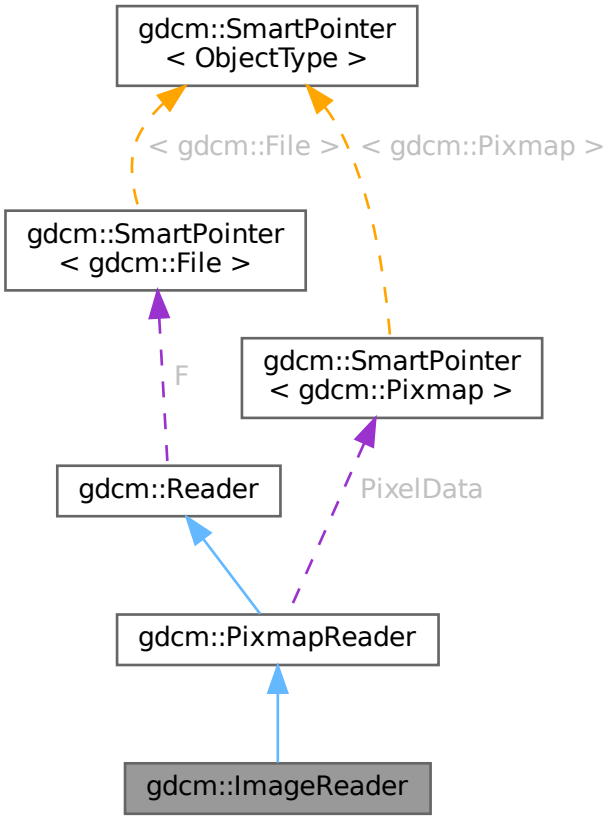
ImageReader.

```
#include <gdcmImageReader.h>
```

Inheritance diagram for gdcm::ImageReader:



Collaboration diagram for gdcm::ImageReader:



Public Member Functions

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.
- bool Read () override

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first)
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

10.155.1 Detailed Description

ImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation Image is different from Pixmap has it has a position and a direction in Space.

See also

Image

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

10.155.2 Constructor & Destructor Documentation

10.155.2.1 ImageReader()

```
gdcm::ImageReader::ImageReader ( )
```

10.155.2.2 ~ImageReader()

```
gdcm::ImageReader::~ImageReader ( ) [override]
```

10.155.3 Member Function Documentation

10.155.3.1 GetImage() [1/2]

```
Image & gdcm::ImageReader::GetImage ( )
```

10.155.3.2 GetImage() [2/2]

```
const Image & gdcm::ImageReader::GetImage ( ) const
```

Return the read image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

10.155.3.3 Read()

```
bool gdcm::ImageReader::Read ( )  [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Image.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::ImageRegionReader.

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

10.155.3.4 ReadACRNEMAImage()

```
bool gdcm::ImageReader::ReadACRNEMAImage ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

10.155.3.5 ReadImage()

```
bool gdcm::ImageReader::ReadImage (
            MediaStorage const & ms )  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

The documentation for this class was generated from the following file:

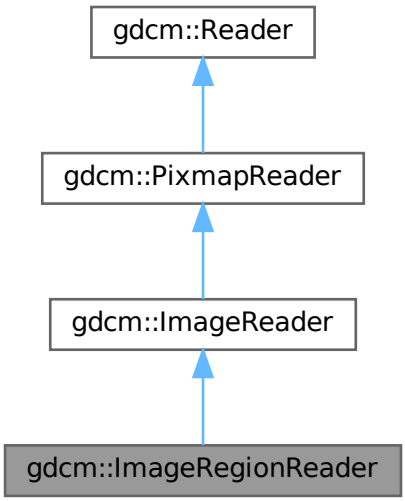
- gdcmImageReader.h

10.156 gdcm::ImageRegionReader Class Reference

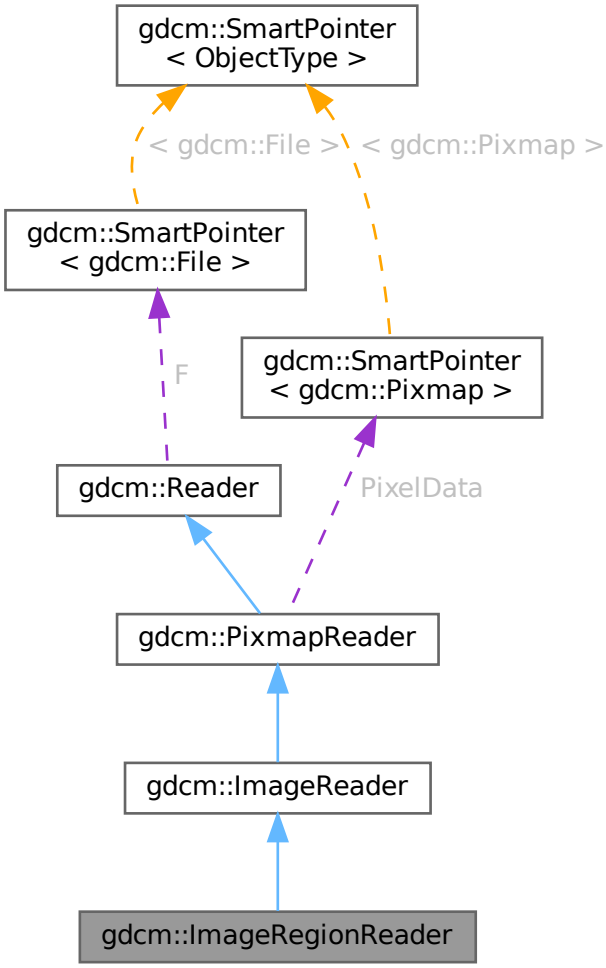
ImageRegionReader.

```
#include <gdcmImageRegionReader.h>
```

Inheritance diagram for gdcm::ImageRegionReader:



Collaboration diagram for gdcm::ImageRegionReader:



Public Member Functions

- ImageRegionReader ()
- ~ImageRegionReader () override
- size_t ComputeBufferLength () const
- Region const & GetRegion () const
- bool ReadInformation ()
- bool ReadIntoBuffer (char *inreadbuffer, size_t buflen)
- void SetRegion (Region const &region)

  Set/Get Region to be read.

Public Member Functions inherited from gdcm::ImageReader

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first)
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool Read () override

  To prevent user from calling super class Read() function.

Protected Member Functions inherited from gdcm::ImageReader

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

10.156.1 Detailed Description

ImageRegionReader.

This class is able to read a region from a DICOM file containing an image. This implementation requires that the information stored in the DICOM header are consistent with what is in the encapsulated Pixel Data. This is technically not required by DICOM standard, which makes this implementation illegal with regards to the famous JPEG note: `http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.↩2.html#para_4bcb841e-c6bf-4e26-82a5-3fad3c942da0`

See also

ImageReader

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

10.156.2 Constructor & Destructor Documentation

10.156.2.1 ImageRegionReader()

```
gdcm::ImageRegionReader::ImageRegionReader ( )
```

10.156.2.2 ~ImageRegionReader()

```
gdcm::ImageRegionReader::~ImageRegionReader ( ) [override]
```

10.156.3 Member Function Documentation

10.156.3.1 ComputeBufferLength()

```
size_t gdcm::ImageRegionReader::ComputeBufferLength ( ) const
```

Explicit call which will compute the minimal buffer length that can hold the whole uncompressed image as defined by Region `region`.

Returns

0 upon error

10.156.3.2 GetRegion()

```
Region const & gdcm::ImageRegionReader::GetRegion ( ) const
```

10.156.3.3 Read()

```
bool gdcm::ImageRegionReader::Read ( ) [override], [protected], [virtual]
```

To prevent user from calling super class Read() function.

Reimplemented from gdcm::ImageReader.

10.156.3.4 ReadInformation()

```
bool gdcm::ImageRegionReader::ReadInformation ( )
```

Read meta information (not Pixel Data) from the DICOM file.

Returns

false upon error

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

10.156.3.5 ReadIntoBuffer()

```
bool gdcm::ImageRegionReader::ReadIntoBuffer (
            char * inreadbuffer,
            size_t buflen )
```

Read into buffer: For Python, the `buflen` param is deduced directly from the input bytearray passed as parameter (function only takes one param).

Returns

false upon error

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

10.156.3.6 SetRegion()

```
void gdcm::ImageRegionReader::SetRegion (
            Region const & region )
```

Set/Get Region to be read.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

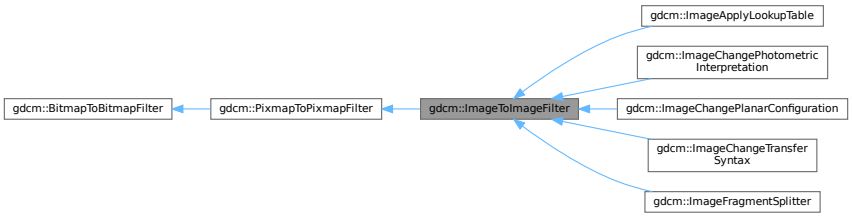
- gdcmImageRegionReader.h

10.157 gdcm::ImageToImageFilter Class Reference

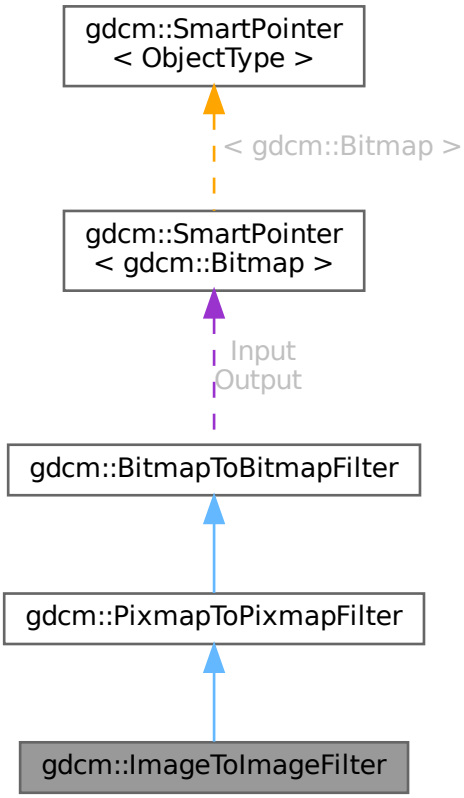
ImageToImageFilter class.

```
#include <gdcmImageToImageFilter.h>
```

Inheritance diagram for gdcm::ImageToImageFilter:



Collaboration diagram for gdcm::ImageToImageFilter:



Public Member Functions

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.157.1 Detailed Description

ImageToImageFilter class.

Super class for all filter taking an image and producing an output image

10.157.2 Constructor & Destructor Documentation

10.157.2.1 ImageToImageFilter()

```
gdcm::ImageToImageFilter::ImageToImageFilter ( )
```

10.157.2.2 ~ImageToImageFilter()

```
gdcm::ImageToImageFilter::~ImageToImageFilter ( )  [default]
```

10.157.3 Member Function Documentation

10.157.3.1 GetInput()

```
Image & gdcm::ImageToImageFilter::GetInput ( )
```

10.157.3.2 GetOutput()

```
const Image & gdcm::ImageToImageFilter::GetOutput ( ) const
```

Get Output image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, and CompressLossyJPEG.cs.

The documentation for this class was generated from the following file:

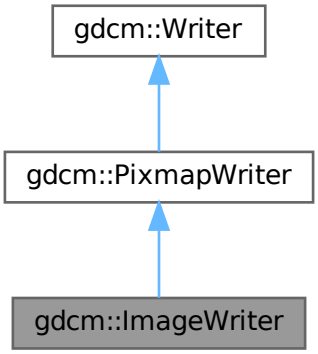
- gdcmImageToImageFilter.h

10.158 gdcm::ImageWriter Class Reference

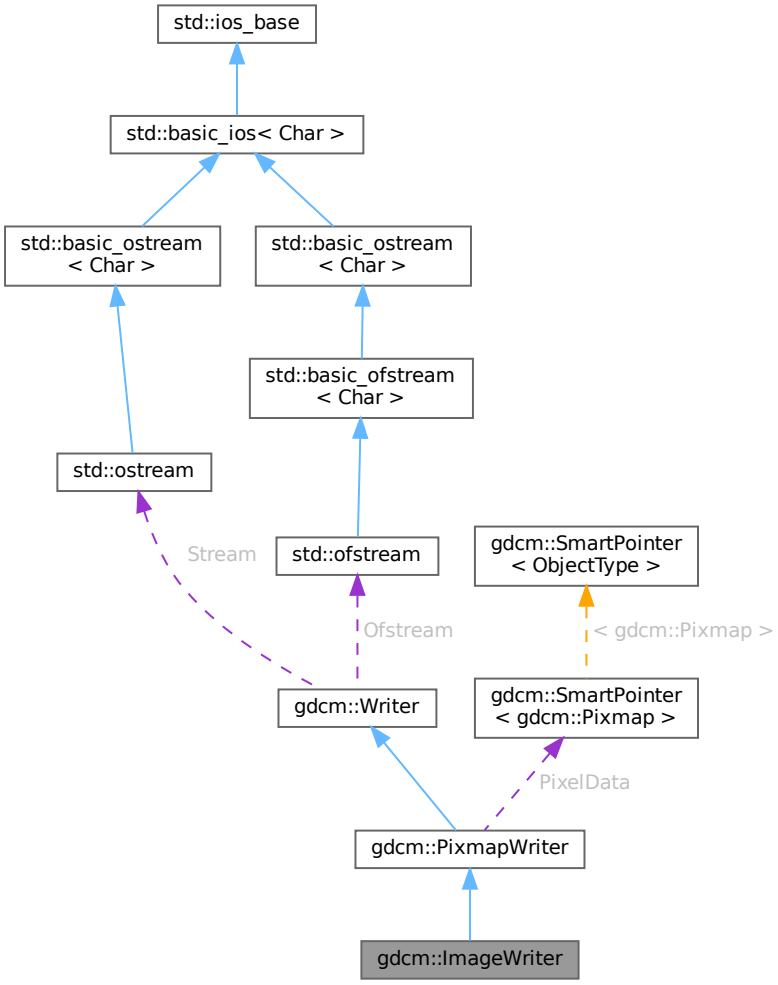
ImageWriter.

```
#include <gdcmImageWriter.h>
```

Inheritance diagram for gdcm::ImageWriter:



Collaboration diagram for gdcm::ImageWriter:



Public Member Functions

- ImageWriter ()
- ~ImageWriter () override
- MediaStorage ComputeTargetMediaStorage ()
- const Image & GetImage () const override
- Image & GetImage () override
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::PixmapWriter

- PixmapWriter ()
- ~PixmapWriter () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default)
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header)
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Additional Inherited Members

Protected Member Functions inherited from gdcm::PixmapWriter

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes inherited from gdcm::PixmapWriter

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

10.158.1 Detailed Description

ImageWriter.

This is an extended version of the PixmapWriter. Pay attention that:

1. It will populate missing attribute for Secondary Capture Image Storage instances,
2. It may also change an input MR Image Storage instance into a pseudo Enhanced MR Image Storage instance whenever Modality LUT is required.
3. Some DataElement related to gdcm::Image may be slightly altered.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

10.158.2 Constructor & Destructor Documentation

10.158.2.1 ImageWriter()

```
gdcm::ImageWriter::ImageWriter ( )
```

10.158.2.2 ~ImageWriter()

```
gdcm::ImageWriter::~ImageWriter ( ) [override]
```

10.158.3 Member Function Documentation

10.158.3.1 ComputeTargetMediaStorage()

```
MediaStorage gdcm::ImageWriter::ComputeTargetMediaStorage ( )
```

internal function used to compute a target MediaStorage the most appropriate User may want to call this function ahead of time (before Write)

Examples

TemplateEmptyImage.cxx.

10.158.3.2 GetImage() [1/2]

```
const Image & gdcm::ImageWriter::GetImage ( ) const  [inline], [override], [virtual]
```

Set/Get Image to be written It will overwrite anything Image infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented from gdcm::PixmapWriter.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

10.158.3.3 GetImage() [2/2]

```
Image & gdcm::ImageWriter::GetImage ( )  [inline], [override], [virtual]
```

Reimplemented from gdcm::PixmapWriter.

10.158.3.4 Write()

```
bool gdcm::ImageWriter::Write ( )  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

The documentation for this class was generated from the following file:

- gdcmImageWriter.h

10.159 gdcm::network::ImplementationClassUIDSub Class Reference

ImplementationClassUIDSub.

```
#include <gdcmImplementationClassUIDSub.h>
```

Public Member Functions

- ImplementationClassUIDSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.159.1 Detailed Description

ImplementationClassUIDSub.

PS 3.7 Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.159.2 Constructor & Destructor Documentation

10.159.2.1 ImplementationClassUIDSub()

```
gdcm::network::ImplementationClassUIDSub::ImplementationClassUIDSub ( )
```

10.159.3 Member Function Documentation

10.159.3.1 Print()

```
void gdcm::network::ImplementationClassUIDSub::Print (
            std::ostream & os ) const
```

10.159.3.2 Read()

```
std::istream & gdcm::network::ImplementationClassUIDSub::Read (
            std::istream & is )
```

10.159.3.3 Size()

```
size_t gdcm::network::ImplementationClassUIDSub::Size ( ) const
```

10.159.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationClassUIDSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationClassUIDSub.h

10.160 gdcm::network::ImplementationUIDSub Class Reference

ImplementationUIDSub.

```
#include <gdcmImplementationUIDSub.h>
```

Public Member Functions

- ImplementationUIDSub ()
- const std::ostream & Write (std::ostream &os) const

10.160.1 Detailed Description

ImplementationUIDSub.

Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

10.160.2 Constructor & Destructor Documentation

10.160.2.1 ImplementationUIDSub()

```
gdcm::network::ImplementationUIDSub::ImplementationUIDSub ( )
```

10.160.3 Member Function Documentation

10.160.3.1 Write()

```
const std::ostream & gdcm::network::ImplementationUIDSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationUIDSub.h

10.161 gdcm::network::ImplementationVersionNameSub Class Reference

ImplementationVersionNameSub.

```
#include <gdcmImplementationVersionNameSub.h>
```

Public Member Functions

- ImplementationVersionNameSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.161.1 Detailed Description

ImplementationVersionNameSub.

Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.161.2 Constructor & Destructor Documentation

10.161.2.1 ImplementationVersionNameSub()

```
gdcm::network::ImplementationVersionNameSub::ImplementationVersionNameSub ( )
```

10.161.3 Member Function Documentation

10.161.3.1 Print()

```
void gdcm::network::ImplementationVersionNameSub::Print (
            std::ostream & os ) const
```

10.161.3.2 Read()

```
std::istream & gdcm::network::ImplementationVersionNameSub::Read (
            std::istream & is )
```

10.161.3.3 Size()

```
size_t gdcm::network::ImplementationVersionNameSub::Size ( ) const
```

10.161.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationVersionNameSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

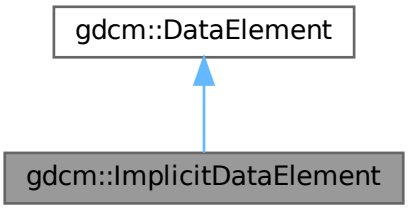
- gdcmImplementationVersionNameSub.h

10.162 gdcm::ImplicitDataElement Class Reference

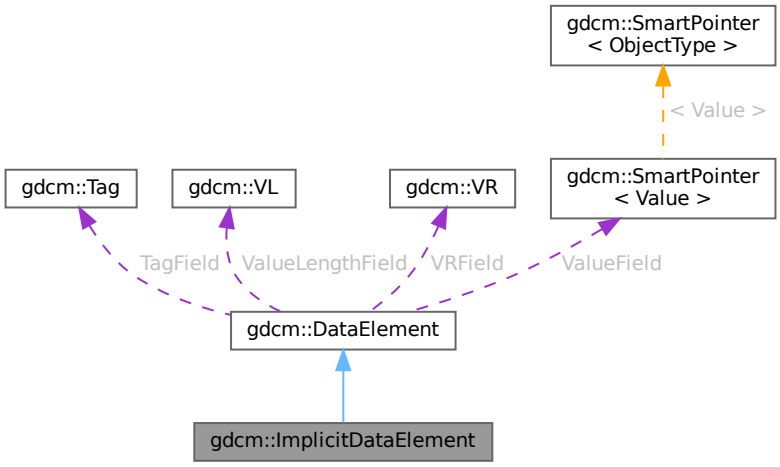
Class to represent an *Implicit VR* Data Element.

```
#include <gdcmImplicitDataElement.h>
```

Inheritance diagram for gdcm::ImplicitDataElement:



Collaboration diagram for gdcm::ImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.162.1 Detailed Description

Class to represent an *Implicit VR* Data Element.

Note

bla

Examples

ReadExplicitLengthSQIVR.cxx.

10.162.2 Member Function Documentation

10.162.2.1 GetLength()

```
VL gdcm::ImplicitDataElement::GetLength ( ) const
```

10.162.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::ImplicitDataElement::Read (
            std::istream & is )
```

10.162.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::ImplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.162.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::ImplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.162.2.5 ReadValueWithLength()

```
template<typename TSwap >
std::istream & gdcm::ImplicitDataElement::ReadValueWithLength (
            std::istream & is,
            VL & length,
            bool readvalues = true )
```

10.162.2.6 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::ImplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length,
            bool readvalues = true )
```

10.162.2.7 Write()

```
template<typename TSwap >
const std::ostream & gdcm::ImplicitDataElement::Write (
            std::ostream & os ) const
```

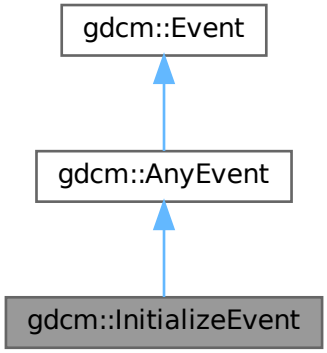
The documentation for this class was generated from the following file:

- gdcmImplicitDataElement.h

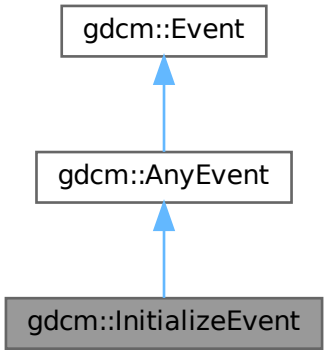
10.163 gdcm::InitializeEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::InitializeEvent:



Collaboration diagram for gdcm::InitializeEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.164 gdcm::IOD Class Reference

Class for representing a IOD.

```
#include <gdcmIOD.h>
```

Public Types

- typedef std::vector< IODEntry > MapIODEntry
- typedef MapIODEntry::size_type SizeType

Public Member Functions

- IOD ()=default
- void AddIODEntry (const IODEntry &iode)
- void Clear ()
- const IODEntry & GetIODEntry (SizeType idx) const
- SizeType GetNumberOfIODs () const
- Type GetTypeFromTag (const Defs &defs, const Tag &tag) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IOD &_val)

10.164.1 Detailed Description

Class for representing a IOD.

Note

bla

See also

Dict

Examples

TraverseModules.cxx.

10.164.2 Member Typedef Documentation

10.164.2.1 MapIODEntry

```
typedef std::vector<IODEntry> gdcm::IOD::MapIODEntry
```

10.164.2.2 SizeType

```
typedef MapIODEntry::size_type gdcm::IOD::SizeType
```

10.164.3 Constructor & Destructor Documentation

10.164.3.1 IOD()

```
gdcm::IOD::IOD ( ) [default]
```

References gdcm::operator<<().

10.164.4 Member Function Documentation

10.164.4.1 AddIODEntry()

```
void gdcm::IOD::AddIODEntry (
            const IODEntry & iode )  [inline]
```

10.164.4.2 Clear()

```
void gdcm::IOD::Clear ( )  [inline]
```

10.164.4.3 GetIODEntry()

```
const IODEntry & gdcm::IOD::GetIODEntry (
            SizeType idx ) const  [inline]
```

Examples

TraverseModules.cxx.

10.164.4.4 GetNumberOfIODs()

```
SizeType gdcm::IOD::GetNumberOfIODs ( ) const  [inline]
```

Examples

TraverseModules.cxx.

10.164.4.5 GetTypeFromTag()

```
Type gdcm::IOD::GetTypeFromTag (
            const Defs & defs,
            const Tag & tag ) const
```

10.164.5 Friends And Related Symbol Documentation

10.164.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IOD & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmIOD.h

10.165 gdcm::IODEntry Class Reference

Class for representing a IODEntry.

```
#include <gdcmIODEntry.h>
```

Public Member Functions

- IODEntry (const char *name="", const char *ref="", const char *inUsage="")
- const char * GetIE () const
- const char * GetName () const
- const char * GetRef () const
- const char * GetUsage () const
- Usage::UsageType GetUsageType () const
- void SetIE (const char *ie)
- void SetName (const char *name)
- void SetRef (const char *ref)
- void SetUsage (const char *inUsage)

Friends

- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)

10.165.1 Detailed Description

Class for representing a IODEntry.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C. PS 3.3 - 2008 Page 96
- Standard - A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

See also

DictEntry

Examples

TraverseModules.cxx.

10.165.2 Constructor & Destructor Documentation

10.165.2.1 IODEntry()

```
gdcm::IODEntry::IODEntry (
            const char * name = "",
            const char * ref = "",
            const char * inUsage = "" )  [inline]
```

10.165.3 Member Function Documentation

10.165.3.1 GetIE()

```
const char * gdcm::IODEntry::GetIE ( ) const  [inline]
```

10.165.3.2 GetName()

```
const char * gdcm::IODEntry::GetName ( ) const  [inline]
```

10.165.3.3 GetRef()

```
const char * gdcm::IODEntry::GetRef ( ) const  [inline]
```

Examples

TraverseModules.cxx.

10.165.3.4 GetUsage()

```
const char * gdcm::IODEntry::GetUsage ( ) const  [inline]
```

10.165.3.5 GetUsageType()

```
Usage::UsageType gdcm::IODEntry::GetUsageType ( ) const
```

10.165.3.6 SetIE()

```
void gdcm::IODEntry::SetIE (
            const char * ie )  [inline]
```

10.165.3.7 SetName()

```
void gdcm::IODEntry::SetName (
            const char * name )  [inline]
```

10.165.3.8 SetRef()

```
void gdcm::IODEntry::SetRef (
            const char * ref )  [inline]
```

10.165.3.9 SetUsage()

```
void gdcm::IODEntry::SetUsage (
            const char * inUsage )  [inline]
```

10.165.4 Friends And Related Symbol Documentation

10.165.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODEntry & _val )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmIODEntry.h

10.166 gdcm::IODs Class Reference

Class for representing a IODs.

```
#include <gdcmIODs.h>
```

Public Types

- typedef std::map< IODName, IOD > IODMapType
- typedef IODMapType::const_iterator IODMapTypeConstIterator
- typedef std::string IODName

Public Member Functions

- IODs ()=default
- void AddIOD (const char *name, const IOD &module)
- IODMapTypeConstIterator Begin () const
- void Clear ()
- IODMapTypeConstIterator End () const
- const IOD & GetIOD (const char *name) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IODs &_val)

10.166.1 Detailed Description

Class for representing a IODs.

Note

bla

See also

IOD

Examples

TraverseModules.cxx.

10.166.2 Member Typedef Documentation

10.166.2.1 IODMapType

```
typedef std::map<IODName, IOD> gdcm::IODs::IODMapType
```

10.166.2.2 IODMapTypeConstIterator

```
typedef IODMapType::const_iterator gdcm::IODs::IODMapTypeConstIterator
```

10.166.2.3 IODName

```
typedef std::string gdcm::IODs::IODName
```

10.166.3 Constructor & Destructor Documentation

10.166.3.1 IODs()

```
gdcm::IODs::IODs ( ) [default]
```

References gdcm::operator<<().

10.166.4 Member Function Documentation

10.166.4.1 AddIOD()

```
void gdcm::IODs::AddIOD (
            const char * name,
            const IOD & module ) [inline]
```

10.166.4.2 Begin()

```
IODMapTypeConstIterator gdcm::IODs::Begin ( ) const [inline]
```

Examples

TraverseModules.cxx.

10.166.4.3 Clear()

```
void gdcm::IODs::Clear ( ) [inline]
```

10.166.4.4 End()

```
IODMapTypeConstIterator gdcm::IODs::End ( ) const [inline]
```

Examples

TraverseModules.cxx.

10.166.4.5 GetIOD()

```
const IOD & gdcm::IODs::GetIOD (
            const char * name ) const [inline]
```

10.166.5 Friends And Related Symbol Documentation

10.166.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODs & _val )  [friend]
```

The documentation for this class was generated from the following file:

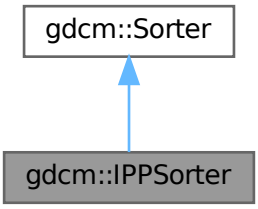
- gdcmIODs.h

10.167 gdcm::IPPSorter Class Reference

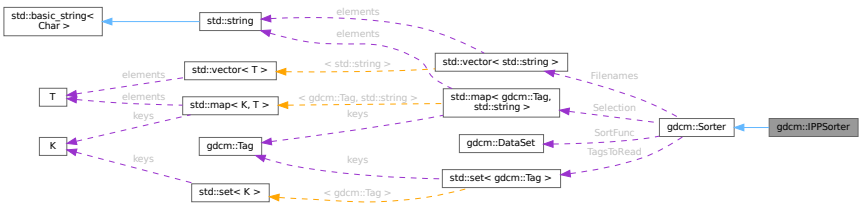
IPPSorter.

```
#include <gdcmIPPSorter.h>
```

Inheritance diagram for gdcm::IPPSorter:



Collaboration diagram for gdcm::IPPSorter:



Public Member Functions

- IPPSorter ()
- double GetDirectionCosinesTolerance () const
- double GetZSpacing () const
- double GetZSpacingTolerance () const
- void SetComputeZSpacing (bool b)
- void SetDirectionCosinesTolerance (double tol)
- void SetDropDuplicatePositions (bool b)
- void SetZSpacingTolerance (double tol)
- bool Sort (std::vector< std::string > const &filenames) override

Public Member Functions inherited from gdcm::Sorter

- Sorter ()
- virtual ~Sorter ()
- bool AddSelect (Tag const &tag, const char *value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Attributes

- bool ComputeZSpacing
- double DirCosTolerance
- bool DropDuplicatePositions
- double ZSpacing
- double ZTolerance

Protected Attributes inherited from gdcm::Sorter

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Additional Inherited Members

Public Types inherited from gdcm::Sorter

- typedef bool(* SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Protected Types inherited from gdcm::Sorter

- typedef std::map< Tag, std::string > SelectionMap

10.167.1 Detailed Description

IPPSorter.

Implement a simple Image Position (Patient) sorter, along the Image Orientation (Patient) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

Warning

See special note for SetZSpacingTolerance when computing the ZSpacing from the IPP of each DICOM files (default tolerance for consistent spacing is: 1e-6mm)

For more information on Spacing, and how it is defined in DICOM, advanced users may refers to:

`http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

Bug There are currently a couple of bugs in this implementation:

- Gantry Tilt is not considered (always an error)
- Application programmer should only sort valid DataSet (eg. MRImageStorage, CTImageStorage, PETImage↩ Storage)

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.167.2 Constructor & Destructor Documentation

10.167.2.1 IPPSorter()

```
gdcm::IPPSorter::IPPSorter ( )
```

10.167.3 Member Function Documentation

10.167.3.1 GetDirectionCosinesTolerance()

```
double gdcm::IPPSorter::GetDirectionCosinesTolerance ( ) const  [inline]
```

10.167.3.2 GetZSpacing()

```
double gdcm::IPPSorter::GetZSpacing ( ) const  [inline]
```

Read-only function to provide access to the computed value for the Z-Spacing The ComputeZSpacing must have been set to true before execution of sort algorithm. Call this function *after* calling Sort(); Z-Spacing will be 0 on 2 occasions:

- Sorting simply failed, potentially duplicate IPP => ZSpacing = 0
- ZSpacing could not be computed (Z-Spacing is not constant, or ZTolerance is too low)

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.167.3.3 GetZSpacingTolerance()

```
double gdcm::IPPSorter::GetZSpacingTolerance ( ) const  [inline]
```

10.167.3.4 SetComputeZSpacing()

```
void gdcm::IPPSorter::SetComputeZSpacing (
            bool b )  [inline]
```

Functions related to Z-Spacing computation Set to true when sort algorithm should also perform a regular Z-Spacing computation using the Image Position (Patient) Potential reason for failure:

1. ALL slices are taken into account, if one slice if missing then ZSpacing will be set to 0 since the spacing will not be found to be regular along the Series

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.167.3.5 SetDirectionCosinesTolerance()

```
void gdcm::IPPSorter::SetDirectionCosinesTolerance (
            double tol )  [inline]
```

Sometimes IOP along a series is slightly changing for example: "0.999081\\0.0426953\\0.00369272\\-0.0419025\\0.↩955059\\0.293439", "0.999081\\0.0426953\\0.00369275\\-0.0419025\\0.955059\\0.293439", "0.999081\\0.0426952\\0.↩00369272\\-0.0419025\\0.955059\\0.293439", We need an API to define the tolerance which is allowed. Internally the cross vector of each direction cosines is computed. The tolerance then define the distance in between 1.0 to the dot product of those cross vectors. In a perfect world this dot product is of course 1.0 which imply a DirectionCosines tolerance of exactly 0.0 (default).

10.167.3.6 SetDropDuplicatePositions()

```
void gdcm::IPPSorter::SetDropDuplicatePositions (
            bool b )  [inline]
```

Makes the IPPSorter ignore multiple images located at the same position. Only the first occurrence will be kept. Drop↩ DuplicatePositions defaults to false.

10.167.3.7 SetZSpacingTolerance()

```
void gdcm::IPPSorter::SetZSpacingTolerance (
            double tol )  [inline]
```

1. Another reason for failure is that that Z-Spacing is only slightly changing (eg 1e-3) along the series, a human can determine that this is ok and change the tolerance from its default value: 1e-6

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.167.3.8 Sort()

```
bool gdcm::IPPSorter::Sort (
            std::vector< std::string > const & filenames )  [override], [virtual]
```

Main entry point to the sorter. It will execute the filter, option should be set before running this function (SetZSpacing↩ Tolerance, ...) Return value indicate if sorting could be achieved,. Warning this does *NOT* imply that spacing is consistent, it only means the file are sorted according to IPP You should check if ZSpacing is 0 or not to deduce if file are actually a 3D volume

Reimplemented from gdcm::Sorter.

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.167.4 Member Data Documentation

10.167.4.1 ComputeZSpacing

```
bool gdcm::IPPSorter::ComputeZSpacing  [protected]
```

10.167.4.2 DirCosTolerance

```
double gdcm::IPPSorter::DirCosTolerance  [protected]
```

10.167.4.3 DropDuplicatePositions

```
bool gdcm::IPPSorter::DropDuplicatePositions [protected]
```

10.167.4.4 ZSpacing

```
double gdcm::IPPSorter::ZSpacing [protected]
```

10.167.4.5 ZTolerance

```
double gdcm::IPPSorter::ZTolerance [protected]
```

The documentation for this class was generated from the following file:

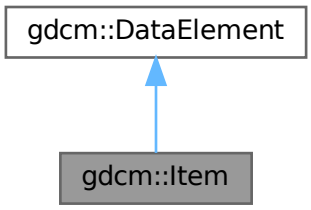
- gdcmIPPSorter.h

10.168 gdcm::Item Class Reference

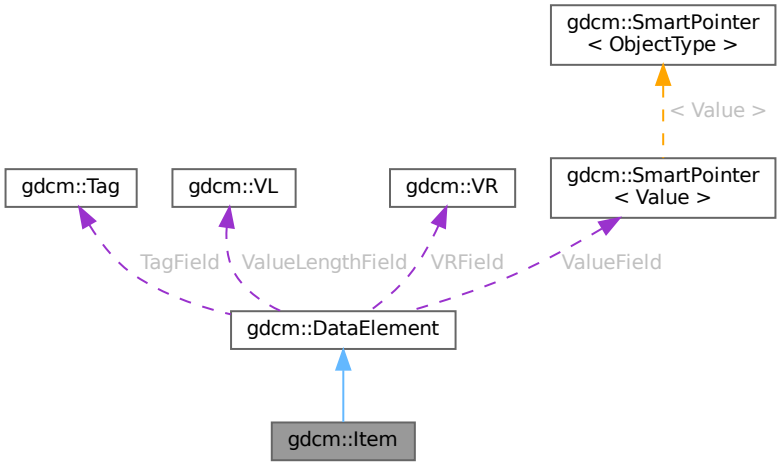
Class to represent an Item.

```
#include <gdcmItem.h>
```

Inheritance diagram for gdcm::Item:



Collaboration diagram for gdcm::Item:



Public Member Functions

- Item ()
- Item (Item const &val)
- void Clear ()
- bool FindDataElement (const Tag &t) const
- const DataElement & GetDataElement (const Tag &t) const
- template<typename TDE >
  VL GetLength () const
- DataSet & GetNestedDataSet ()
- const DataSet & GetNestedDataSet () const
- void InsertDataElement (const DataElement &de)
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- void SetNestedDataSet (const DataSet &nested)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const

- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Item &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.168.1 Detailed Description

Class to represent an Item.

A component of the value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set . See PS 3.5 7.5.1 Item Encoding Rules Each Item of a Data Element of VR SQ shall be encoded as a DICOM Standard Data Element with a specific Data Element Tag of Value (FFFE,E000). The Item Tag is followed by a 4 byte Item Length field encoded in one of the following two ways Explicit/ Implicit

Note

ITEM: A component of the Value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set.

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.168.2 Constructor & Destructor Documentation

10.168.2.1 Item() [1/2]

```
gdcm::Item::Item ( ) [inline]
```

10.168.2.2 Item() [2/2]

```
gdcm::Item::Item (
            Item const & val )  [inline]
```

10.168.3 Member Function Documentation

10.168.3.1 Clear()

```
void gdcm::Item::Clear ( )  [inline]
```

Referenced by gdcm::SequenceOfItems::Read().

10.168.3.2 FindDataElement()

```
bool gdcm::Item::FindDataElement (
            const Tag & t ) const  [inline]
```

10.168.3.3 GetDataElement()

```
const DataElement & gdcm::Item::GetDataElement (
            const Tag & t ) const  [inline]
```

10.168.3.4 GetLength()

```
template<typename TDE >
VL gdcm::Item::GetLength ( ) const
```

10.168.3.5 GetNestedDataSet() [1/2]

```
DataSet & gdcm::Item::GetNestedDataSet ( )  [inline]
```

10.168.3.6 GetNestedDataSet() [2/2]

```
const DataSet & gdcm::Item::GetNestedDataSet ( ) const  [inline]
```

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by gdcm::SequenceOfItems::Read().

10.168.3.7 InsertDataElement()

```
void gdcm::Item::InsertDataElement (
            const DataElement & de )  [inline]
```

10.168.3.8 Read()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::Item::Read (
            std::istream & is )  [inline]
```

References gdcm::ByteSwapFilter::ByteSwap(), gdcm::DataSet::Clear(), gdcmDebugMacro, gdcmErrorMacro, gdcmWarningMacro, gdcm::DataSet::IsEmpty(), and gdcm::ByteSwapFilter::SetByteSwapTag().

Referenced by gdcm::SequenceOfItems::Read().

10.168.3.9 SetNestedDataSet()

```
void gdcm::Item::SetNestedDataSet (
            const DataSet & nested )  [inline]
```

10.168.3.10 Write()

```
template<typename TDE , typename TSwap >
const std::ostream & gdcm::Item::Write (
            std::ostream & os ) const  [inline]
```

References gdcmWarningMacro, gdcm::VL::GetLength(), gdcm::Tag::Write(), and gdcm::VL::Write().

10.168.4 Friends And Related Symbol Documentation

10.168.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Item & val )  [friend]
```

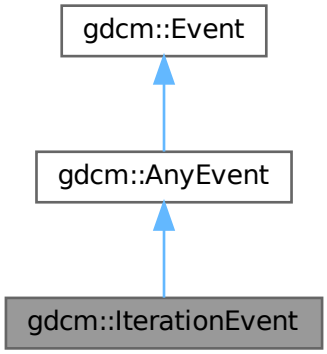
The documentation for this class was generated from the following file:

- gdcmItem.h

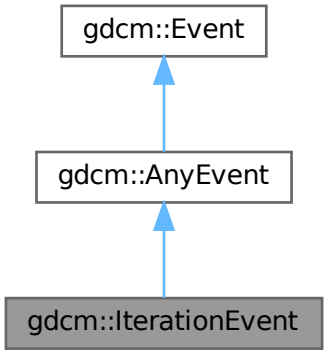
10.169 gdcm::IterationEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::IterationEvent:



Collaboration diagram for gdcm::IterationEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

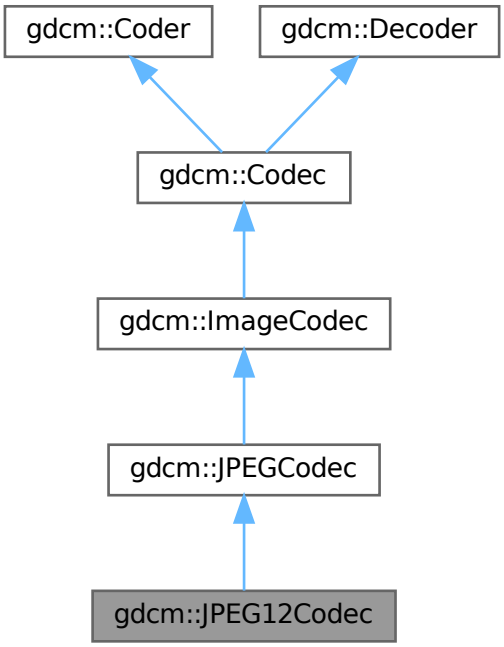
- gdcmEvent.h

10.170 gdcm::JPEG12Codec Class Reference

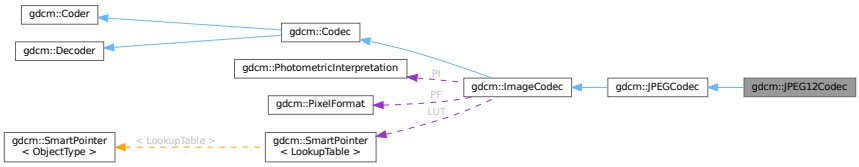
Class to do JPEG 12bits (lossy & lossless)

```
#include <gdcmJPEG12Codec.h>
```

Inheritance diagram for gdcm::JPEG12Codec:



Collaboration diagram for gdcm::JPEG12Codec:



Public Member Functions

- JPEG12Codec ()
- ~JPEG12Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.170.1 Detailed Description

Class to do JPEG 12bits (lossy & lossless)

Note

internal class

10.170.2 Constructor & Destructor Documentation

10.170.2.1 JPEG12Codec()

```
gdcm::JPEG12Codec::JPEG12Codec ( )
```

10.170.2.2 ~JPEG12Codec()

```
gdcm::JPEG12Codec::~JPEG12Codec ( ) [override]
```

10.170.3 Member Function Documentation

10.170.3.1 DecodeByStreams()

```
bool gdcm::JPEG12Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os ) [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.170.3.2 EncodeBuffer()

```
bool gdcm::JPEG12Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen ) [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

10.170.3.3 GetHeaderInfo()

```
bool gdcm::JPEG12Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts ) [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.170.3.4 InternalCode()

```
bool gdcm::JPEG12Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os ) [override], [virtual]
```

Reimplemented from gdcm::Coder.

10.170.3.5 IsStateSuspension()

```
bool gdcm::JPEG12Codec::IsStateSuspension ( ) const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

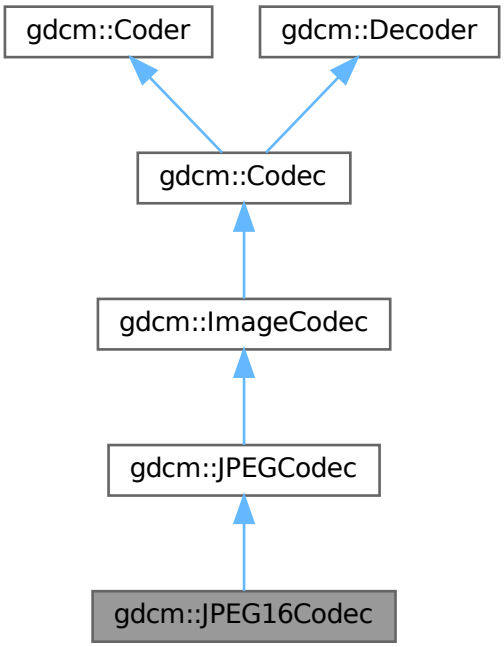
- gdcmJPEG12Codec.h

10.171 gdcm::JPEG16Codec Class Reference

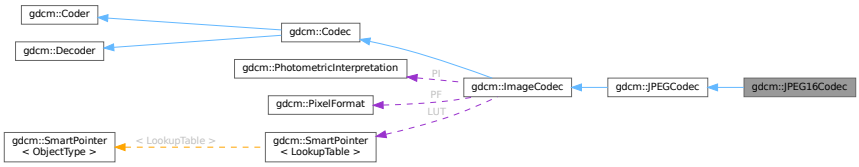
Class to do JPEG 16bits (lossless)

```
#include <gdcmJPEG16Codec.h>
```

Inheritance diagram for gdcm::JPEG16Codec:



Collaboration diagram for gdcm::JPEG16Codec:



Public Member Functions

- JPEG16Codec ()
- ~JPEG16Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.171.1 Detailed Description

Class to do JPEG 16bits (lossless)

Note

internal class

10.171.2 Constructor & Destructor Documentation

10.171.2.1 JPEG16Codec()

```
gdcm::JPEG16Codec::JPEG16Codec ( )
```

10.171.2.2 ~JPEG16Codec()

```
gdcm::JPEG16Codec::~JPEG16Codec ( ) [override]
```

10.171.3 Member Function Documentation

10.171.3.1 DecodeByStreams()

```
bool gdcm::JPEG16Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os ) [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.171.3.2 EncodeBuffer()

```
bool gdcm::JPEG16Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen ) [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

10.171.3.3 GetHeaderInfo()

```
bool gdcm::JPEG16Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts ) [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.171.3.4 InternalCode()

```
bool gdcm::JPEG16Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os ) [override], [virtual]
```

Reimplemented from gdcm::Coder.

10.171.3.5 IsStateSuspension()

```
bool gdcm::JPEG16Codec::IsStateSuspension ( ) const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

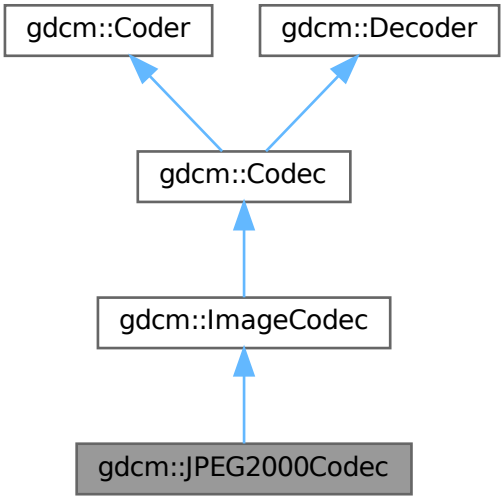
- gdcmJPEG16Codec.h

10.172 gdcm::JPEG2000Codec Class Reference

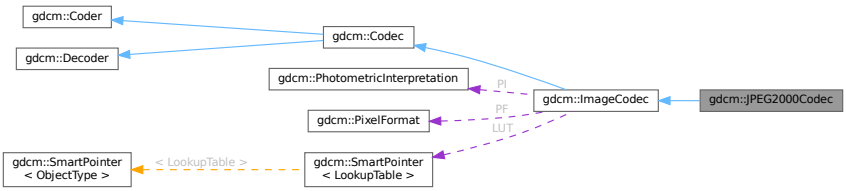
Class to do JPEG 2000.

```
#include <gdcmJPEG2000Codec.h>
```

Inheritance diagram for gdcm::JPEG2000Codec:



Collaboration diagram for gdcm::JPEG2000Codec:



Public Member Functions

- JPEG2000Codec ()
- ~JPEG2000Codec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- double GetQuality (unsigned int idx=0) const
- double GetRate (unsigned int idx=0) const
- void SetMCT (unsigned int mct)
- void SetNumberOfResolutions (unsigned int nres)
- void SetNumberOfThreadsForDecompression (int nThreads)
- void SetQuality (unsigned int idx, double q)
- void SetRate (unsigned int idx, double rate)
- void SetReversible (bool res)
- void SetTileSize (unsigned int tx, unsigned int ty)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class Bitmap
- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.172.1 Detailed Description

Class to do JPEG 2000.

Note

the class will produce JPC (JPEG 2000 codestream), since some private implementor are using full jp2 file the decoder tolerate jp2 input this is an implementation of an ImageCodec

10.172.2 Constructor & Destructor Documentation

10.172.2.1 JPEG2000Codec()

```
gdcm::JPEG2000Codec::JPEG2000Codec ( )
```

10.172.2.2 ~JPEG2000Codec()

```
gdcm::JPEG2000Codec::~JPEG2000Codec ( )  [override]
```

10.172.3 Member Function Documentation

10.172.3.1 AppendFrameEncode()

```
bool gdcm::JPEG2000Codec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.2 AppendRowEncode()

```
bool gdcm::JPEG2000Codec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.3 CanCode()

```
bool gdcm::JPEG2000Codec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.172.3.4 CanDecode()

```
bool gdcm::JPEG2000Codec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.172.3.5 Clone()

```
ImageCodec * gdcm::JPEG2000Codec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.172.3.6 Code()

```
bool gdcm::JPEG2000Codec::Code (
            DataElement const & in_,
            DataElement & out_ )  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.172.3.7 Decode()

```
bool gdcm::JPEG2000Codec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.172.3.8 DecodeByStreams()

```
bool gdcm::JPEG2000Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.9 DecodeExtent()

```
bool gdcm::JPEG2000Codec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is )  [protected]
```

10.172.3.10 GetHeaderInfo()

```
bool gdcm::JPEG2000Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.11 GetQuality()

```
double gdcm::JPEG2000Codec::GetQuality (
            unsigned int idx = 0 ) const
```

10.172.3.12 GetRate()

```
double gdcm::JPEG2000Codec::GetRate (
            unsigned int idx = 0 ) const
```

10.172.3.13 IsFrameEncoder()

```
bool gdcm::JPEG2000Codec::IsFrameEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.14 IsRowEncoder()

```
bool gdcm::JPEG2000Codec::IsRowEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.15 SetMCT()

```
void gdcm::JPEG2000Codec::SetMCT (
            unsigned int mct )
```

10.172.3.16 SetNumberOfResolutions()

```
void gdcm::JPEG2000Codec::SetNumberOfResolutions (
            unsigned int nres )
```

10.172.3.17 SetNumberOfThreadsForDecompression()

```
void gdcm::JPEG2000Codec::SetNumberOfThreadsForDecompression (
            int nThreads )
```

Set Number of threads

Parameters

nThreads	: number of threads for decompression codec, if 0 or 1 decompression is done in current thread, if negative value is set determine how many virtual threads are available

10.172.3.18 SetQuality()

```
void gdcm::JPEG2000Codec::SetQuality (
            unsigned int idx,
            double q )
```

10.172.3.19 SetRate()

```
void gdcm::JPEG2000Codec::SetRate (
            unsigned int idx,
            double rate )
```

10.172.3.20 SetReversible()

```
void gdcm::JPEG2000Codec::SetReversible (
            bool res )
```

10.172.3.21 SetTileSize()

```
void gdcm::JPEG2000Codec::SetTileSize (
            unsigned int tx,
            unsigned int ty )
```

10.172.3.22 StartEncode()

```
bool gdcm::JPEG2000Codec::StartEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.3.23 StopEncode()

```
bool gdcm::JPEG2000Codec::StopEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.172.4 Friends And Related Symbol Documentation

10.172.4.1 Bitmap

```
friend class Bitmap  [friend]
```

10.172.4.2 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

The documentation for this class was generated from the following file:

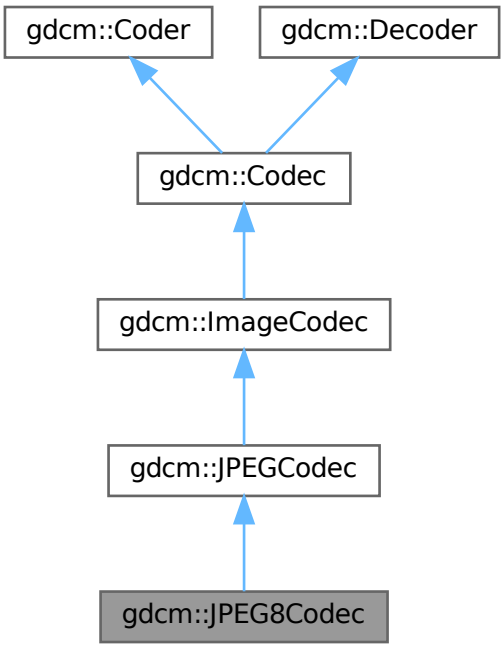
- gdcmJPEG2000Codec.h

10.173 gdcm::JPEG8Codec Class Reference

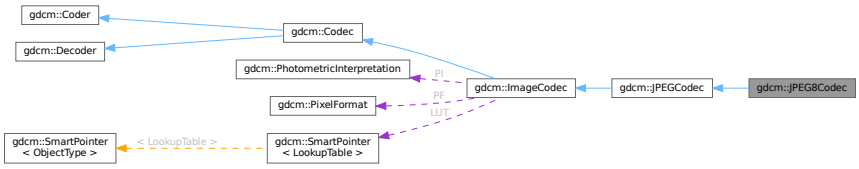
Class to do JPEG 8bits (lossy & lossless)

`#include <gdcmJPEG8Codec.h>`

Inheritance diagram for gdcm::JPEG8Codec:



Collaboration diagram for gdcm::JPEG8Codec:



Public Member Functions

- JPEG8Codec ()
- ~JPEG8Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.173.1 Detailed Description

Class to do JPEG 8bits (lossy & lossless)

Note

internal class

10.173.2 Constructor & Destructor Documentation

10.173.2.1 JPEG8Codec()

```
gdcm::JPEG8Codec::JPEG8Codec ( )
```

10.173.2.2 ~JPEG8Codec()

```
gdcm::JPEG8Codec::~JPEG8Codec ( ) [override]
```

10.173.3 Member Function Documentation

10.173.3.1 DecodeByStreams()

```
bool gdcm::JPEG8Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os ) [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.173.3.2 EncodeBuffer()

```
bool gdcm::JPEG8Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

10.173.3.3 GetHeaderInfo()

```
bool gdcm::JPEG8Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.173.3.4 InternalCode()

```
bool gdcm::JPEG8Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os )  [override], [virtual]
```

Reimplemented from gdcm::Coder.

10.173.3.5 IsStateSuspension()

```
bool gdcm::JPEG8Codec::IsStateSuspension ( ) const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

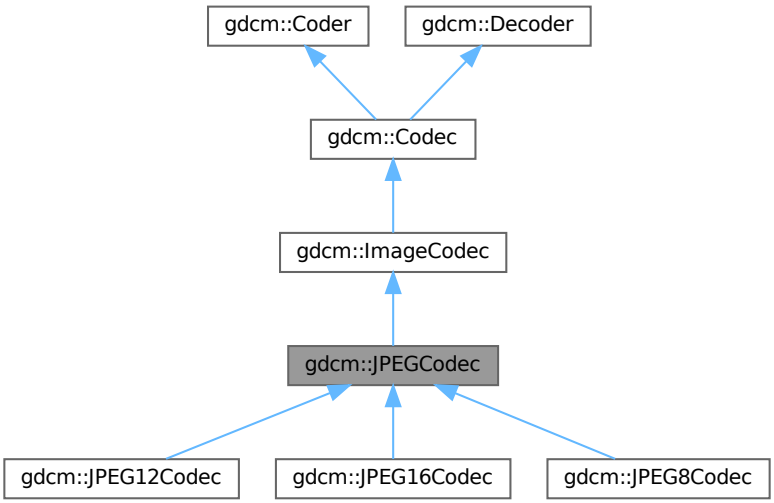
- gdcmJPEG8Codec.h

10.174 gdcm::JPEGCodec Class Reference

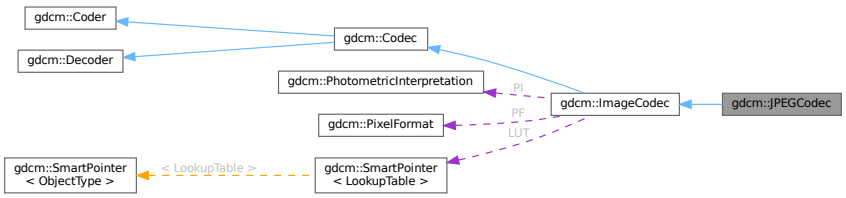
JPEG codec.

```
#include <gdcmJPEGCodec.h>
```

Inheritance diagram for gdcm::JPEGCodec:



Collaboration diagram for gdcm::JPEGCodec:



Public Member Functions

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

Return whether this decoder support this transfer syntax (can decode it)

- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- virtual bool EncodeBuffer (std::ostream &out, const char *inbuffer, size_t inlen)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char ∗data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char ∗data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char ∗buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- virtual bool IsStateSuspension () const
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char ∗bv, unsigned long len, std::ostream &os)

Protected Attributes

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

10.174.1 Detailed Description

JPEG codec.

Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispatch in between the different codec implementation: JPEG8Codec, JPEG12Codec & JPEG16Codec It also support inconsistency in between DICOM header and JPEG compressed stream ImageCodec implementation for the JPEG case

Note

Things you should know if you ever want to dive into DICOM/JPEG world (among other):

- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/625e46919f208
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/75fdfccc65a62
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/2d525ef6a2f09
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/6b93af410f8c9

Examples

CompressLossyJPEG.cs, FileChangeTSLossy.cs, and GetJPEGSamplePrecision.cxx.

10.174.2 Constructor & Destructor Documentation

10.174.2.1 JPEGCodec()

```
gdcm::JPEGCodec::JPEGCodec ( )
```

10.174.2.2 ~JPEGCodec()

```
gdcm::JPEGCodec::~JPEGCodec ( ) [override]
```

10.174.3 Member Function Documentation

10.174.3.1 AppendFrameEncode()

```
bool gdcm::JPEGCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.2 AppendRowEncode()

```
bool gdcm::JPEGCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.3 CanCode()

```
bool gdcm::JPEGCodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

Examples

CompressLossyJPEG.cs.

10.174.3.4 CanDecode()

```
bool gdcm::JPEGCodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.174.3.5 Clone()

```
ImageCodec * gdcm::JPEGCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.174.3.6 Code()

```
bool gdcm::JPEGCodec::Code (
            DataElement const & in,
            DataElement & out )  [override], [virtual]
```

Compress into JPEG.

Reimplemented from gdcm::Coder.

10.174.3.7 ComputeOffsetTable()

```
void gdcm::JPEGCodec::ComputeOffsetTable (
            bool b )
```

Compute the offset table:

10.174.3.8 Decode()

```
bool gdcm::JPEGCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.174.3.9 DecodeByStreams()

```
bool gdcm::JPEGCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.10 DecodeExtent()

```
bool gdcm::JPEGCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is )  [protected]
```

10.174.3.11 EncodeBuffer()

```
virtual bool gdcm::JPEGCodec::EncodeBuffer (
            std::ostream & out,
            const char * inbuffer,
            size_t inlen )  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

10.174.3.12 GetHeaderInfo()

```
bool gdcm::JPEGCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Examples

GetJPEGSamplePrecision.cxx.

10.174.3.13 GetLossless()

```
bool gdcm::JPEGCodec::GetLossless ( ) const
```

10.174.3.14 GetQuality()

```
double gdcm::JPEGCodec::GetQuality ( ) const
```

10.174.3.15 IsFrameEncoder()

```
bool gdcm::JPEGCodec::IsFrameEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.16 IsRowEncoder()

```
bool gdcm::JPEGCodec::IsRowEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.17 IsStateSuspension()

```
virtual bool gdcm::JPEGCodec::IsStateSuspension ( ) const  [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

10.174.3.18 IsValid()

```
bool gdcm::JPEGCodec::IsValid (
            PhotometricInterpretation const & pi )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.19 SetBitSample()

```
void gdcm::JPEGCodec::SetBitSample (
            int bit )  [protected]
```

10.174.3.20 SetLossless()

```
void gdcm::JPEGCodec::SetLossless (
            bool l )
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

10.174.3.21 SetPixelFormat()

```
void gdcm::JPEGCodec::SetPixelFormat (
            PixelFormat const & pf )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Examples

GetJPEGSamplePrecision.cxx.

10.174.3.22 SetQuality()

```
void gdcm::JPEGCodec::SetQuality (
            double q )
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

10.174.3.23 StartEncode()

```
bool gdcm::JPEGCodec::StartEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.3.24 StopEncode()

```
bool gdcm::JPEGCodec::StopEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.174.4 Friends And Related Symbol Documentation

10.174.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

10.174.5 Member Data Documentation

10.174.5.1 BitSample

```
int gdcm::JPEGCodec::BitSample  [protected]
```

10.174.5.2 Quality

```
int gdcm::JPEGCodec::Quality  [protected]
```

The documentation for this class was generated from the following file:

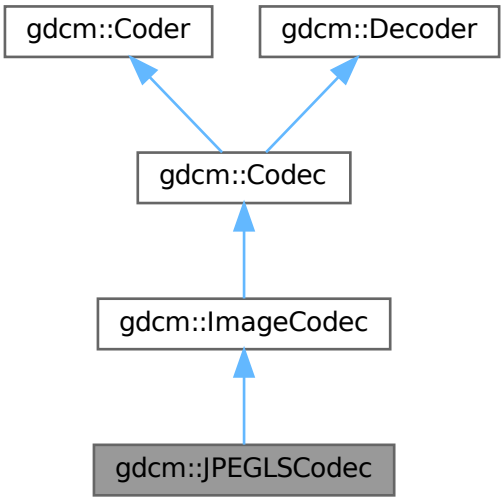
- gdcmJPEGCodec.h

10.175 gdcm::JPEGLSCodec Class Reference

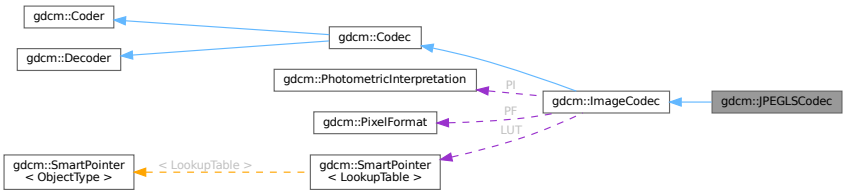
JPEG-LS.

```
#include <gdcmJPEGLSCodec.h>
```

Inheritance diagram for gdcm::JPEGLSCodec:



Collaboration diagram for gdcm::JPEGLSCodec:



Public Member Functions

- JPEGLSCodec ()
- ~JPEGLSCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)

- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &in, char *outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- void SetBufferLength (unsigned long l)
- void SetLossless (bool l)
- void SetLossyError (int error)

  [0-3] generally

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.175.1 Detailed Description

JPEG-LS.

Note

codec that implement the JPEG-LS compression this is an implementation of ImageCodec for JPEG-LS

It uses the CharLS JPEG-LS implementation `https://github.com/team-charls/charls`

10.175.2 Constructor & Destructor Documentation

10.175.2.1 JPEGLSCodec()

```
gdcm::JPEGLSCodec::JPEGLSCodec ( )
```

10.175.2.2 ~JPEGLSCodec()

```
gdcm::JPEGLSCodec::~JPEGLSCodec ( ) [override]
```

10.175.3 Member Function Documentation

10.175.3.1 AppendFrameEncode()

```
bool gdcm::JPEGLSCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen ) [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.2 AppendRowEncode()

```
bool gdcm::JPEGLSCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.3 CanCode()

```
bool gdcm::JPEGLSCodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.175.3.4 CanDecode()

```
bool gdcm::JPEGLSCodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.175.3.5 Clone()

```
ImageCodec * gdcm::JPEGLSCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.175.3.6 Code()

```
bool gdcm::JPEGLSCodec::Code (
            DataElement const & in_,
            DataElement & out_ )  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.175.3.7 Decode() [1/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & in,
            char * outBuffer,
            size_t inBufferLength,
            uint32_t inXMin,
            uint32_t inXMax,
            uint32_t inYMin,
            uint32_t inYMax,
            uint32_t inZMin,
            uint32_t inZMax )
```

10.175.3.8 Decode() [2/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.175.3.9 DecodeExtent()

```
bool gdcm::JPEGLSCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is )  [protected]
```

10.175.3.10 GetBufferLength()

```
unsigned long gdcm::JPEGLSCodec::GetBufferLength ( ) const  [inline]
```

10.175.3.11 GetHeaderInfo()

```
bool gdcm::JPEGLSCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.12 GetLossless()

```
bool gdcm::JPEGLSCodec::GetLossless ( ) const
```

10.175.3.13 IsFrameEncoder()

```
bool gdcm::JPEGLSCodec::IsFrameEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.14 IsRowEncoder()

```
bool gdcm::JPEGLSCodec::IsRowEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.15 SetBufferLength()

```
void gdcm::JPEGLSCodec::SetBufferLength (
            unsigned long l )  [inline]
```

10.175.3.16 SetLossless()

```
void gdcm::JPEGLSCodec::SetLossless (
            bool l )
```

10.175.3.17 SetLossyError()

```
void gdcm::JPEGLSCodec::SetLossyError (
            int error )
```

[0-3] generally

10.175.3.18 StartEncode()

```
bool gdcm::JPEGLSCodec::StartEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.3.19 StopEncode()

```
bool gdcm::JPEGLSCodec::StopEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.175.4 Friends And Related Symbol Documentation

10.175.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

The documentation for this class was generated from the following file:

- gdcmJPEGLSCodec.h

10.176 gdcm::JSON Class Reference

```
#include <gdcmJSON.h>
```

Public Member Functions

- JSON ()
- ~JSON ()
- bool Code (DataSet const &in, std::ostream &os)
- bool Decode (std::istream &is, DataSet &out)
- bool GetPrettyPrint () const
- void PrettyPrintOff ()
- void PrettyPrintOn ()
- void SetPrettyPrint (bool onoff)

10.176.1 Detailed Description

Examples

QIDO-RS.cxx.

10.176.2 Constructor & Destructor Documentation

10.176.2.1 JSON()

```
gdcm::JSON::JSON ( )
```

10.176.2.2 ~JSON()

```
gdcm::JSON::~JSON ( )
```

10.176.3 Member Function Documentation

10.176.3.1 Code()

```
bool gdcm::JSON::Code (
            DataSet const & in,
            std::ostream & os )
```

Examples

QIDO-RS.cxx.

10.176.3.2 Decode()

```
bool gdcm::JSON::Decode (
            std::istream & is,
            DataSet & out )
```

Examples

QIDO-RS.cxx.

10.176.3.3 GetPrettyPrint()

```
bool gdcm::JSON::GetPrettyPrint ( ) const
```

10.176.3.4 PrettyPrintOff()

```
void gdcm::JSON::PrettyPrintOff ( )
```

10.176.3.5 PrettyPrintOn()

```
void gdcm::JSON::PrettyPrintOn ( )
```

Examples

QIDO-RS.cxx.

10.176.3.6 SetPrettyPrint()

```
void gdcm::JSON::SetPrettyPrint (
            bool onoff )
```

The documentation for this class was generated from the following file:

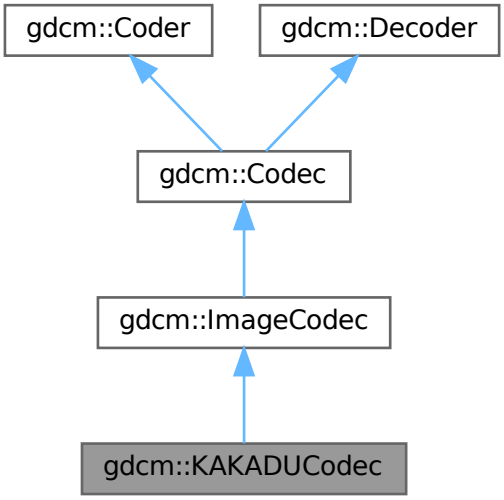
- gdcmJSON.h

10.177 gdcm::KAKADUCodec Class Reference

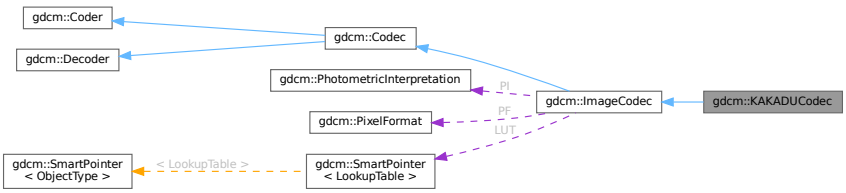
KAKADUCodec.

```
#include <gdcmKAKADUCodec.h>
```

Inheritance diagram for gdcm::KAKADUCodec:



Collaboration diagram for gdcm::KAKADUCodec:



Public Member Functions

- KAKADUCodec ()
- ~KAKADUCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.177.1 Detailed Description

KAKADUCodec.

10.177.2 Constructor & Destructor Documentation

10.177.2.1 KAKADUCodec()

```
gdcm::KAKADUCodec::KAKADUCodec ( )
```

10.177.2.2 ~KAKADUCodec()

```
gdcm::KAKADUCodec::~KAKADUCodec ( ) [override]
```

10.177.3 Member Function Documentation

10.177.3.1 CanCode()

```
bool gdcm::KAKADUCodec::CanCode (
            TransferSyntax const & ) const [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.177.3.2 CanDecode()

```
bool gdcm::KAKADUCodec::CanDecode (
            TransferSyntax const & ) const [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.177.3.3 Clone()

```
ImageCodec * gdcm::KAKADUCodec::Clone ( ) const [override], [virtual]
```

Implements gdcm::ImageCodec.

10.177.3.4 Code()

```
bool gdcm::KAKADUCodec::Code (
            DataElement const & in_,
            DataElement & out_ ) [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.177.3.5 Decode()

```
bool gdcm::KAKADUCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

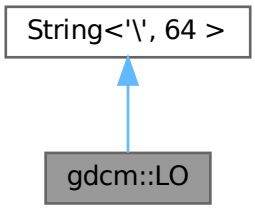
- gdcmKAKADUCodec.h

10.178 gdcm::LO Class Reference

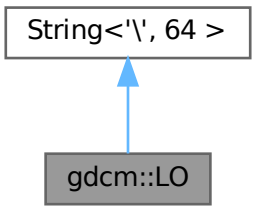
LO.

```
#include <gdcmLO.h>
```

Inheritance diagram for gdcm::LO:



Collaboration diagram for gdcm::LO:



Public Types

- typedef Superclass::const_iterator const_iterator
- typedef Superclass::const_reference const_reference
- typedef Superclass::const_reverse_iterator const_reverse_iterator
- typedef Superclass::difference_type difference_type
- typedef Superclass::iterator iterator
- typedef Superclass::pointer pointer
- typedef Superclass::reference reference
- typedef Superclass::reverse_iterator reverse_iterator
- typedef Superclass::size_type size_type
- typedef String<'\\', 64 > Superclass
- typedef Superclass::value_type value_type

Public Member Functions

- LO ()
- LO (const Superclass &s, size_type pos=0, size_type n=npos)
- LO (const value_type *s)
- LO (const value_type *s, size_type n)
- bool IsValid () const

10.178.1 Detailed Description

LO.

Note

TODO

10.178.2 Member Typedef Documentation

10.178.2.1 const_iterator

```
typedef Superclass::const_iterator gdcm::LO::const_iterator
```

10.178.2.2 const_reference

```
typedef Superclass::const_reference gdcm::LO::const_reference
```

10.178.2.3 const_reverse_iterator

```
typedef Superclass::const_reverse_iterator gdcm::LO::const_reverse_iterator
```

10.178.2.4 difference_type

```
typedef Superclass::difference_type gdcm::LO::difference_type
```

10.178.2.5 iterator

```
typedef Superclass::iterator gdcm::LO::iterator
```

10.178.2.6 pointer

```
typedef Superclass::pointer gdcm::LO::pointer
```

10.178.2.7 reference

```
typedef Superclass::reference gdcm::LO::reference
```

10.178.2.8 reverse_iterator

```
typedef Superclass::reverse_iterator gdcm::LO::reverse_iterator
```

10.178.2.9 size_type

```
typedef Superclass::size_type gdcm::LO::size_type
```

10.178.2.10 Superclass

```
typedef String<'\\',64> gdcm::LO::Superclass
```

10.178.2.11 value_type

```
typedef Superclass::value_type gdcm::LO::value_type
```

10.178.3 Constructor & Destructor Documentation

10.178.3.1 LO() [1/4]

```
gdcm::LO::LO ( )  [inline]
```

10.178.3.2 LO() [2/4]

```
gdcm::LO::LO (
            const value_type * s )  [inline]
```

10.178.3.3 LO() [3/4]

```
gdcm::LO::LO (
            const value_type * s,
            size_type n )  [inline]
```

10.178.3.4 LO() [4/4]

```
gdcm::LO::LO (
            const Superclass & s,
            size_type pos = 0,
            size_type n = npos )  [inline]
```

10.178.4 Member Function Documentation

10.178.4.1 IsValid()

```
bool gdcm::LO::IsValid ( ) const  [inline]
```

References gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid().

The documentation for this class was generated from the following file:

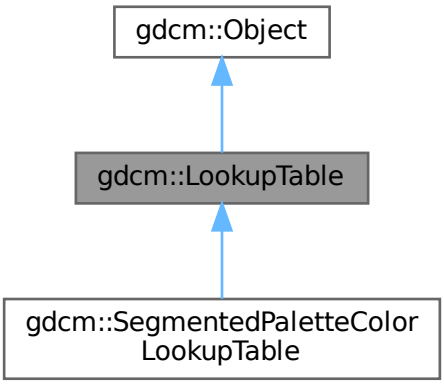
- gdcmLO.h

10.179 gdcm::LookupTable Class Reference

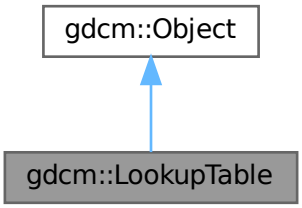
LookupTable class.

```
#include <gdcmLookupTable.h>
```

Inheritance diagram for gdcm::LookupTable:



Collaboration diagram for gdcm::LookupTable:



Public Types

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Public Member Functions

- LookupTable ()

- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void Print (std::ostream &) const override
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- virtual void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.179.1 Detailed Description

LookupTable class.

Examples

ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

10.179.2 Member Enumeration Documentation

10.179.2.1 LookupTableType

```
enum gdcm::LookupTable::LookupTableType
```

Enumerator

RED	
GREEN	
BLUE	
GRAY	
UNKNOWN	

10.179.3 Constructor & Destructor Documentation

10.179.3.1 LookupTable() [1/2]

```
gdcm::LookupTable::LookupTable ( )
```

10.179.3.2 ~LookupTable()

```
gdcm::LookupTable::~LookupTable ( ) [override]
```

10.179.3.3 LookupTable() [2/2]

```
gdcm::LookupTable::LookupTable (
            LookupTable const & lut ) [inline]
```

10.179.4 Member Function Documentation

10.179.4.1 Allocate()

```
void gdcm::LookupTable::Allocate (
            unsigned short bitsample = 8 )
```

Allocate the LUT.

10.179.4.2 Clear()

```
void gdcm::LookupTable::Clear ( )
```

Clear the LUT.

10.179.4.3 Decode() [1/2]

```
bool gdcm::LookupTable::Decode (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen ) const
```

Decode the LUT outputbuffer will contains the RGB decoded PALETTE COLOR input image of size inlen the outputbuffer should be at least 3 times the size of inlen

10.179.4.4 Decode() [2/2]

```
void gdcm::LookupTable::Decode (
            std::istream & is,
            std::ostream & os ) const
```

Decode the LUT.

Examples

ExtractImageRegionWithLUT.cs.

10.179.4.5 Decode8()

```
bool gdcm::LookupTable::Decode8 (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen ) const
```

Decode into RGB 8 bits space.

10.179.4.6 GetBitSample()

```
unsigned short gdcm::LookupTable::GetBitSample ( ) const  [inline]
```

return the bit sample

10.179.4.7 GetBufferAsRGBA()

```
bool gdcm::LookupTable::GetBufferAsRGBA (
            unsigned char * rgba ) const
```

return the LUT as RGBA buffer

10.179.4.8 GetLUT()

```
void gdcm::LookupTable::GetLUT (
            LookupTableType type,
            unsigned char * array,
            unsigned int & length ) const
```

10.179.4.9 GetLUTDescriptor()

```
void gdcm::LookupTable::GetLUTDescriptor (
            LookupTableType type,
            unsigned short & length,
            unsigned short & subscript,
            unsigned short & bitsize ) const
```

10.179.4.10 GetLUTLength()

```
unsigned int gdcm::LookupTable::GetLUTLength (
            LookupTableType type ) const
```

10.179.4.11 GetPointer()

```
const unsigned char * gdcm::LookupTable::GetPointer ( ) const
```

return a raw pointer to the LUT

10.179.4.12 InitializeBlueLUT()

```
void gdcm::LookupTable::InitializeBlueLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize )
```

10.179.4.13 Initialized()

```
bool gdcm::LookupTable::Initialized ( ) const
```

return whether the LUT has been initialized

10.179.4.14 InitializeGreenLUT()

```
void gdcm::LookupTable::InitializeGreenLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize )
```

10.179.4.15 InitializeLUT()

```
void gdcm::LookupTable::InitializeLUT (
            LookupTableType type,
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize )
```

Generic interface:

10.179.4.16 InitializeRedLUT()

```
void gdcm::LookupTable::InitializeRedLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize )
```

RED / GREEN / BLUE specific:

10.179.4.17 IsRGB8()

```
bool gdcm::LookupTable::IsRGB8 ( ) const
```

Return whether 16 bits LUT is in RGB 8 bits space.

10.179.4.18 Print()

```
void gdcm::LookupTable::Print (
            std::ostream &  ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

Examples

PrintLUT.cxx.

10.179.4.19 SetBlueLUT()

```
void gdcm::LookupTable::SetBlueLUT (
            const unsigned char * blue,
            unsigned int length )
```

10.179.4.20 SetGreenLUT()

```
void gdcm::LookupTable::SetGreenLUT (
            const unsigned char * green,
            unsigned int length )
```

10.179.4.21 SetLUT()

```
virtual void gdcm::LookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length )  [virtual]
```

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

10.179.4.22 SetRedLUT()

```
void gdcm::LookupTable::SetRedLUT (
            const unsigned char * red,
            unsigned int length )
```

10.179.4.23 WriteBufferAsRGBA()

```
bool gdcm::LookupTable::WriteBufferAsRGBA (
            const unsigned char * rgba )
```

Write the LUT as RGBA.

10.179.5 Member Data Documentation

10.179.5.1 BitSample

```
unsigned short gdcm::LookupTable::BitSample  [protected]
```

10.179.5.2 IncompleteLUT

```
bool gdcm::LookupTable::IncompleteLUT  [protected]
```

10.179.5.3 Internal

```
LookupTableInternal* gdcm::LookupTable::Internal  [protected]
```

The documentation for this class was generated from the following file:

- gdcmLookupTable.h

10.180 gdcm::Scanner2::ltstr Struct Reference

```
#include <gdcmScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

10.180.1 Member Function Documentation

10.180.1.1 operator()()

```
bool gdcm::Scanner2::ltstr::operator() (
            const char * s1,
            const char * s2 ) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmScanner2.h

10.181 gdcm::Scanner::ltstr Struct Reference

```
#include <gdcmScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

10.181.1 Member Function Documentation

10.181.1.1 operator()()

```
bool gdcm::Scanner::ltstr::operator() (
            const char * s1,
            const char * s2 ) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmScanner.h

10.182 gdcm::StrictScanner2::ltstr Struct Reference

```
#include <gdcmStrictScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

10.182.1 Member Function Documentation

10.182.1.1 operator()()

```
bool gdcm::StrictScanner2::ltstr::operator() (
            const char * s1,
            const char * s2 ) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmStrictScanner2.h

10.183 gdcm::StrictScanner::ltstr Struct Reference

```
#include <gdcmStrictScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

10.183.1 Member Function Documentation

10.183.1.1 operator()()

```
bool gdcm::StrictScanner::ltstr::operator() (
            const char * s1,
            const char * s2 ) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmStrictScanner.h

10.184 gdcm::Macro Class Reference

Class for representing a Macro.

```
#include <gdcmMacro.h>
```

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, MacroEntry > MapModuleEntry

Public Member Functions

- Macro ()=default
- void AddMacroEntry (const Tag &tag, const MacroEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindMacroEntry (const Tag &tag) const
- const MacroEntry & GetMacroEntry (const Tag &tag) const
- const char * GetName () const
- void SetName (const char *name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macro &_val)

10.184.1 Detailed Description

Class for representing a Macro.

Note

Attribute Macro: a set of Attributes that are described in a single table that is referenced by multiple Module or other tables.

See also

Module

10.184.2 Member Typedef Documentation

10.184.2.1 ArrayIncludeMacrosType

```
typedef std::vector<std::string> gdcm::Macro::ArrayIncludeMacrosType
```

10.184.2.2 MapModuleEntry

```
typedef std::map<Tag, MacroEntry> gdcm::Macro::MapModuleEntry
```

10.184.3 Constructor & Destructor Documentation

10.184.3.1 Macro()

```
gdcm::Macro::Macro ( ) [default]
```

References gdcm::operator<<().

10.184.4 Member Function Documentation

10.184.4.1 AddMacroEntry()

```
void gdcm::Macro::AddMacroEntry (
            const Tag & tag,
            const MacroEntry & module ) [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

10.184.4.2 Clear()

```
void gdcm::Macro::Clear ( ) [inline]
```

10.184.4.3 FindMacroEntry()

```
bool gdcm::Macro::FindMacroEntry (
            const Tag & tag ) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

10.184.4.4 GetMacroEntry()

```
const MacroEntry & gdcm::Macro::GetMacroEntry (
            const Tag & tag ) const
```

10.184.4.5 GetName()

```
const char * gdcm::Macro::GetName ( ) const [inline]
```

10.184.4.6 SetName()

```
void gdcm::Macro::SetName (
            const char * name ) [inline]
```

10.184.4.7 Verify()

```
bool gdcm::Macro::Verify (
            const DataSet & ds,
            Usage const & usage ) const
```

10.184.5 Friends And Related Symbol Documentation

10.184.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macro & _val ) [friend]
```

The documentation for this class was generated from the following file:

- gdcmMacro.h

10.185 gdcm::Macros Class Reference

Class for representing a Modules.

```
#include <gdcmMacros.h>
```

Public Types

- typedef std::map< std::string, Macro > ModuleMapType

Public Member Functions

- Macros ()=default
- void AddMacro (const char *ref, const Macro &module)
- void Clear ()
- const Macro & GetMacro (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macros &_val)

10.185.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

10.185.2 Member Typedef Documentation

10.185.2.1 ModuleMapType

```
typedef std::map<std::string, Macro> gdcm::Macros::ModuleMapType
```

10.185.3 Constructor & Destructor Documentation

10.185.3.1 Macros()

```
gdcm::Macros::Macros ( ) [default]
```

References gdcm::operator<<().

10.185.4 Member Function Documentation

10.185.4.1 AddMacro()

```
void gdcm::Macros::AddMacro (
            const char * ref,
            const Macro & module ) [inline]
```

10.185.4.2 Clear()

```
void gdcm::Macros::Clear ( ) [inline]
```

10.185.4.3 GetMacro()

```
const Macro & gdcm::Macros::GetMacro (
            const char * name ) const [inline]
```

10.185.4.4 IsEmpty()

```
bool gdcm::Macros::IsEmpty ( ) const [inline]
```

10.185.5 Friends And Related Symbol Documentation

10.185.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macros & _val ) [friend]
```

The documentation for this class was generated from the following file:

- gdcmMacros.h

10.186 gdcm::network::MaximumLengthSub Class Reference

MaximumLengthSub.

```
#include <gdcmMaximumLengthSub.h>
```

Public Member Functions

- MaximumLengthSub ()
- uint32_t GetMaximumLength () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetMaximumLength (uint32_t maximumlength)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.186.1 Detailed Description

MaximumLengthSub.

Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

or

Table D.1-2 Maximum length sub-item fields (A-ASSOCIATE-AC)

10.186.2 Constructor & Destructor Documentation

10.186.2.1 MaximumLengthSub()

```
gdcm::network::MaximumLengthSub::MaximumLengthSub ( )
```

10.186.3 Member Function Documentation

10.186.3.1 GetMaximumLength()

```
uint32_t gdcm::network::MaximumLengthSub::GetMaximumLength ( ) const  [inline]
```

10.186.3.2 Print()

```
void gdcm::network::MaximumLengthSub::Print (
            std::ostream & os ) const
```

10.186.3.3 Read()

```
std::istream & gdcm::network::MaximumLengthSub::Read (
            std::istream & is )
```

10.186.3.4 SetMaximumLength()

```
void gdcm::network::MaximumLengthSub::SetMaximumLength (
            uint32_t maximumlength )
```

10.186.3.5 Size()

```
size_t gdcm::network::MaximumLengthSub::Size ( ) const
```

10.186.3.6 Write()

```
const std::ostream & gdcm::network::MaximumLengthSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmMaximumLengthSub.h

10.187 gdcm::MD5 Class Reference

Class for MD5.

```
#include <gdcmMD5.h>
```

Static Public Member Functions

- static bool Compute (const char ∗buffer, size_t buf_len, char digest_str[33])
- static bool ComputeFile (const char ∗filename, char digest_str[33])

  Compute md5 from a file `filename`

10.187.1 Detailed Description

Class for MD5.

Warning

this class is able to pick from two implementations:

1. a lightweight md5 implementation (when GDCM_BUILD_TESTING is turned ON)
2. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

10.187.2 Member Function Documentation

10.187.2.1 Compute()

```
static bool gdcm::MD5::Compute (
            const char * buffer,
            size_t buf_len,
            char digest_str[33] )  [static]
```

10.187.2.2 ComputeFile()

```
static bool gdcm::MD5::ComputeFile (
            const char * filename,
            char digest_str[33] )  [static]
```

Compute md5 from a file `filename`

The documentation for this class was generated from the following file:

- gdcmMD5.h

10.188 gdcm::MEC_MR3 Class Reference

Class for MEC_MR3.

```
#include <gdcmMEC_MR3.h>
```

Static Public Member Functions

- static const PrivateTag & GetCanonMECMR3Tag ()
- static const PrivateTag & GetPMTFInformationDataTag ()
- static const PrivateTag & GetToshibaMECMR3Tag ()
- static bool Print (const char *src, size_t srclen)

10.188.1 Detailed Description

Class for MEC_MR3.

10.188.2 Member Function Documentation

10.188.2.1 GetCanonMECMR3Tag()

```
static const PrivateTag & gdcm::MEC_MR3::GetCanonMECMR3Tag ( )  [static]
```

Return the private tag used by CANON to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"CANON_MEC↩ _MR3");

10.188.2.2 GetPMTFInformationDataTag()

```
static const PrivateTag & gdcm::MEC_MR3::GetPMTFInformationDataTag ( ) [static]
```

Return the private tag used by PMTF to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"PMTF INFORMATION DATA");

10.188.2.3 GetToshibaMECMR3Tag()

```
static const PrivateTag & gdcm::MEC_MR3::GetToshibaMECMR3Tag ( ) [static]
```

Return the private tag used by TOSHIBA to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"TOSHIBA_↩ MEC_MR3");

10.188.2.4 Print()

```
static bool gdcm::MEC_MR3::Print (
            const char * src,
            size_t srclen ) [static]
```

The documentation for this class was generated from the following file:

- gdcmMEC_MR3.h

10.189 gdcm::MediaStorage Class Reference

MediaStorage.

```
#include <gdcmMediaStorage.h>
```

Public Types

- enum MSType {
  MediaStorageDirectoryStorage = 0 ,
  ComputedRadiographyImageStorage ,
  DigitalXRayImageStorageForPresentation ,
  DigitalXRayImageStorageForProcessing ,
  DigitalMammographyImageStorageForPresentation ,
  DigitalMammographyImageStorageForProcessing ,
  DigitalIntraoralXrayImageStorageForPresentation ,
  DigitalIntraoralXRayImageStorageForProcessing ,
  CTImageStorage ,
  EnhancedCTImageStorage ,
  UltrasoundImageStorageRetired ,
  UltrasoundImageStorage ,
  UltrasoundMultiFrameImageStorageRetired ,

UltrasoundMultiFrameImageStorage ,
MRImageStorage ,
EnhancedMRImageStorage ,
MRSpectroscopyStorage ,
NuclearMedicineImageStorageRetired ,
SecondaryCaptureImageStorage ,
MultiframeSingleBitSecondaryCaptureImageStorage ,
MultiframeGrayscaleByteSecondaryCaptureImageStorage ,
MultiframeGrayscaleWordSecondaryCaptureImageStorage ,
MultiframeTrueColorSecondaryCaptureImageStorage ,
StandaloneOverlayStorage ,
StandaloneCurveStorage ,
LeadECGWaveformStorage ,
GeneralECGWaveformStorage ,
AmbulatoryECGWaveformStorage ,
HemodynamicWaveformStorage ,
CardiacElectrophysiologyWaveformStorage ,
BasicVoiceAudioWaveformStorage ,
StandaloneModalityLUTStorage ,
StandaloneVOILUTStorage ,
GrayscaleSoftcopyPresentationStateStorageSOPClass ,
XRayAngiographicImageStorage ,
XRayRadiofluoroscopingImageStorage ,
XRayAngiographicBiPlaneImageStorageRetired ,
NuclearMedicineImageStorage ,
RawDataStorage ,
SpacialRegistrationStorage ,
SpacialFiducialsStorage ,
PETImageStorage ,
RTImageStorage ,
RTDoseStorage ,
RTStructureSetStorage ,
RTPlanStorage ,
CSANonImageStorage ,
Philips3D ,
EnhancedSR ,
BasicTextSR ,
HardcopyGrayscaleImageStorage ,
ComprehensiveSR ,
DetachedStudyManagementSOPClass ,
EncapsulatedPDFStorage ,
EncapsulatedCDAStorage ,
StudyComponentManagementSOPClass ,
DetachedVisitManagementSOPClass ,
DetachedPatientManagementSOPClass ,
VideoEndoscopicImageStorage ,
GeneralElectricMagneticResonanceImageStorage ,
GEPrivate3DModelStorage ,
ToshibaPrivateDataStorage ,
MammographyCADSR ,
KeyObjectSelectionDocument ,
HangingProtocolStorage ,
ModalityPerformedProcedureStepSOPClass ,
PhilipsPrivateMRSyntheticImageStorage ,

VLPhotographicImageStorage ,
SegmentationStorage ,
RTIonPlanStorage ,
XRay3DAngiographicImageStorage ,
EnhancedXAImageStorage ,
RTIonBeamsTreatmentRecordStorage ,
SurfaceSegmentationStorage ,
VLWholeSlideMicroscopyImageStorage ,
RTTreatmentSummaryRecordStorage ,
EnhancedUSVolumeStorage ,
XRayRadiationDoseSR ,
VLEndoscopicImageStorage ,
BreastTomosynthesisImageStorage ,
FujiPrivateCRImageStorage ,
OphthalmicPhotography8BitImageStorage ,
OphthalmicTomographyImageStorage ,
VLMicroscopicImageStorage ,
EnhancedPETImageStorage ,
VideoPhotographicImageStorage ,
XRay3DCraniofacialImageStorage ,
IVOCTForPresentation ,
IVOCTForProcessing ,
LegacyConvertedEnhancedCTImageStorage ,
LegacyConvertedEnhancedMRImageStorage ,
LegacyConvertedEnhancedPETImageStorage ,
BreastProjectionXRayImageStorageForPresentation ,
BreastProjectionXRayImageStorageForProcessing ,
HardcopyColorImageStorage ,
EnhancedMRColorImageStorage ,
FujiPrivateMammoCRImageStorage ,
OphthalmicPhotography16BitImageStorage ,
VideoMicroscopicImageStorage ,
MS_END }

- enum ObjectType {
  NoObject = 0 ,
  Video ,
  Waveform ,
  Audio ,
  PDF ,
  URI ,
  Segmentation ,
  ObjectEnd }

Public Member Functions

- MediaStorage (MSType type=MS_END)
- const char ∗ GetModality () const
- unsigned int GetModalityDimension () const
- const char ∗ GetString () const

  Return the Media String of the object.
- void GuessFromModality (const char ∗modality, unsigned int dimension=2)
- bool IsUndefined () const

- operator MSType () const
- bool SetFromDataSet (DataSet const &ds)
- bool SetFromFile (File const &file)
- bool SetFromHeader (FileMetaInformation const &fmi)
- bool SetFromModality (DataSet const &ds)

Static Public Member Functions

- static const char * GetMSString (MSType ts)

  Return the Media String associated. Will return NULL for MS_END.
- static MSType GetMSType (const char *str)
- static unsigned int GetNumberOfModality ()
- static unsigned int GetNumberOfMSString ()
- static unsigned int GetNumberOfMSType ()
- static bool IsImage (MSType ts)

Protected Member Functions

- void SetFromSourceImageSequence (DataSet const &ds)

Friends

- std::ostream & operator<< (std::ostream &os, const MediaStorage &ms)

10.189.1 Detailed Description

MediaStorage.

Note

FIXME There should not be any notion of Image and/or PDF at that point Only the codec can answer yes I support this Media Storage or not... For instance an ImageCodec will answer yes to most of them while a PDFCodec will answer only for the Encapsulated PDF

See also

UIDs

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, TestReader.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, and iU22tomultisc.cxx.

10.189.2 Member Enumeration Documentation

10.189.2.1 MSType

```
enum gdcm::MediaStorage::MSType
```

Enumerator

MediaStorageDirectoryStorage	
ComputedRadiographyImageStorage	
DigitalXRayImageStorageForPresentation	
DigitalXRayImageStorageForProcessing	
DigitalMammographyImageStorageForPresentation	
DigitalMammographyImageStorageForProcessing	
DigitalIntraoralXrayImageStorageForPresentation	
DigitalIntraoralXRayImageStorageForProcessing	
CTImageStorage	
EnhancedCTImageStorage	
UltrasoundImageStorageRetired	
UltrasoundImageStorage	
UltrasoundMultiFrameImageStorageRetired	
UltrasoundMultiFrameImageStorage	
MRImageStorage	
EnhancedMRImageStorage	
MRSpectroscopyStorage	
NuclearMedicineImageStorageRetired	
SecondaryCaptureImageStorage	
MultiframeSingleBitSecondaryCaptureImageStorage	
MultiframeGrayscaleByteSecondaryCaptureImageStorage	
MultiframeGrayscaleWordSecondaryCaptureImageStorage	
MultiframeTrueColorSecondaryCaptureImageStorage	
StandaloneOverlayStorage	
StandaloneCurveStorage	
LeadECGWaveformStorage	
GeneralECGWaveformStorage	
AmbulatoryECGWaveformStorage	
HemodynamicWaveformStorage	
CardiacElectrophysiologyWaveformStorage	
BasicVoiceAudioWaveformStorage	
StandaloneModalityLUTStorage	
StandaloneVOILUTStorage	
GrayscaleSoftcopyPresentationStateStorageSOPClass	
XRayAngiographicImageStorage	
XRayRadiofluoroscopingImageStorage	
XRayAngiographicBiPlaneImageStorageRetired	
NuclearMedicineImageStorage	
RawDataStorage	
SpacialRegistrationStorage	
SpacialFiducialsStorage	
PETImageStorage	
RTImageStorage	

Enumerator

RTDoseStorage	
RTStructureSetStorage	
RTPlanStorage	
CSANonImageStorage	
Philips3D	
EnhancedSR	
BasicTextSR	
HardcopyGrayscaleImageStorage	
ComprehensiveSR	
DetachedStudyManagementSOPClass	
EncapsulatedPDFStorage	
EncapsulatedCDAStorage	
StudyComponentManagementSOPClass	
DetachedVisitManagementSOPClass	
DetachedPatientManagementSOPClass	
VideoEndoscopicImageStorage	
GeneralElectricMagneticResonanceImageStorage	
GEPrivate3DModelStorage	
ToshibaPrivateDataStorage	
MammographyCADSR	
KeyObjectSelectionDocument	
HangingProtocolStorage	
ModalityPerformedProcedureStepSOPClass	
PhilipsPrivateMRSyntheticImageStorage	
VLPhotographicImageStorage	
SegmentationStorage	
RTIonPlanStorage	
XRay3DAngiographicImageStorage	
EnhancedXAImageStorage	
RTIonBeamsTreatmentRecordStorage	
SurfaceSegmentationStorage	
VLWholeSlideMicroscopyImageStorage	
RTTreatmentSummaryRecordStorage	
EnhancedUSVolumeStorage	
XRayRadiationDoseSR	
VLEndoscopicImageStorage	
BreastTomosynthesisImageStorage	
FujiPrivateCRImageStorage	
OphthalmicPhotography8BitImageStorage	
OphthalmicTomographyImageStorage	
VLMicroscopicImageStorage	
EnhancedPETImageStorage	
VideoPhotographicImageStorage	

Enumerator

XRay3DCraniofacialImageStorage	
IVOCTForPresentation	
IVOCTForProcessing	
LegacyConvertedEnhancedCTImageStorage	
LegacyConvertedEnhancedMRImageStorage	
LegacyConvertedEnhancedPETImageStorage	
BreastProjectionXRayImageStorageForPresentation	
BreastProjectionXRayImageStorageForProcessing	
HardcopyColorImageStorage	
EnhancedMRColorImageStorage	
FujiPrivateMammoCRImageStorage	
OphthalmicPhotography16BitImageStorage	
VideoMicroscopicImageStorage	
MS_END	

Examples

GenerateStandardSOPClasses.cxx, and MpegVideoInfo.cs.

10.189.2.2 ObjectType

```
enum gdcm::MediaStorage::ObjectType
```

Enumerator

NoObject	
Video	
Waveform	
Audio	
PDF	
URI	
Segmentation	
ObjectEnd	

10.189.3 Constructor & Destructor Documentation

10.189.3.1 MediaStorage()

```
gdcm::MediaStorage::MediaStorage (
            MSType type = MS_END )  [inline]
```

10.189.4 Member Function Documentation

10.189.4.1 GetModality()

```
const char * gdcm::MediaStorage::GetModality ( ) const
```

10.189.4.2 GetModalityDimension()

```
unsigned int gdcm::MediaStorage::GetModalityDimension ( ) const
```

10.189.4.3 GetMSString()

```
static const char * gdcm::MediaStorage::GetMSString (
            MSType ts )  [static]
```

Return the Media String associated. Will return NULL for MS_END.

Examples

GenerateStandardSOPClasses.cxx.

10.189.4.4 GetMSType()

```
static MSType gdcm::MediaStorage::GetMSType (
            const char * str )  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

10.189.4.5 GetNumberOfModality()

```
static unsigned int gdcm::MediaStorage::GetNumberOfModality ( )  [static]
```

10.189.4.6 GetNumberOfMSString()

```
static unsigned int gdcm::MediaStorage::GetNumberOfMSString ( )  [static]
```

10.189.4.7 GetNumberOfMSType()

```
static unsigned int gdcm::MediaStorage::GetNumberOfMSType ( )  [static]
```

10.189.4.8 GetString()

```
const char * gdcm::MediaStorage::GetString ( ) const
```

Return the Media String of the object.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

10.189.4.9 GuessFromModality()

```
void gdcm::MediaStorage::GuessFromModality (
            const char * modality,
            unsigned int dimension = 2 )
```

References gdcm::operator<<().

10.189.4.10 IsImage()

```
static bool gdcm::MediaStorage::IsImage (
            MSType ts )  [static]
```

Returns whether DICOM has a Pixel Data element (7fe0,0010)

Warning

MRSpectroscopyStorage could be image but are not

Examples

MetaImageMD5Activiz.cs.

10.189.4.11 IsUndefined()

```
bool gdcm::MediaStorage::IsUndefined ( ) const  [inline]
```

Examples

TestReader.cxx.

10.189.4.12 operator MSType()

```
gdcm::MediaStorage::operator MSType ( ) const  [inline]
```

10.189.4.13 SetFromDataSet()

```
bool gdcm::MediaStorage::SetFromDataSet (
            DataSet const & ds )
```

Advanced user only (functions should be protected level...) Those function are lower level than SetFromFile

10.189.4.14 SetFromFile()

```
bool gdcm::MediaStorage::SetFromFile (
            File const & file )
```

Attempt to set the MediaStorage from a file: WARNING: When no MediaStorage & Modality are found BUT a PixelData element is found then MediaStorage is set to the default SecondaryCaptureImageStorage (return value is false in this case)

Examples

ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, TestReader.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.189.4.15 SetFromHeader()

```
bool gdcm::MediaStorage::SetFromHeader (
            FileMetaInformation const & fmi )
```

10.189.4.16 SetFromModality()

```
bool gdcm::MediaStorage::SetFromModality (
            DataSet const & ds )
```

10.189.4.17 SetFromSourceImageSequence()

```
void gdcm::MediaStorage::SetFromSourceImageSequence (
            DataSet const & ds )  [protected]
```

10.189.5 Friends And Related Symbol Documentation

10.189.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const MediaStorage & ms )  [friend]
```

The documentation for this class was generated from the following file:

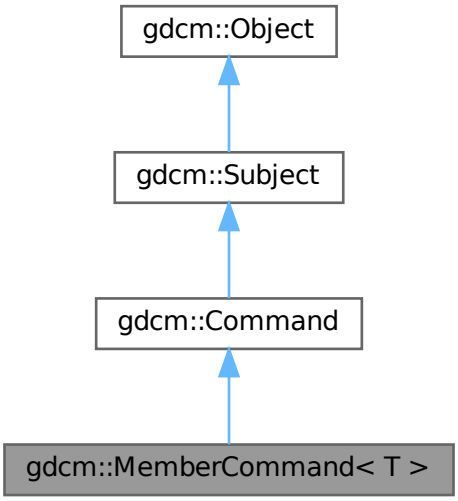
- gdcmMediaStorage.h

10.190 gdcm::MemberCommand< T > Class Template Reference

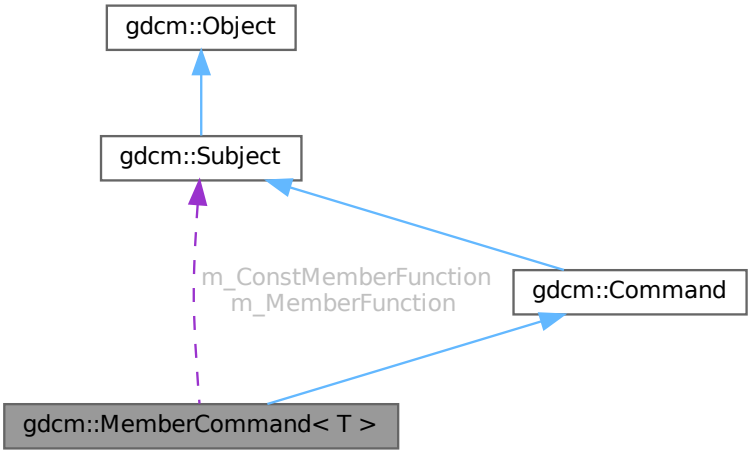
Command subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::MemberCommand< T >:



Collaboration diagram for gdcm::MemberCommand< T >:



Public Types

- typedef MemberCommand Self
- typedef void(T::∗ TConstMemberFunctionPointer) (const Subject ∗, const Event &)
- typedef void(T::∗ TMemberFunctionPointer) (Subject ∗, const Event &)

Public Member Functions

- MemberCommand (const Self &)=delete
- void Execute (const Subject ∗caller, const Event &event) override
- void Execute (Subject ∗caller, const Event &event) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T ∗object, TConstMemberFunctionPointer memberFunction)
- void SetCallbackFunction (T ∗object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< MemberCommand > New ()

Protected Member Functions

- MemberCommand ()
- ~MemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TConstMemberFunctionPointer m_ConstMemberFunction
- TMemberFunctionPointer m_MemberFunction
- T * m_This

10.190.1 Detailed Description

template<class T>
class gdcm::MemberCommand< T >

Command subclass that calls a pointer to a member function.

MemberCommand calls a pointer to a member function with the same arguments as Execute on Command.

10.190.2 Member Typedef Documentation

10.190.2.1 Self

```
template<class T >
typedef MemberCommand gdcm::MemberCommand< T >::Self
```

Standard class typedefs.

10.190.2.2 TConstMemberFunctionPointer

```
template<class T >
typedef void(T::* gdcm::MemberCommand< T >::TConstMemberFunctionPointer) (const Subject *, const
Event &)
```

10.190.2.3 TMemberFunctionPointer

```
template<class T >
typedef void(T::* gdcm::MemberCommand< T >::TMemberFunctionPointer) (Subject *, const Event &)
```

pointer to a member function that takes a Subject∗ and the event

10.190.3 Constructor & Destructor Documentation

10.190.3.1 MemberCommand() [1/2]

```
template<class T >
gdcm::MemberCommand< T >::MemberCommand (
            const Self &  )  [delete]
```

10.190.3.2 MemberCommand() [2/2]

```
template<class T >
gdcm::MemberCommand< T >::MemberCommand ( )  [inline], [protected]
```

Referenced by gdcm::MemberCommand< T >::New().

10.190.3.3 ~MemberCommand()

```
template<class T >
gdcm::MemberCommand< T >::~MemberCommand ( )  [override], [protected], [default]
```

10.190.4 Member Function Documentation

10.190.4.1 Execute() [1/2]

```
template<class T >
void gdcm::MemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event )  [inline], [override], [virtual]
```

Invoke the member function with a const object.

Implements gdcm::Command.

References gdcm::MemberCommand< T >::m_ConstMemberFunction.

10.190.4.2 Execute() [2/2]

```
template<class T >
void gdcm::MemberCommand< T >::Execute (
            Subject * caller,
            const Event & event )  [inline], [override], [virtual]
```

Invoke the member function.

Implements gdcm::Command.

References gdcm::MemberCommand< T >::m_MemberFunction.

10.190.4.3 New()

```
template<class T >
static SmartPointer< MemberCommand > gdcm::MemberCommand< T >::New ( )  [inline], [static]
```

Method for creation through the object factory.

References gdcm::MemberCommand< T >::MemberCommand().

10.190.4.4 operator=()

```
template<class T >
void gdcm::MemberCommand< T >::operator= (
            const Self &  )  [delete]
```

10.190.4.5 SetCallbackFunction() [1/2]

```
template<class T >
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TConstMemberFunctionPointer memberFunction )  [inline]
```

References gdcm::MemberCommand< T >::m_ConstMemberFunction, and gdcm::MemberCommand< T >::m_This.

10.190.4.6 SetCallbackFunction() [2/2]

```
template<class T >
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction )  [inline]
```

Run-time type information (and related methods). Set the callback function along with the object that it will be invoked on.

References gdcm::MemberCommand< T >::m_MemberFunction, and gdcm::MemberCommand< T >::m_This.

10.190.5 Member Data Documentation

10.190.5.1 m_ConstMemberFunction

```
template<class T >
TConstMemberFunctionPointer gdcm::MemberCommand< T >::m_ConstMemberFunction  [protected]
```

Referenced by gdcm::MemberCommand< T >::Execute(), and gdcm::MemberCommand< T >::SetCallbackFunction().

10.190.5.2 m_MemberFunction

```
template<class T >
TMemberFunctionPointer gdcm::MemberCommand< T >::m_MemberFunction  [protected]
```

Referenced by gdcm::MemberCommand< T >::Execute(), and gdcm::MemberCommand< T >::SetCallbackFunction().

10.190.5.3 m_This

```
template<class T >
T* gdcm::MemberCommand< T >::m_This  [protected]
```

Referenced by gdcm::MemberCommand< T >::SetCallbackFunction(), and gdcm::MemberCommand< T >::SetCallbackFunction().

The documentation for this class was generated from the following file:

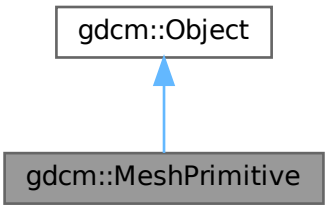
- gdcmCommand.h

10.191 gdcm::MeshPrimitive Class Reference

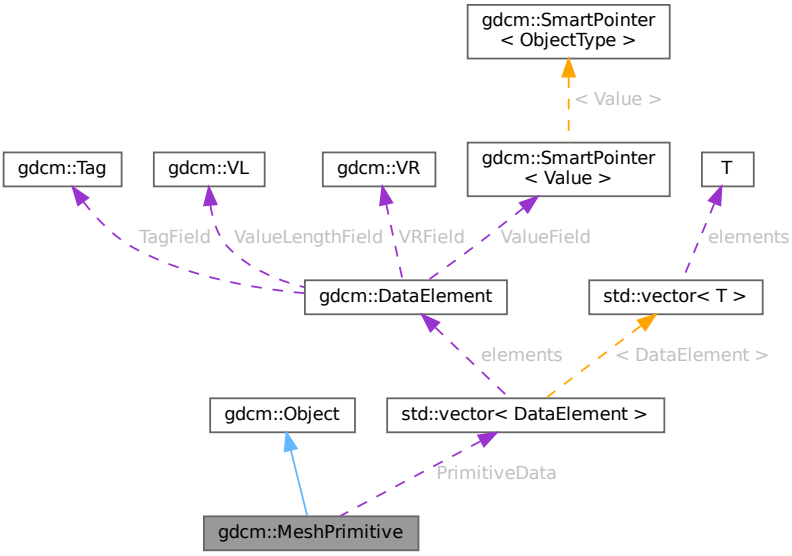
This class defines surface mesh primitives.

```
#include <gdcmMeshPrimitive.h>
```

Inheritance diagram for gdcm::MeshPrimitive:



Collaboration diagram for gdcm::MeshPrimitive:



Public Types

- enum MPType {
  VERTEX = 0 ,
  EDGE ,
  TRIANGLE ,
  TRIANGLE_STRIP ,
  TRIANGLE_FAN ,
  LINE ,
  FACET ,
  MPType_END }

  This enumeration defines primitive types.
- typedef std::vector< DataElement > PrimitivesData

Public Member Functions

- MeshPrimitive ()
- ~MeshPrimitive () override
- void AddPrimitiveData (DataElement const &de)
- unsigned int GetNumberOfPrimitivesData () const
- DataElement & GetPrimitiveData ()
- const DataElement & GetPrimitiveData () const
- DataElement & GetPrimitiveData (const unsigned int idx)
- const DataElement & GetPrimitiveData (const unsigned int idx) const
- PrimitivesData & GetPrimitivesData ()
- const PrimitivesData & GetPrimitivesData () const
- MPType GetPrimitiveType () const
- void SetPrimitiveData (const unsigned int idx, DataElement const &de)
- void SetPrimitiveData (DataElement const &de)
- void SetPrimitivesData (PrimitivesData const &DEs)
- void SetPrimitiveType (const MPType type)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static MPType GetMPType (const char *type)
- static const char * GetMPTypeString (const MPType type)

Protected Attributes

- PrimitivesData PrimitiveData
- MPType PrimitiveType

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.191.1 Detailed Description

This class defines surface mesh primitives.

It is designed from surface mesh primitives macro.

See also

PS 3.3 C.27.4

10.191.2 Member Typedef Documentation

10.191.2.1 PrimitivesData

```
typedef std::vector< DataElement > gdcm::MeshPrimitive::PrimitivesData
```

10.191.3 Member Enumeration Documentation

10.191.3.1 MPType

```
enum gdcm::MeshPrimitive::MPType
```

This enumeration defines primitive types.

See also

PS 3.3 C.27.4.1

Enumerator

VERTEX	
EDGE	
TRIANGLE	
TRIANGLE_STRIP	
TRIANGLE_FAN	
LINE	
FACET	

10.191.4 Constructor & Destructor Documentation

10.191.4.1 MeshPrimitive()

```
gdcm::MeshPrimitive::MeshPrimitive ( )
```

10.191.4.2 ~MeshPrimitive()

```
gdcm::MeshPrimitive::~MeshPrimitive ( )  [override]
```

10.191.5 Member Function Documentation

10.191.5.1 AddPrimitiveData()

```
void gdcm::MeshPrimitive::AddPrimitiveData (
            DataElement const & de )
```

10.191.5.2 GetMPType()

```
static MPType gdcm::MeshPrimitive::GetMPType (
            const char * type )  [static]
```

10.191.5.3 GetMPTypeString()

```
static const char * gdcm::MeshPrimitive::GetMPTypeString (
            const MPType type )  [static]
```

10.191.5.4 GetNumberOfPrimitivesData()

```
unsigned int gdcm::MeshPrimitive::GetNumberOfPrimitivesData ( ) const
```

10.191.5.5 GetPrimitiveData() [1/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData ( )
```

10.191.5.6 GetPrimitiveData() [2/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData ( ) const
```

10.191.5.7 GetPrimitiveData() [3/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx )
```

10.191.5.8 GetPrimitiveData() [4/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx ) const
```

10.191.5.9 GetPrimitivesData() [1/2]

```
PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData ( )
```

10.191.5.10 GetPrimitivesData() [2/2]

```
const PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData ( ) const
```

10.191.5.11 GetPrimitiveType()

```
MPType gdcm::MeshPrimitive::GetPrimitiveType ( ) const
```

10.191.5.12 SetPrimitiveData() [1/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            const unsigned int idx,
            DataElement const & de )
```

10.191.5.13 SetPrimitiveData() [2/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            DataElement const & de )
```

10.191.5.14 SetPrimitivesData()

```
void gdcm::MeshPrimitive::SetPrimitivesData (
            PrimitivesData const & DEs )
```

10.191.5.15 SetPrimitiveType()

```
void gdcm::MeshPrimitive::SetPrimitiveType (
            const MPType type )
```

10.191.6 Member Data Documentation

10.191.6.1 PrimitiveData

```
PrimitivesData gdcm::MeshPrimitive::PrimitiveData [protected]
```

10.191.6.2 PrimitiveType

```
MPType gdcm::MeshPrimitive::PrimitiveType [protected]
```

The documentation for this class was generated from the following file:

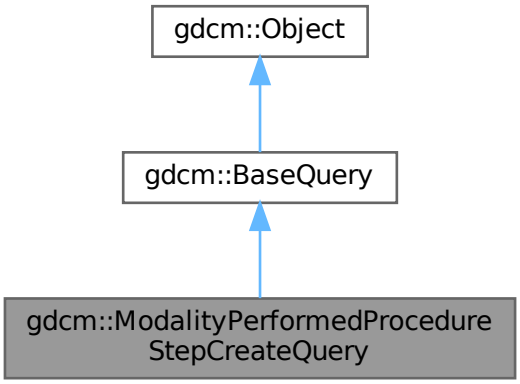
- gdcmMeshPrimitive.h

10.192 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference

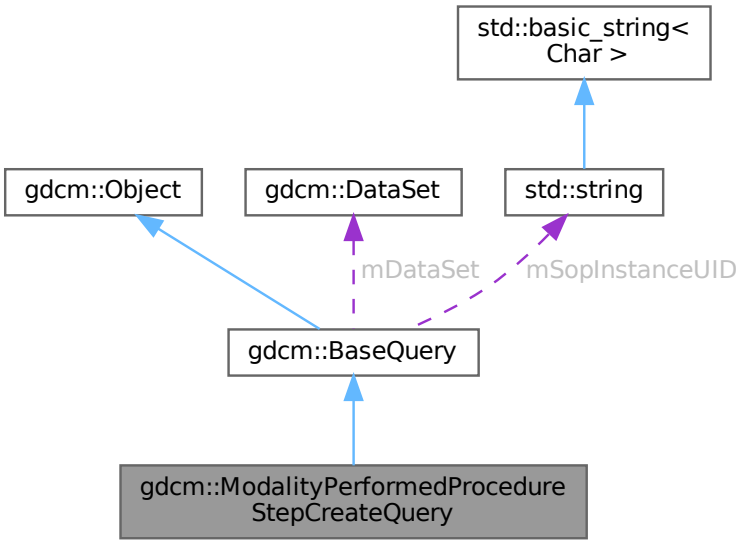
ModalityPerformedProcedureStepCreateQuery.

```
#include <gdcmModalityPerformedProcedureStepCreateQuery.h>
```

Inheritance diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Public Member Functions

- ModalityPerformedProcedureStepCreateQuery (const std::string &iSopInstanceUID)
- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.192.1 Detailed Description

ModalityPerformedProcedureStepCreateQuery.

contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class

10.192.2 Constructor & Destructor Documentation

10.192.2.1 ModalityPerformedProcedureStepCreateQuery()

```
gdcm::ModalityPerformedProcedureStepCreateQuery::ModalityPerformedProcedureStepCreateQuery (
            const std::string & iSopInstanceUID )
```

10.192.3 Member Function Documentation

10.192.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepCreateQuery::GetAbstractSyntaxUID ( ) const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

10.192.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepCreateQuery::GetRequiredDataSet ( ) const
```

10.192.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepCreateQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.192.4 Friends And Related Symbol Documentation

10.192.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

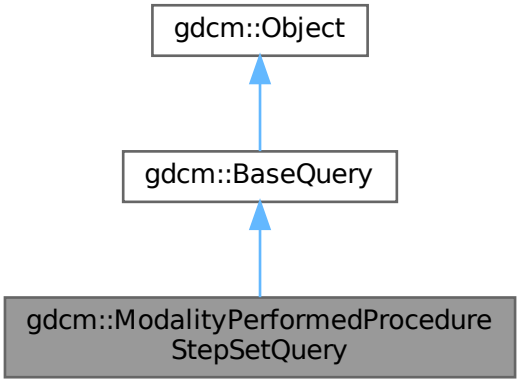
- gdcmModalityPerformedProcedureStepCreateQuery.h

10.193 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference

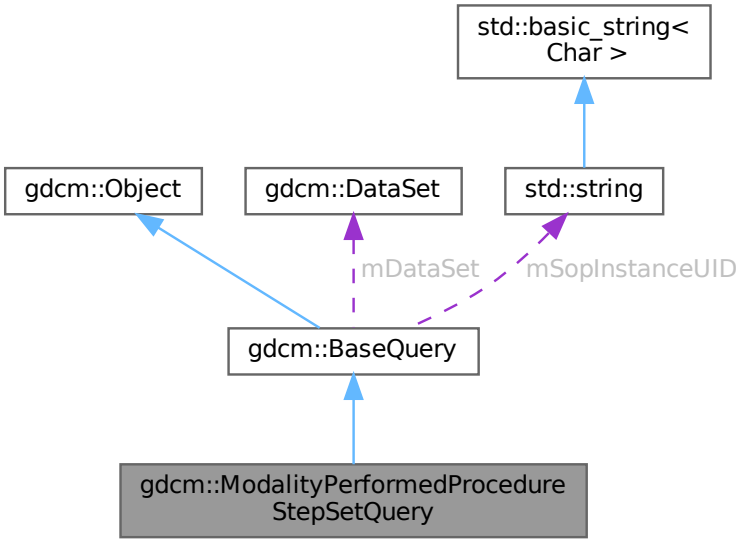
ModalityPerformedProcedureStepSetQuery.

```
#include <gdcmModalityPerformedProcedureStepSetQuery.h>
```

Inheritance diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Public Member Functions

- ModalityPerformedProcedureStepSetQuery (const std::string &iSopInstanceUID)

- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.193.1 Detailed Description

ModalityPerformedProcedureStepSetQuery.

contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class

10.193.2 Constructor & Destructor Documentation

10.193.2.1 ModalityPerformedProcedureStepSetQuery()

```
gdcm::ModalityPerformedProcedureStepSetQuery::ModalityPerformedProcedureStepSetQuery (
            const std::string & iSopInstanceUID )
```

10.193.3 Member Function Documentation

10.193.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepSetQuery::GetAbstractSyntaxUID ( ) const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

10.193.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepSetQuery::GetRequiredDataSet ( ) const
```

10.193.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepSetQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.193.4 Friends And Related Symbol Documentation

10.193.4.1 QueryFactory

```
friend class QueryFactory [friend]
```

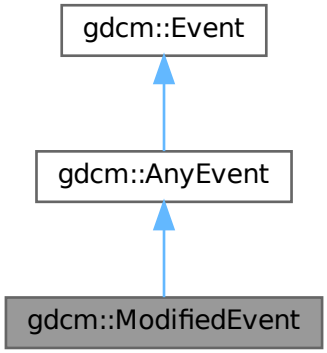
The documentation for this class was generated from the following file:

- gdcmModalityPerformedProcedureStepSetQuery.h

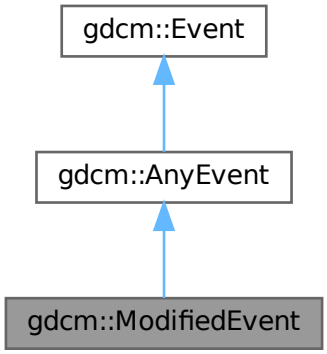
10.194 gdcm::ModifiedEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::ModifiedEvent:



Collaboration diagram for gdcm::ModifiedEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.195 gdcm::Module Class Reference

Class for representing a Module.

```
#include <gdcmModule.h>
```

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, ModuleEntry > MapModuleEntry

Public Member Functions

- Module ()=default
- void AddMacro (const char ∗include)
- void AddModuleEntry (const Tag &tag, const ModuleEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const ModuleEntry & GetModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const char ∗ GetName () const
- void SetName (const char ∗name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Module &_val)

10.195.1 Detailed Description

Class for representing a Module.

Note

Module: A set of Attributes within an Information Entity or Normalized IOD which are logically related to each other.

See also

Macro

Examples

TraverseModules.cxx.

10.195.2 Member Typedef Documentation

10.195.2.1 ArrayIncludeMacrosType

```
typedef std::vector<std::string> gdcm::Module::ArrayIncludeMacrosType
```

10.195.2.2 MapModuleEntry

```
typedef std::map<Tag, ModuleEntry> gdcm::Module::MapModuleEntry
```

10.195.3 Constructor & Destructor Documentation

10.195.3.1 Module()

```
gdcm::Module::Module ( ) [default]
```

References gdcm::operator<<().

10.195.4 Member Function Documentation

10.195.4.1 AddMacro()

```
void gdcm::Module::AddMacro (
            const char * include ) [inline]
```

10.195.4.2 AddModuleEntry()

```
void gdcm::Module::AddModuleEntry (
            const Tag & tag,
            const ModuleEntry & module ) [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

10.195.4.3 Clear()

```
void gdcm::Module::Clear ( ) [inline]
```

10.195.4.4 FindModuleEntryInMacros()

```
bool gdcm::Module::FindModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag ) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

10.195.4.5 GetModuleEntryInMacros()

```
const ModuleEntry & gdcm::Module::GetModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag ) const
```

10.195.4.6 GetName()

```
const char * gdcm::Module::GetName ( ) const  [inline]
```

10.195.4.7 SetName()

```
void gdcm::Module::SetName (
            const char * name )  [inline]
```

10.195.4.8 Verify()

```
bool gdcm::Module::Verify (
            const DataSet & ds,
            Usage const & usage ) const
```

10.195.5 Friends And Related Symbol Documentation

10.195.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Module & _val )  [friend]
```

The documentation for this class was generated from the following file:

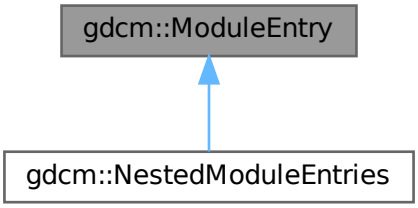
- gdcmModule.h

10.196 gdcm::ModuleEntry Class Reference

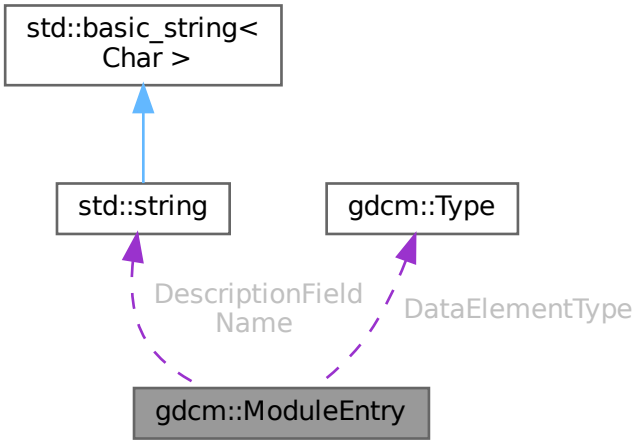
Class for representing a ModuleEntry.

`#include <gdcmModuleEntry.h>`

Inheritance diagram for gdcm::ModuleEntry:



Collaboration diagram for gdcm::ModuleEntry:



Public Types

- typedef std::string Description

Public Member Functions

- ModuleEntry (const char ∗name="", const char ∗type="3", const char ∗description="")
- virtual ∼ModuleEntry ()=default
- const Description & GetDescription () const
- const char ∗ GetName () const
- const Type & GetType () const
- void SetDescription (const char ∗d)
- void SetName (const char ∗name)
- void SetType (const Type &type)

Protected Attributes

- Type DataElementType
- Description DescriptionField
- std::string Name

Friends

- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)

10.196.1 Detailed Description

Class for representing a ModuleEntry.

Note

bla

See also

DictEntry

Examples

TraverseModules.cxx.

10.196.2 Member Typedef Documentation

10.196.2.1 Description

```
typedef std::string gdcm::ModuleEntry::Description
```

10.196.3 Constructor & Destructor Documentation

10.196.3.1 ModuleEntry()

```
gdcm::ModuleEntry::ModuleEntry (
            const char * name = "",
            const char * type = "3",
            const char * description = "" )  [inline]
```

10.196.3.2 ~ModuleEntry()

```
virtual gdcm::ModuleEntry::~ModuleEntry ( )  [virtual], [default]
```

References gdcm::operator<<().

10.196.4 Member Function Documentation

10.196.4.1 GetDescription()

```
const Description & gdcm::ModuleEntry::GetDescription ( ) const  [inline]
```

10.196.4.2 GetName()

```
const char * gdcm::ModuleEntry::GetName ( ) const  [inline]
```

10.196.4.3 GetType()

```
const Type & gdcm::ModuleEntry::GetType ( ) const  [inline]
```

Examples

TraverseModules.cxx.

10.196.4.4 SetDescription()

```
void gdcm::ModuleEntry::SetDescription (
            const char * d )  [inline]
```

10.196.4.5 SetName()

```
void gdcm::ModuleEntry::SetName (
            const char * name )  [inline]
```

10.196.4.6 SetType()

```
void gdcm::ModuleEntry::SetType (
            const Type & type )  [inline]
```

10.196.5 Friends And Related Symbol Documentation

10.196.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const ModuleEntry & _val )  [friend]
```

10.196.6 Member Data Documentation

10.196.6.1 DataElementType

```
Type gdcm::ModuleEntry::DataElementType  [protected]
```

10.196.6.2 DescriptionField

```
Description gdcm::ModuleEntry::DescriptionField [protected]
```

10.196.6.3 Name

```
std::string gdcm::ModuleEntry::Name [protected]
```

The documentation for this class was generated from the following file:

- gdcmModuleEntry.h

10.197 gdcm::Modules Class Reference

Class for representing a Modules.

```
#include <gdcmModules.h>
```

Public Types

- typedef std::map< std::string, Module > ModuleMapType

Public Member Functions

- Modules ()=default
- void AddModule (const char *ref, const Module &module)
- void Clear ()
- const Module & GetModule (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Modules &_val)

10.197.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

10.197.2 Member Typedef Documentation

10.197.2.1 ModuleMapType

```
typedef std::map<std::string, Module> gdcm::Modules::ModuleMapType
```

10.197.3 Constructor & Destructor Documentation

10.197.3.1 Modules()

```
gdcm::Modules::Modules ( ) [default]
```

References gdcm::operator<<().

10.197.4 Member Function Documentation

10.197.4.1 AddModule()

```
void gdcm::Modules::AddModule (
            const char * ref,
            const Module & module ) [inline]
```

10.197.4.2 Clear()

```
void gdcm::Modules::Clear ( ) [inline]
```

10.197.4.3 GetModule()

```
const Module & gdcm::Modules::GetModule (
            const char * name ) const [inline]
```

10.197.4.4 IsEmpty()

```
bool gdcm::Modules::IsEmpty ( ) const [inline]
```

10.197.5 Friends And Related Symbol Documentation

10.197.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Modules & _val ) [friend]
```

The documentation for this class was generated from the following file:

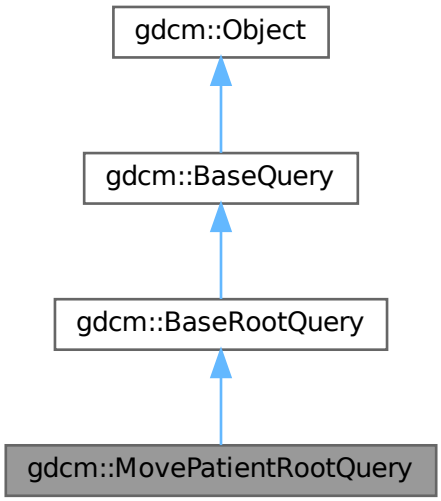
- gdcmModules.h

10.198 gdcm::MovePatientRootQuery Class Reference

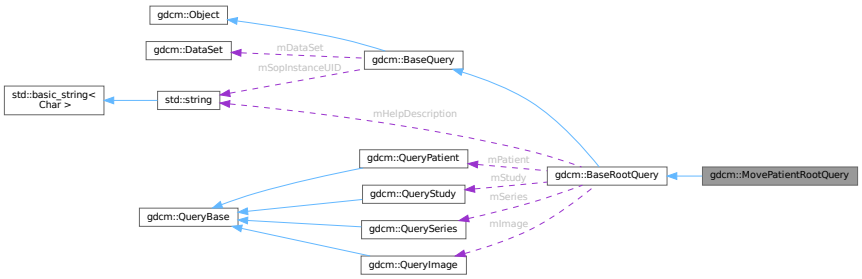
MovePatientRootQuery.

```
#include <gdcmMovePatientRootQuery.h>
```

Inheritance diagram for gdcm::MovePatientRootQuery:



Collaboration diagram for gdcm::MovePatientRootQuery:



Public Member Functions

- MovePatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.198.1 Detailed Description

MovePatientRootQuery.

contains: the class which will produce a dataset for c-move with patient root

10.198.2 Constructor & Destructor Documentation

10.198.2.1 MovePatientRootQuery()

```
gdcm::MovePatientRootQuery::MovePatientRootQuery ( )
```

10.198.3 Member Function Documentation

10.198.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MovePatientRootQuery::GetAbstractSyntaxUID ( ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.198.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MovePatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

10.198.3.3 InitializeDataSet()

```
void gdcm::MovePatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

10.198.3.4 ValidateQuery()

```
bool gdcm::MovePatientRootQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

10.198.4 Friends And Related Symbol Documentation

10.198.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

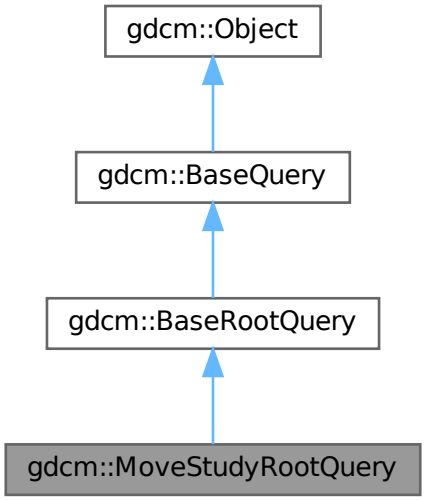
- gdcmMovePatientRootQuery.h

10.199 gdcm::MoveStudyRootQuery Class Reference

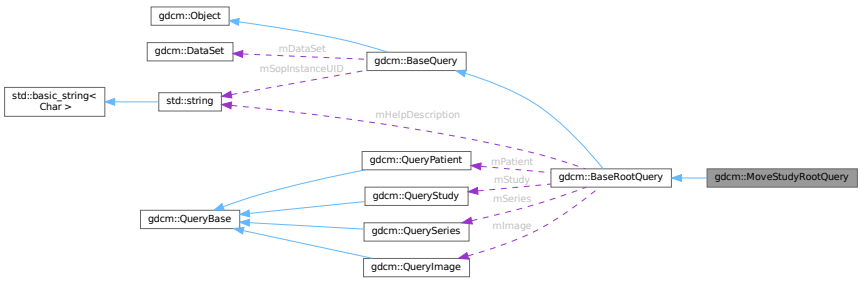
MoveStudyRootQuery.

```
#include <gdcmMoveStudyRootQuery.h>
```

Inheritance diagram for gdcm::MoveStudyRootQuery:



Collaboration diagram for gdcm::MoveStudyRootQuery:



Public Member Functions

- MoveStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.199.1 Detailed Description

MoveStudyRootQuery.

contains: the class which will produce a dataset for C-MOVE with study root

10.199.2 Constructor & Destructor Documentation

10.199.2.1 MoveStudyRootQuery()

```
gdcm::MoveStudyRootQuery::MoveStudyRootQuery ( )
```

10.199.3 Member Function Documentation

10.199.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MoveStudyRootQuery::GetAbstractSyntaxUID ( ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.199.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MoveStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

10.199.3.3 InitializeDataSet()

```
void gdcm::MoveStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

10.199.3.4 ValidateQuery()

```
bool gdcm::MoveStudyRootQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

10.199.4 Friends And Related Symbol Documentation

10.199.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

- gdcmMoveStudyRootQuery.h

10.200 gdcm::MrProtocol Class Reference

Class for MrProtocol.

```
#include <gdcmMrProtocol.h>
```

Classes

- struct Slice
- struct SliceArray
- struct Vector3

Public Member Functions

- MrProtocol ()
- ~MrProtocol ()
- bool FindMrProtocolByName (const char *name) const
- const char * GetMrProtocolByName (const char *name) const
- bool GetSliceArray (MrProtocol::SliceArray &sa) const
- int GetVersion () const
- bool Load (const ByteValue *bv, const char *str, int version)
- void Print (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const MrProtocol &d)

10.200.1 Detailed Description

Class for MrProtocol.

Examples

MrProtocol.cxx.

10.200.2 Constructor & Destructor Documentation

10.200.2.1 MrProtocol()

```
gdcm::MrProtocol::MrProtocol ( )
```

10.200.2.2 ~MrProtocol()

```
gdcm::MrProtocol::~MrProtocol ( )
```

10.200.3 Member Function Documentation

10.200.3.1 FindMrProtocolByName()

```
bool gdcm::MrProtocol::FindMrProtocolByName (
            const char * name ) const
```

10.200.3.2 GetMrProtocolByName()

```
const char * gdcm::MrProtocol::GetMrProtocolByName (
            const char * name ) const
```

10.200.3.3 GetSliceArray()

```
bool gdcm::MrProtocol::GetSliceArray (
            MrProtocol::SliceArray & sa ) const
```

10.200.3.4 GetVersion()

```
int gdcm::MrProtocol::GetVersion ( ) const
```

10.200.3.5 Load()

```
bool gdcm::MrProtocol::Load (
            const ByteValue * bv,
            const char * str,
            int version )
```

10.200.3.6 Print()

```
void gdcm::MrProtocol::Print (
            std::ostream & os ) const
```

10.200.4 Friends And Related Symbol Documentation

10.200.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const MrProtocol & d )  [friend]
```

The documentation for this class was generated from the following file:

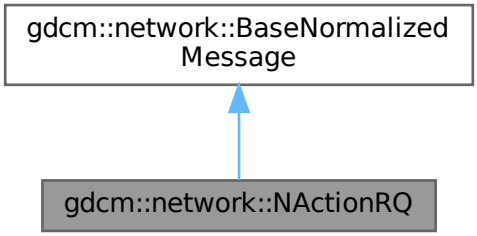
- gdcmMrProtocol.h

10.201 gdcm::network::NActionRQ Class Reference

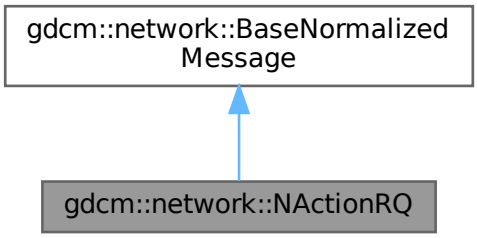
NActionRQ.

```
#include <gdcmNActionMessages.h>
```

Inheritance diagram for gdcm::network::NActionRQ:



Collaboration diagram for gdcm::network::NActionRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.201.1 Detailed Description

NActionRQ.

this file defines the messages for the NAction action

10.201.2 Member Function Documentation

10.201.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NActionRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

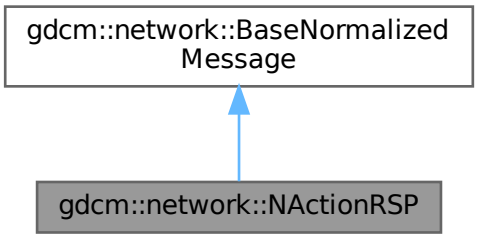
- gdcmNActionMessages.h

10.202 gdcm::network::NActionRSP Class Reference

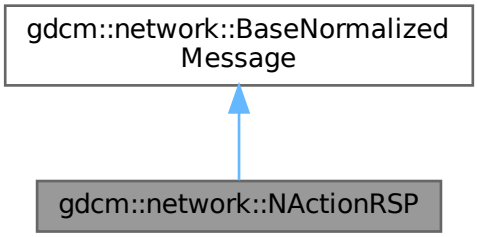
NActionRSP this file defines the messages for the NAction action.

```
#include <gdcmNActionMessages.h>
```

Inheritance diagram for gdcm::network::NActionRSP:



Collaboration diagram for gdcm::network::NActionRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.202.1 Detailed Description

NActionRSP this file defines the messages for the NAction action.

10.202.2 Member Function Documentation

10.202.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NActionRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

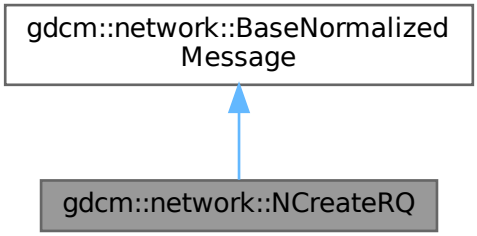
- gdcmNActionMessages.h

10.203 gdcm::network::NCreateRQ Class Reference

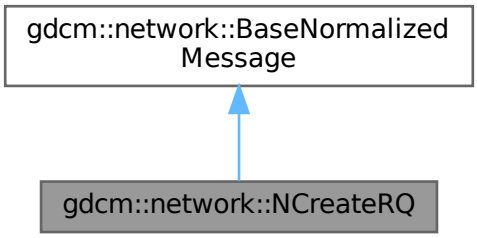
NCreateRQ.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for gdcm::network::NCreateRQ:



Collaboration diagram for gdcm::network::NCreateRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.203.1 Detailed Description

NCreateRQ.

this file defines the messages for the ncreate action

10.203.2 Member Function Documentation

10.203.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

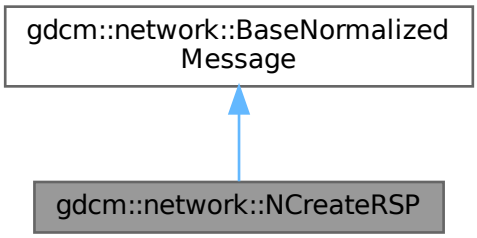
- gdcmNCreateMessages.h

10.204 gdcm::network::NCreateRSP Class Reference

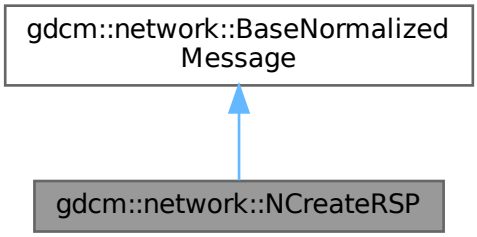
NCreateRSP this file defines the messages for the ncreate action.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for gdcm::network::NCreateRSP:



Collaboration diagram for gdcm::network::NCreateRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.204.1 Detailed Description

NCreateRSP this file defines the messages for the ncreate action.

10.204.2 Member Function Documentation

10.204.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

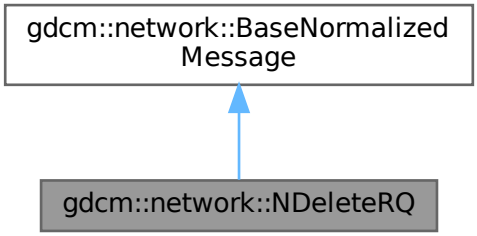
- gdcmNCreateMessages.h

10.205 gdcm::network::NDeleteRQ Class Reference

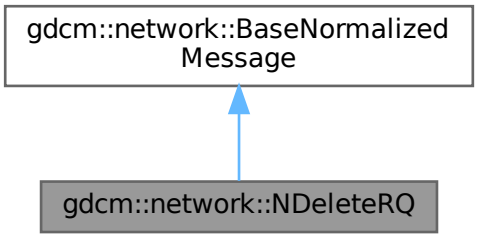
NDeleteRQ.

```
#include <gdcmNDeleteMessages.h>
```

Inheritance diagram for gdcm::network::NDeleteRQ:



Collaboration diagram for gdcm::network::NDeleteRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.205.1 Detailed Description

NDeleteRQ.

this file defines the messages for the ndelete action

10.205.2 Member Function Documentation

10.205.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

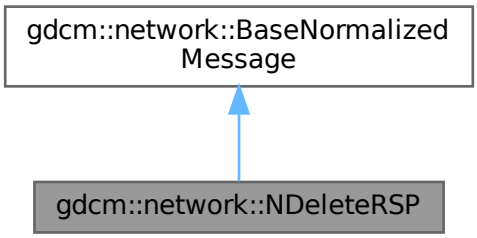
- gdcmNDeleteMessages.h

10.206 gdcm::network::NDeleteRSP Class Reference

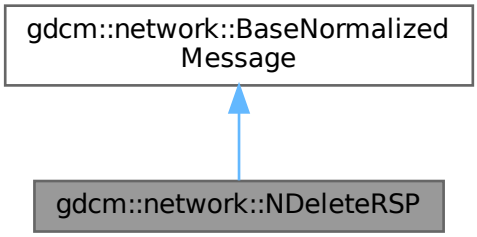
NDeleteRSP this file defines the messages for the ndelete action.

```
#include <gdcmNDeleteMessages.h>
```

Inheritance diagram for gdcm::network::NDeleteRSP:



Collaboration diagram for gdcm::network::NDeleteRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.206.1 Detailed Description

NDeleteRSP this file defines the messages for the ndelete action.

10.206.2 Member Function Documentation

10.206.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

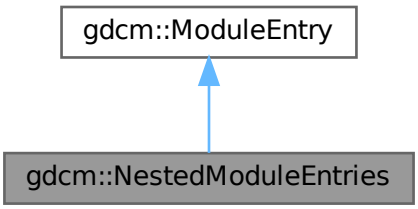
- gdcmNDeleteMessages.h

10.207 gdcm::NestedModuleEntries Class Reference

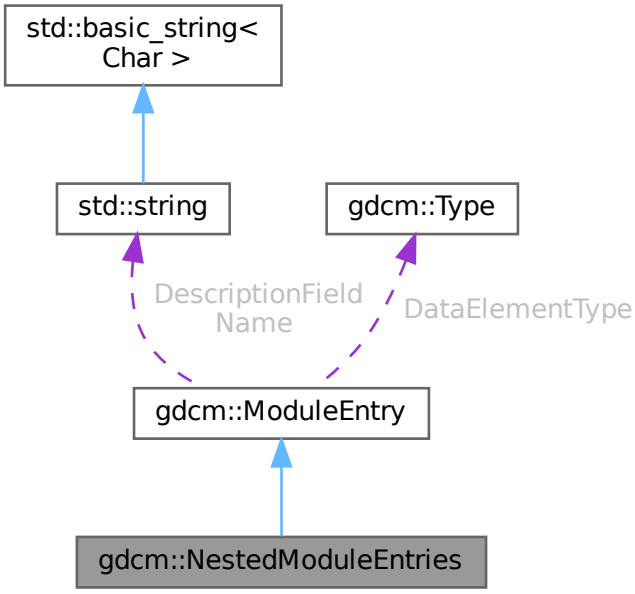
Class for representing a NestedModuleEntries.

```
#include <gdcmNestedModuleEntries.h>
```

Inheritance diagram for gdcm::NestedModuleEntries:



Collaboration diagram for gdcm::NestedModuleEntries:



Public Types

- typedef std::vector< ModuleEntry >::size_type SizeType

Public Types inherited from gdcm::ModuleEntry

- typedef std::string Description

Public Member Functions

- NestedModuleEntries (const char *name="", const char *type="3", const char *description="")
- void AddModuleEntry (const ModuleEntry &me)
- ModuleEntry & GetModuleEntry (SizeType idx)
- const ModuleEntry & GetModuleEntry (SizeType idx) const
- SizeType GetNumberOfModuleEntries ()

Public Member Functions inherited from gdcm::ModuleEntry

- ModuleEntry (const char *name="", const char *type="3", const char *description="")
- virtual ~ModuleEntry ()=default
- const Description & GetDescription () const
- const char * GetName () const
- const Type & GetType () const
- void SetDescription (const char *d)
- void SetName (const char *name)
- void SetType (const Type &type)

Friends

- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)

Additional Inherited Members

Protected Attributes inherited from gdcm::ModuleEntry

- Type DataElementType
- Description DescriptionField
- std::string Name

10.207.1 Detailed Description

Class for representing a NestedModuleEntries.

Note

bla

See also

ModuleEntry

10.207.2 Member Typedef Documentation

10.207.2.1 SizeType

```
typedef std::vector<ModuleEntry>::size_type gdcm::NestedModuleEntries::SizeType
```

10.207.3 Constructor & Destructor Documentation

10.207.3.1 NestedModuleEntries()

```
gdcm::NestedModuleEntries::NestedModuleEntries (
            const char * name = "",
            const char * type = "3",
            const char * description = "" )  [inline]
```

10.207.4 Member Function Documentation

10.207.4.1 AddModuleEntry()

```
void gdcm::NestedModuleEntries::AddModuleEntry (
            const ModuleEntry & me )  [inline]
```

10.207.4.2 GetModuleEntry() [1/2]

```
ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx )  [inline]
```

10.207.4.3 GetModuleEntry() [2/2]

```
const ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx ) const  [inline]
```

10.207.4.4 GetNumberOfModuleEntries()

```
SizeType gdcm::NestedModuleEntries::GetNumberOfModuleEntries ( ) [inline]
```

10.207.5 Friends And Related Symbol Documentation

10.207.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val ) [friend]
```

The documentation for this class was generated from the following file:

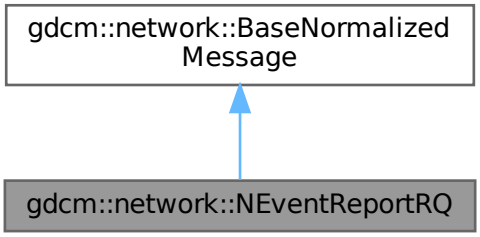
- gdcmNestedModuleEntries.h

10.208 gdcm::network::NEventReportRQ Class Reference

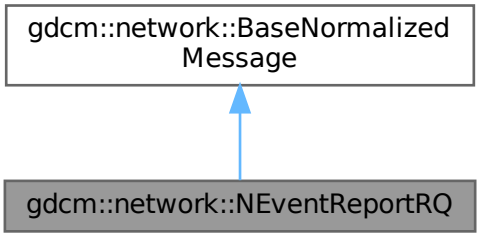
NEventReportRQ.

```
#include <gdcmNEventReportMessages.h>
```

Inheritance diagram for gdcm::network::NEventReportRQ:



Collaboration diagram for gdcm::network::NEventReportRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.208.1 Detailed Description

NEventReportRQ.

this file defines the messages for the neventreport action

10.208.2 Member Function Documentation

10.208.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

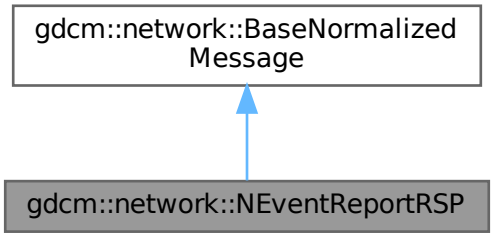
- gdcmNEventReportMessages.h

10.209 gdcm::network::NEventReportRSP Class Reference

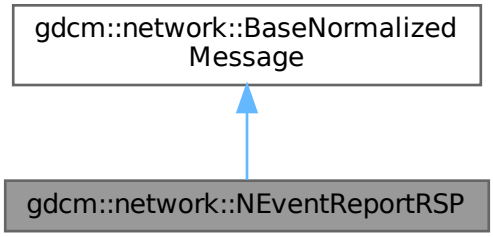
NEventReportRSP this file defines the messages for the neventreport action.

```
#include <gdcmNEventReportMessages.h>
```

Inheritance diagram for gdcm::network::NEventReportRSP:



Collaboration diagram for gdcm::network::NEventReportRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.209.1 Detailed Description

NEventReportRSP this file defines the messages for the neventreport action.

10.209.2 Member Function Documentation

10.209.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

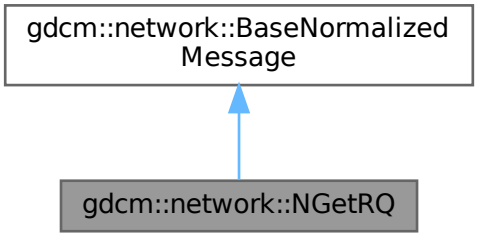
- gdcmNEventReportMessages.h

10.210 gdcm::network::NGetRQ Class Reference

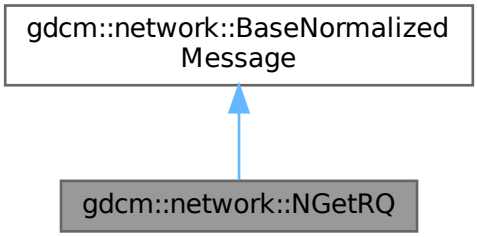
NGetRQ.

```
#include <gdcmNGetMessages.h>
```

Inheritance diagram for gdcm::network::NGetRQ:



Collaboration diagram for gdcm::network::NGetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.210.1 Detailed Description

NGetRQ.

this file defines the messages for the nget action

10.210.2 Member Function Documentation

10.210.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NGetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

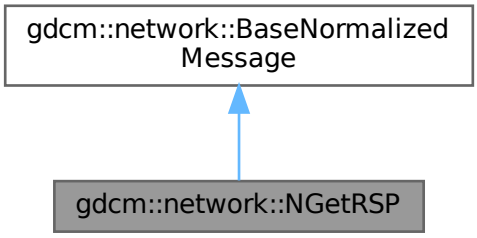
- gdcmNGetMessages.h

10.211 gdcm::network::NGetRSP Class Reference

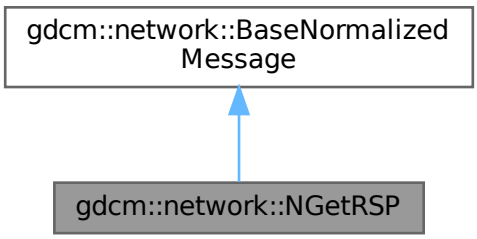
NGetRSP this file defines the messages for the nget action.

```
#include <gdcmNGetMessages.h>
```

Inheritance diagram for gdcm::network::NGetRSP:



Collaboration diagram for gdcm::network::NGetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.211.1 Detailed Description

NGetRSP this file defines the messages for the nget action.

10.211.2 Member Function Documentation

10.211.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NGetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

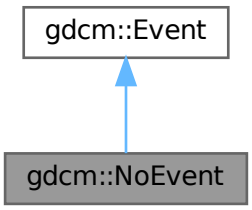
The documentation for this class was generated from the following file:

- gdcmNGetMessages.h

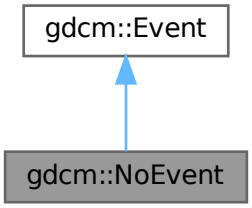
10.212 gdcm::NoEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::NoEvent:



Collaboration diagram for gdcm::NoEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.212.1 Detailed Description

Define some common GDCM events

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.213 gdcm::network::NormalizedMessageFactory Class Reference

```
#include <gdcmNormalizedMessageFactory.h>
```

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructNAction (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNCreate (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNDelete (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNEventReport (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNGet (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNSet (const ULConnection &inConnection, const BaseQuery *inQuery)

10.213.1 Member Function Documentation

10.213.1.1 ConstructNAction()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NAction (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.213.1.2 ConstructNCreate()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NCreate (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.213.1.3 ConstructNDelete()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NDelete (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.213.1.4 ConstructNEventReport()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NEventReport (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.213.1.5 ConstructNGet()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NGet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.213.1.6 ConstructNSet()

```
static std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::Construct↩
NSet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

The documentation for this class was generated from the following file:

- gdcmNormalizedMessageFactory.h

10.214 gdcm::NormalizedNetworkFunctions Class Reference

Normalized Network Functions.

```
#include <gdcmNormalizedNetworkFunctions.h>
```

Static Public Member Functions

- static BaseQuery * ConstructQuery (const std::string &sopInstanceUID, const DataSet &queryds, ENQueryType queryType=eCreateMMPS)
- static bool NAction (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &ret↩ DataSets, const char *aetitle, const char *call)
- static bool NCreate (const char *remote, uint16_t portno, BaseQuery *query, std::vector< DataSet > &retData↩ Sets, const char *aetitle, const char *call)
- static bool NDelete (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &ret↩ DataSets, const char *aetitle, const char *call)
- static bool NEventReport (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NGet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &ret↩ DataSets, const char *aetitle, const char *call)
- static bool NSet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &ret↩ DataSets, const char *aetitle, const char *call)

10.214.1 Detailed Description

Normalized Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- N-EVENT-REPORT
- N-GET
- N-SET
- N-ACTION
- N-CREATE
- N-DELETE

10.214.2 Member Function Documentation

10.214.2.1 ConstructQuery()

```
static BaseQuery * gdcm::NormalizedNetworkFunctions::ConstructQuery (
            const std::string & sopInstanceUID,
            const DataSet & queryds,
            ENQueryType queryType = eCreateMMPS )  [static]
```

10.214.2.2 NAction()

```
static bool gdcm::NormalizedNetworkFunctions::NAction (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

10.214.2.3 NCreate()

```
static bool gdcm::NormalizedNetworkFunctions::NCreate (
            const char * remote,
            uint16_t portno,
            BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

10.214.2.4 NDelete()

```
static bool gdcm::NormalizedNetworkFunctions::NDelete (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

10.214.2.5 NEventReport()

```
static bool gdcm::NormalizedNetworkFunctions::NEventReport (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

10.214.2.6 NGet()

```
static bool gdcm::NormalizedNetworkFunctions::NGet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

10.214.2.7 NSet()

```
static bool gdcm::NormalizedNetworkFunctions::NSet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call )  [static]
```

The documentation for this class was generated from the following file:

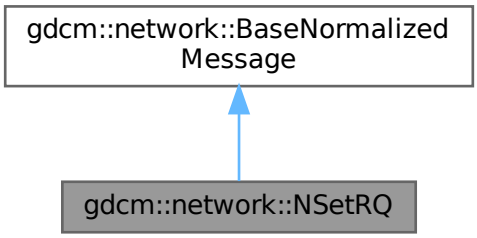
- gdcmNormalizedNetworkFunctions.h

10.215 gdcm::network::NSetRQ Class Reference

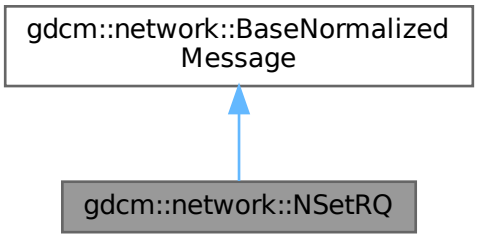
NSetRQ.

`#include <gdcmNSetMessages.h>`

Inheritance diagram for gdcm::network::NSetRQ:



Collaboration diagram for gdcm::network::NSetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

10.215.1 Detailed Description

NSetRQ.

this file defines the messages for the nset action

10.215.2 Member Function Documentation

10.215.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NSetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

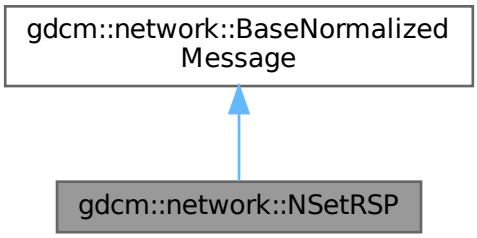
- gdcmNSetMessages.h

10.216 gdcm::network::NSetRSP Class Reference

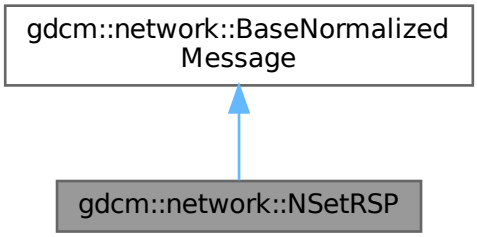
NSetRSP this file defines the messages for the nset action.

```
#include <gdcmNSetMessages.h>
```

Inheritance diagram for gdcm::network::NSetRSP:



Collaboration diagram for gdcm::network::NSetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

10.216.1 Detailed Description

NSetRSP this file defines the messages for the nset action.

10.216.2 Member Function Documentation

10.216.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NSetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet )
```

The documentation for this class was generated from the following file:

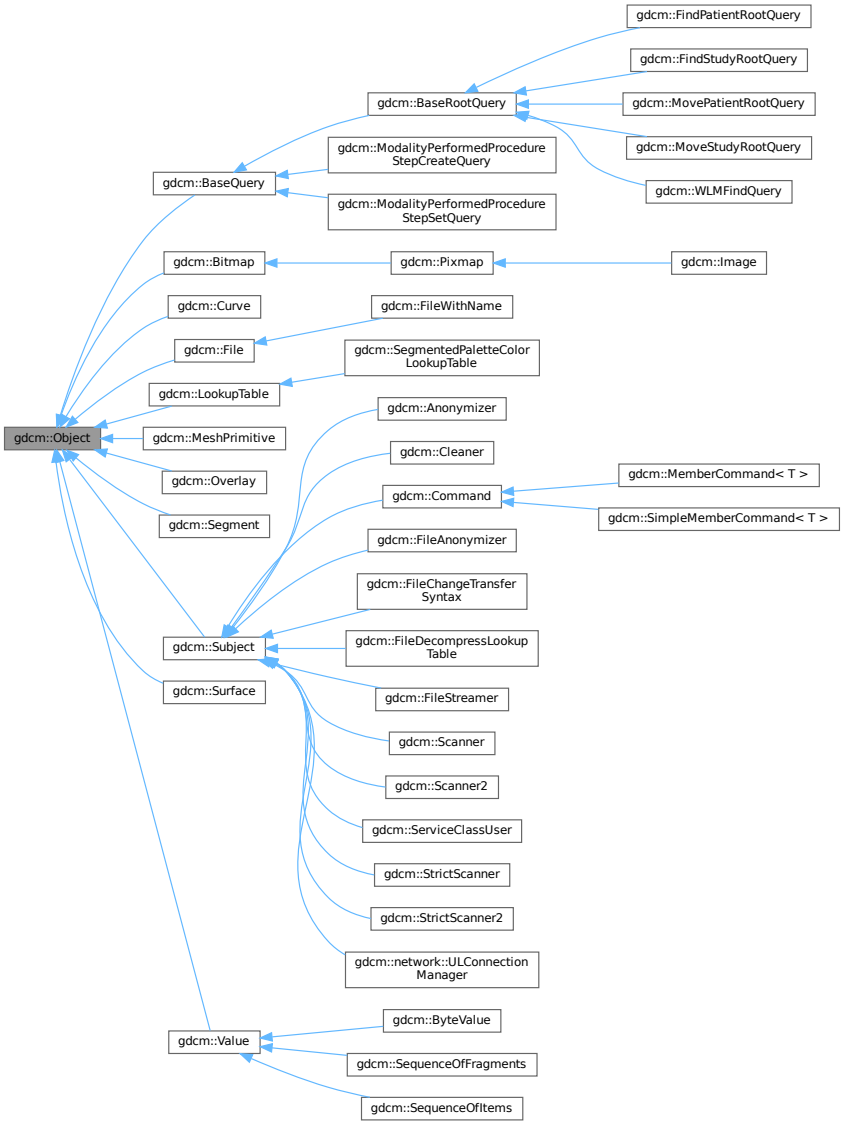
- gdcmNSetMessages.h

10.217 gdcm::Object Class Reference

Object.

```
#include <gdcmObject.h>
```

Inheritance diagram for gdcm::Object:



Public Member Functions

- Object ()
- Object (const Object &)

Special requirement for copy/cstor, assignment operator.

- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &os, const Object &obj)
- template<class ObjectType >
  class SmartPointer

10.217.1 Detailed Description

Object.

Note

main superclass for object that want to use SmartPointer invasive ref counting system

See also

SmartPointer

10.217.2 Constructor & Destructor Documentation

10.217.2.1 Object() [1/2]

```
gdcm::Object::Object ( ) [inline]
```

10.217.2.2 ~Object()

```
virtual gdcm::Object::~Object ( ) [inline], [virtual]
```

10.217.2.3 Object() [2/2]

```
gdcm::Object::Object (
            const Object & ) [inline]
```

Special requirement for copy/cstor, assignment operator.

10.217.3 Member Function Documentation

10.217.3.1 operator=()

```
void gdcm::Object::operator= (
            const Object &  )  [inline]
```

10.217.3.2 Print()

```
virtual void gdcm::Object::Print (
            std::ostream &  ) const  [inline], [virtual]
```

Reimplemented in gdcm::Bitmap, gdcm::Curve, gdcm::LookupTable, gdcm::Overlay, gdcm::Pixmap, gdcm::SegmentedPaletteColorLookup gdcm::ByteValue, gdcm::SequenceOfFragments, gdcm::SequenceOfItems, gdcm::Image, gdcm::Scanner, gdcm::Scanner2, gdcm::StrictScanner, gdcm::StrictScanner2, and gdcm::BaseQuery.

Examples

ReadAndDumpDICOMDIR.cxx.

10.217.3.3 Register()

```
void gdcm::Object::Register ( )  [inline], [protected]
```

10.217.3.4 UnRegister()

```
void gdcm::Object::UnRegister ( )  [inline], [protected]
```

10.217.4 Friends And Related Symbol Documentation

10.217.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Object & obj )  [friend]
```

10.217.4.2 SmartPointer

```
template<class ObjectType >
friend class SmartPointer  [friend]
```

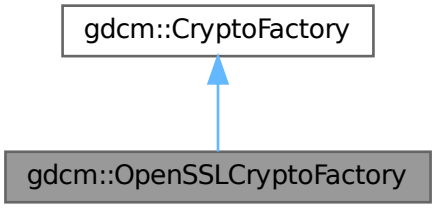
The documentation for this class was generated from the following file:

- gdcmObject.h

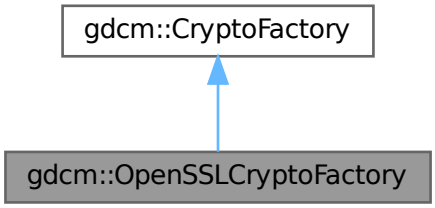
10.218 gdcm::OpenSSLCryptoFactory Class Reference

```
#include <gdcmOpenSSLCryptoFactory.h>
```

Inheritance diagram for gdcm::OpenSSLCryptoFactory:



Collaboration diagram for gdcm::OpenSSLCryptoFactory:



Public Member Functions

- OpenSSLCryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Protected Member Functions

- void InitOpenSSL ()

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

10.218.1 Constructor & Destructor Documentation

10.218.1.1 OpenSSLCryptoFactory()

```
gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory (
            CryptoLib id )  [inline]
```

References gdcmDebugMacro.

10.218.2 Member Function Documentation

10.218.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLCryptoFactory::CreateCMSProvider ( )  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

10.218.2.2 InitOpenSSL()

```
void gdcm::OpenSSLCryptoFactory::InitOpenSSL ( )  [protected]
```

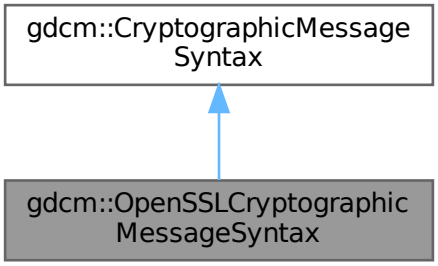
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptoFactory.h

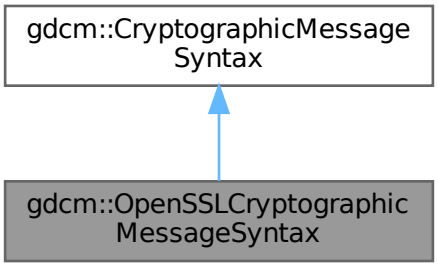
10.219 gdcm::OpenSSLCryptographicMessageSyntax Class Reference

```
#include <gdcmOpenSSLCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Public Member Functions

- OpenSSLCryptographicMessageSyntax ()
- ~OpenSSLCryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

10.219.1 Constructor & Destructor Documentation

10.219.1.1 OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::OpenSSLCryptographicMessageSyntax ( )
```

10.219.1.2 ~OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::~OpenSSLCryptographicMessageSyntax ( )
```

10.219.2 Member Function Documentation

10.219.2.1 Decrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.219.2.2 Encrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.219.2.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLCryptographicMessageSyntax::GetCipherType ( ) const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.219.2.4 ParseCertificateFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseCertificateFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.219.2.5 ParseKeyFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseKeyFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.219.2.6 SetCipherType()

```
void gdcm::OpenSSLCryptographicMessageSyntax::SetCipherType (
            CipherTypes type )  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

10.219.2.7 SetPassword()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

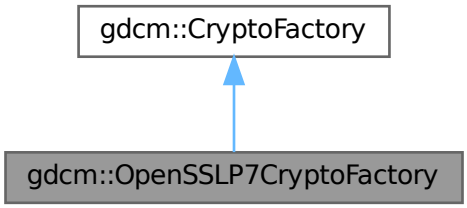
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptographicMessageSyntax.h

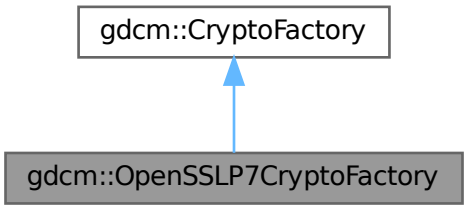
10.220 gdcm::OpenSSLP7CryptoFactory Class Reference

```
#include <gdcmOpenSSLP7CryptoFactory.h>
```

Inheritance diagram for gdcm::OpenSSLP7CryptoFactory:



Collaboration diagram for gdcm::OpenSSLP7CryptoFactory:



Public Member Functions

- OpenSSLP7CryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

10.220.1 Constructor & Destructor Documentation

10.220.1.1 OpenSSLP7CryptoFactory()

```
gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory (
            CryptoLib id )  [inline]
```

References gdcmDebugMacro.

10.220.2 Member Function Documentation

10.220.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLP7CryptoFactory::CreateCMSProvider ( )  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

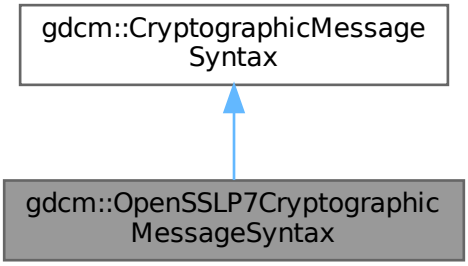
The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptoFactory.h

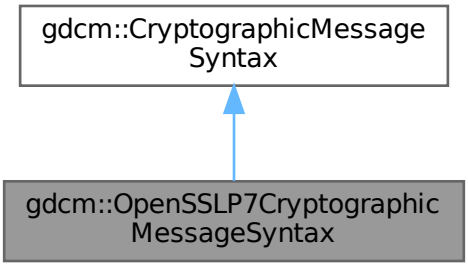
10.221 gdcm::OpenSSLP7CryptographicMessageSyntax Class Reference

```
#include <gdcmOpenSSLP7CryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Public Member Functions

- OpenSSLP7CryptographicMessageSyntax ()
- ~OpenSSLP7CryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a PKCS#7 envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *, size_t)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

10.221.1 Detailed Description

Class for CryptographicMessageSyntax encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities

See online documentation `http://www.openssl.org/docs/crypto/PKCS7_encrypt.html`

10.221.2 Constructor & Destructor Documentation

10.221.2.1 OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::OpenSSLP7CryptographicMessageSyntax ( )
```

10.221.2.2 ~OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::~OpenSSLP7CryptographicMessageSyntax ( )
```

10.221.3 Member Function Documentation

10.221.3.1 Decrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.221.3.2 Encrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len ) const  [virtual]
```

create a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

10.221.3.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLP7CryptographicMessageSyntax::GetCipherType ( ) const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.221.3.4 ParseCertificateFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.221.3.5 ParseKeyFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseKeyFile (
            const char * filename )  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

10.221.3.6 SetCipherType()

```
void gdcm::OpenSSLP7CryptographicMessageSyntax::SetCipherType (
            CipherTypes type )  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

10.221.3.7 SetPassword()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassword (
            const char * ,
            size_t  )  [inline], [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

References gdcmWarningMacro.

The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptographicMessageSyntax.h

10.222 gdcm::Orientation Class Reference

class to handle Orientation

```
#include <gdcmOrientation.h>
```

Public Types

- enum OrientationType {
  UNKNOWN ,
  AXIAL ,
  CORONAL ,
  SAGITTAL ,
  OBLIQUE }

Public Member Functions

- Orientation ()
- ~Orientation ()=default
- void Print (std::ostream &) const

  Print.

Static Public Member Functions

- static const char * GetLabel (OrientationType type)

  Return the label of an Orientation.
- static double GetObliquityThresholdCosineValue ()
- static OrientationType GetType (const double dircos[6])
- static void SetObliquityThresholdCosineValue (double val)

  ObliquityThresholdCosineValue stuff.

Static Protected Member Functions

- static char GetMajorAxisFromPatientRelativeDirectionCosine (double x, double y, double z)

Friends

- std::ostream & operator<< (std::ostream &_os, const Orientation &o)

10.222.1 Detailed Description

class to handle Orientation

10.222.2 Member Enumeration Documentation

10.222.2.1 OrientationType

```
enum gdcm::Orientation::OrientationType
```

Enumerator

UNKNOWN	
AXIAL	
CORONAL	
SAGITTAL	
OBLIQUE	

10.222.3 Constructor & Destructor Documentation

10.222.3.1 Orientation()

```
gdcm::Orientation::Orientation ( )
```

10.222.3.2 ~Orientation()

```
gdcm::Orientation::~Orientation ( )  [default]
```

10.222.4 Member Function Documentation

10.222.4.1 GetLabel()

```
static const char * gdcm::Orientation::GetLabel (
            OrientationType type )  [static]
```

Return the label of an Orientation.

Examples

FixOrientation.cxx.

10.222.4.2 GetMajorAxisFromPatientRelativeDirectionCosine()

```
static char gdcm::Orientation::GetMajorAxisFromPatientRelativeDirectionCosine (
            double x,
            double y,
            double z )  [static], [protected]
```

10.222.4.3 GetObliquityThresholdCosineValue()

```
static double gdcm::Orientation::GetObliquityThresholdCosineValue ( )  [static]
```

10.222.4.4 GetType()

```
static OrientationType gdcm::Orientation::GetType (
            const double dircos[6] )  [static]
```

Return the type of orientation from a direction cosines Input is an array of 6 double

Examples

FixOrientation.cxx.

10.222.4.5 Print()

```
void gdcm::Orientation::Print (
            std::ostream &  ) const
```

Print.

10.222.4.6 SetObliquityThresholdCosineValue()

```
static void gdcm::Orientation::SetObliquityThresholdCosineValue (
            double val )  [static]
```

ObliquityThresholdCosineValue stuff.

10.222.5 Friends And Related Symbol Documentation

10.222.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Orientation & o )  [friend]
```

The documentation for this class was generated from the following file:

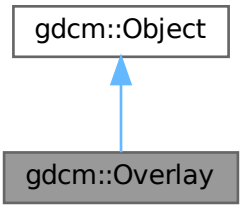
- gdcmOrientation.h

10.223 gdcm::Overlay Class Reference

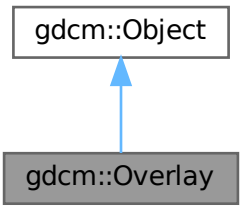
Overlay class.

```
#include <gdcmOverlay.h>
```

Inheritance diagram for gdcm::Overlay:



Collaboration diagram for gdcm::Overlay:



Public Types

- enum OverlayType {
  Invalid = 0 ,
  Graphics = 1 ,
  ROI = 2 }

Public Member Functions

- Overlay ()
- Overlay (Overlay const &ov)
- ~Overlay () override
- void Decompress (std::ostream &os) const

  Decode the internal OverlayData (packed bits) into unpacked representation.
- unsigned short GetBitPosition () const

  return bit position
- unsigned short GetBitsAllocated () const

  return bits allocated
- unsigned short GetColumns () const

  get columns
- const char * GetDescription () const

  get description
- unsigned short GetGroup () const

  Get Group number.
- const signed short * GetOrigin () const

  get origin
- const ByteValue & GetOverlayData () const
- unsigned short GetRows () const

  get rows
- const char * GetType () const

  get type
- OverlayType GetTypeAsEnum () const

- bool GetUnpackBuffer (char *buffer, size_t len) const
- size_t GetUnpackBufferLength () const
- bool GrabOverlayFromPixelData (DataSet const &ds)
- bool IsEmpty () const

  Return whether or not the Overlay is empty:
- bool IsInPixelData () const

  return if the Overlay is stored in the pixel data or not
- void IsInPixelData (bool b)

  Set whether or no the OverlayData is in the Pixel Data:
- bool IsZero () const

  return true if all bits are set to 0
- Overlay & operator= (Overlay const &ov)
- void Print (std::ostream &) const override

  Print.
- void SetBitPosition (unsigned short bitposition)

  set bit position
- void SetBitsAllocated (unsigned short bitsallocated)

  set bits allocated
- void SetColumns (unsigned short columns)

  set columns
- void SetDescription (const char *description)

  set description
- void SetFrameOrigin (unsigned short frameorigin)

  set frame origin
- void SetGroup (unsigned short group)

  Set Group number.
- void SetNumberOfFrames (unsigned int numberoframes)

  set number of frames
- void SetOrigin (const signed short origin[2])

  set origin
- void SetOverlay (const char *array, size_t length)

  set overlay from byte array + length
- void SetRows (unsigned short rows)

  set rows
- void SetType (const char *type)

  set type
- void Update (const DataElement &de)

  Update overlay from data element de:

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static const char * GetOverlayTypeAsString (OverlayType ot)
- static OverlayType GetOverlayTypeFromString (const char *)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.223.1 Detailed Description

Overlay class.

Note

see AreOverlaysInPixelData

Todo Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Example:

10.223.2 Member Enumeration Documentation

10.223.2.1 OverlayType

`enum gdcm::Overlay::OverlayType`

Enumerator

Invalid	
Graphics	
ROI	

10.223.3 Constructor & Destructor Documentation

10.223.3.1 Overlay() [1/2]

`gdcm::Overlay::Overlay ( )`

10.223.3.2 ~Overlay()

```
gdcm::Overlay::~Overlay ( ) [override]
```

10.223.3.3 Overlay() [2/2]

```
gdcm::Overlay::Overlay (
            Overlay const & ov )
```

10.223.4 Member Function Documentation

10.223.4.1 Decompress()

```
void gdcm::Overlay::Decompress (
            std::ostream & os ) const
```

Decode the internal OverlayData (packed bits) into unpacked representation.

10.223.4.2 GetBitPosition()

```
unsigned short gdcm::Overlay::GetBitPosition ( ) const
```

return bit position

10.223.4.3 GetBitsAllocated()

```
unsigned short gdcm::Overlay::GetBitsAllocated ( ) const
```

return bits allocated

10.223.4.4 GetColumns()

```
unsigned short gdcm::Overlay::GetColumns ( ) const
```

get columns

10.223.4.5 GetDescription()

```
const char * gdcm::Overlay::GetDescription ( ) const
```

get description

10.223.4.6 GetGroup()

```
unsigned short gdcm::Overlay::GetGroup ( ) const
```

Get Group number.

10.223.4.7 GetOrigin()

```
const signed short * gdcm::Overlay::GetOrigin ( ) const
```

get origin

10.223.4.8 GetOverlayData()

```
const ByteValue & gdcm::Overlay::GetOverlayData ( ) const
```

Return the Overlay Data as ByteValue: Not thread safe

10.223.4.9 GetOverlayTypeAsString()

```
static const char * gdcm::Overlay::GetOverlayTypeAsString (
            OverlayType ot )  [static]
```

10.223.4.10 GetOverlayTypeFromString()

```
static OverlayType gdcm::Overlay::GetOverlayTypeFromString (
            const char *  )  [static]
```

10.223.4.11 GetRows()

```
unsigned short gdcm::Overlay::GetRows ( ) const
```

get rows

10.223.4.12 GetType()

```
const char * gdcm::Overlay::GetType ( ) const
```

get type

10.223.4.13 GetTypeAsEnum()

```
OverlayType gdcm::Overlay::GetTypeAsEnum ( ) const
```

10.223.4.14 GetUnpackBuffer()

```
bool gdcm::Overlay::GetUnpackBuffer (
            char * buffer,
            size_t len ) const
```

Retrieve the unpack buffer for Overlay. This is an error if the size if below GetUnpackBufferLength()

10.223.4.15 GetUnpackBufferLength()

```
size_t gdcm::Overlay::GetUnpackBufferLength ( ) const
```

Retrieve the size of the buffer needed to hold the Overlay as specified by Col & Row parameters

10.223.4.16 GrabOverlayFromPixelData()

```
bool gdcm::Overlay::GrabOverlayFromPixelData (
            DataSet const & ds )
```

10.223.4.17 IsEmpty()

```
bool gdcm::Overlay::IsEmpty ( ) const
```

Return whether or not the Overlay is empty:

10.223.4.18 IsInPixelData() [1/2]

```
bool gdcm::Overlay::IsInPixelData ( ) const
```

return if the Overlay is stored in the pixel data or not

10.223.4.19 IsInPixelData() [2/2]

```
void gdcm::Overlay::IsInPixelData (
            bool b )
```

Set whether or no the OverlayData is in the Pixel Data:

10.223.4.20 IsZero()

```
bool gdcm::Overlay::IsZero ( ) const
```

return true if all bits are set to 0

10.223.4.21 operator=()

```
Overlay & gdcm::Overlay::operator= (
            Overlay const & ov )
```

10.223.4.22 Print()

```
void gdcm::Overlay::Print (
            std::ostream &  ) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Object.

10.223.4.23 SetBitPosition()

```
void gdcm::Overlay::SetBitPosition (
            unsigned short bitposition )
```

set bit position

10.223.4.24 SetBitsAllocated()

```
void gdcm::Overlay::SetBitsAllocated (
            unsigned short bitsallocated )
```

set bits allocated

10.223.4.25 SetColumns()

```
void gdcm::Overlay::SetColumns (
            unsigned short columns )
```

set columns

10.223.4.26 SetDescription()

```
void gdcm::Overlay::SetDescription (
            const char * description )
```

set description

10.223.4.27 SetFrameOrigin()

```
void gdcm::Overlay::SetFrameOrigin (
            unsigned short frameorigin )
```

set frame origin

10.223.4.28 SetGroup()

```
void gdcm::Overlay::SetGroup (
            unsigned short group )
```

Set Group number.

10.223.4.29 SetNumberOfFrames()

```
void gdcm::Overlay::SetNumberOfFrames (
            unsigned int numberofframes )
```

set number of frames

10.223.4.30 SetOrigin()

```
void gdcm::Overlay::SetOrigin (
            const signed short origin[2] )
```

set origin

10.223.4.31 SetOverlay()

```
void gdcm::Overlay::SetOverlay (
            const char * array,
            size_t length )
```

set overlay from byte array + length

10.223.4.32 SetRows()

```
void gdcm::Overlay::SetRows (
            unsigned short rows )
```

set rows

10.223.4.33 SetType()

```
void gdcm::Overlay::SetType (
            const char * type )
```

set type

10.223.4.34 Update()

```
void gdcm::Overlay::Update (
            const DataElement & de )
```

Update overlay from data element de:

The documentation for this class was generated from the following file:

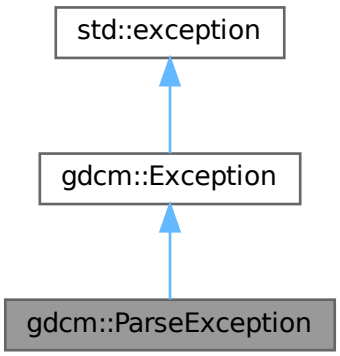
- gdcmOverlay.h

10.224 gdcm::ParseException Class Reference

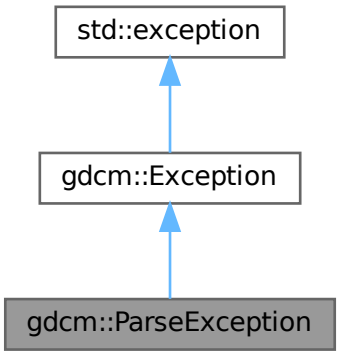
ParseException Standard exception handling object.

```
#include <gdcmParseException.h>
```

Inheritance diagram for gdcm::ParseException:



Collaboration diagram for gdcm::ParseException:



Public Member Functions

- ParseException ()=default
- ParseException (const ParseException &orig)
- ~ParseException () override throw ()
- const DataElement & GetLastElement () const
- ParseException & operator= (const ParseException &orig)
- void SetLastElement (DataElement &de)

Public Member Functions inherited from gdcm::Exception

- Exception (const char *desc="None", const char *file=__FILE__, unsigned int lineNumber=__LINE__, const char *func="")
- ~Exception () override throw ()
- const char * GetDescription () const

  Return the Description.
- const char * what () const override throw ()

  what implementation

10.224.1 Detailed Description

ParseException Standard exception handling object.

10.224.2 Constructor & Destructor Documentation

10.224.2.1 ParseException() [1/2]

```
gdcm::ParseException::ParseException ( ) [default]
```

10.224.2.2 ~ParseException()

```
gdcm::ParseException::~ParseException ( ) throw ( )   [inline], [override]
```

10.224.2.3 ParseException() [2/2]

```
gdcm::ParseException::ParseException (
            const ParseException & orig )  [inline]
```

10.224.3 Member Function Documentation

10.224.3.1 GetLastElement()

```
const DataElement & gdcm::ParseException::GetLastElement ( ) const  [inline]
```

10.224.3.2 operator=()

```
ParseException & gdcm::ParseException::operator= (
            const ParseException & orig )  [inline]
```

Assignment operator.

10.224.3.3 SetLastElement()

```
void gdcm::ParseException::SetLastElement (
            DataElement & de )  [inline]
```

Equivalence operator.

Referenced by gdcm::BasicOffsetTable::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Fragment::ReadValue().

The documentation for this class was generated from the following file:

- gdcmParseException.h

10.225 gdcm::Parser Class Reference

Parser ala XML_Parser from expat (SAX)

```
#include <gdcmParser.h>
```

Public Types

- typedef void(∗ EndElementHandler) (void ∗userData, const Tag &name)
- enum ErrorType {
  NoError ,
  NoMemoryError ,
  SyntaxError ,
  NoElementsError ,
  TagMismatchError ,
  DuplicateAttributeError ,
  JunkAfterDocElementError ,
  UndefinedEntityError ,
  UnexpectedStateError }
- typedef void(∗ StartElementHandler) (void ∗userData, const Tag &tag, const char ∗atts[ ])

Public Member Functions

- Parser ()
- ∼Parser ()
- unsigned long GetCurrentByteIndex () const
- ErrorType GetErrorCode () const
- void ∗ GetUserData () const
- bool Parse (const char ∗s, int len, bool isFinal)
- void SetElementHandler (StartElementHandler start, EndElementHandler end)
- void SetUserData (void ∗userData)

Static Public Member Functions

- static const char ∗ GetErrorString (ErrorType const &err)

Protected Member Functions

- char ∗ GetBuffer (int len)
- bool ParseBuffer (int len, bool isFinal)
- ErrorType Process ()

10.225.1 Detailed Description

Parser ala XML_Parser from expat (SAX)

Detailed description here

Note

Simple API for DICOM

10.225.2 Member Typedef Documentation

10.225.2.1 EndElementHandler

```
typedef void(* gdcm::Parser::EndElementHandler) (void *userData, const Tag &name)
```

10.225.2.2 StartElementHandler

```
typedef void(* gdcm::Parser::StartElementHandler) (void *userData, const Tag &tag, const char
*atts[])
```

10.225.3 Member Enumeration Documentation

10.225.3.1 ErrorType

```
enum gdcm::Parser::ErrorType
```

Enumerator

NoError	
NoMemoryError	
SyntaxError	
NoElementsError	
TagMismatchError	
DuplicateAttributeError	
JunkAfterDocElementError	
UndefinedEntityError	
UnexpectedStateError	

10.225.4 Constructor & Destructor Documentation

10.225.4.1 Parser()

```
gdcm::Parser::Parser ( ) [inline]
```

10.225.4.2 ~Parser()

```
gdcm::Parser::~Parser ( ) [inline]
```

10.225.5 Member Function Documentation

10.225.5.1 GetBuffer()

```
char * gdcm::Parser::GetBuffer (
            int len )  [protected]
```

10.225.5.2 GetCurrentByteIndex()

```
unsigned long gdcm::Parser::GetCurrentByteIndex ( ) const
```

10.225.5.3 GetErrorCode()

```
ErrorType gdcm::Parser::GetErrorCode ( ) const
```

10.225.5.4 GetErrorString()

```
static const char * gdcm::Parser::GetErrorString (
            ErrorType const & err )  [static]
```

10.225.5.5 GetUserData()

```
void * gdcm::Parser::GetUserData ( ) const
```

10.225.5.6 Parse()

```
bool gdcm::Parser::Parse (
            const char * s,
            int len,
            bool isFinal )
```

10.225.5.7 ParseBuffer()

```
bool gdcm::Parser::ParseBuffer (
            int len,
            bool isFinal )  [protected]
```

10.225.5.8 Process()

```
ErrorType gdcm::Parser::Process ( )  [protected]
```

10.225.5.9 SetElementHandler()

```
void gdcm::Parser::SetElementHandler (
            StartElementHandler start,
            EndElementHandler end )
```

10.225.5.10 SetUserData()

```
void gdcm::Parser::SetUserData (
            void * userData )
```

The documentation for this class was generated from the following file:

- gdcmParser.h

10.226 gdcm::Patient Class Reference

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

```
#include <gdcmPatient.h>
```

Public Member Functions

- Patient ()=default

10.226.1 Detailed Description

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

10.226.2 Constructor & Destructor Documentation

10.226.2.1 Patient()

```
gdcm::Patient::Patient ( ) [default]
```

The documentation for this class was generated from the following file:

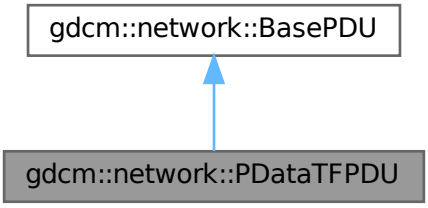
- gdcmPatient.h

10.227 gdcm::network::PDataTFPDU Class Reference

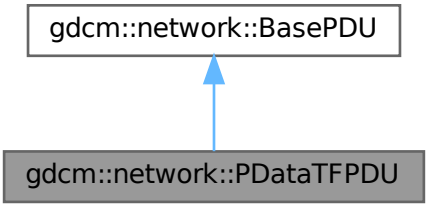
PDataTFPDU.

```
#include <gdcmPDataTFPDU.h>
```

Inheritance diagram for gdcm::network::PDataTFPDU:



Collaboration diagram for gdcm::network::PDataTFPDU:



Public Types

- typedef std::vector< PresentationDataValue >::size_type SizeType

Public Member Functions

- PDataTFPDU ()
- void AddPresentationDataValue (PresentationDataValue const &pdv)
- SizeType GetNumberOfPresentationDataValues () const
- PresentationDataValue const & GetPresentationDataValue (SizeType i) const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- std::istream & ReadInto (std::istream &is, std::ostream &os)

10.227.1 Detailed Description

PDataTFPDU.

Table 9-22 P-DATA-TF PDU FIELDS

10.227.2 Member Typedef Documentation

10.227.2.1 SizeType

```
typedef std::vector<PresentationDataValue>::size_type gdcm::network::PDataTFPDU::SizeType
```

10.227.3 Constructor & Destructor Documentation

10.227.3.1 PDataTFPDU()

```
gdcm::network::PDataTFPDU::PDataTFPDU ( )
```

10.227.4 Member Function Documentation

10.227.4.1 AddPresentationDataValue()

```
void gdcm::network::PDataTFPDU::AddPresentationDataValue (
            PresentationDataValue const & pdv )  [inline]
```

10.227.4.2 GetNumberOfPresentationDataValues()

```
SizeType gdcm::network::PDataTFPDU::GetNumberOfPresentationDataValues ( ) const  [inline]
```

10.227.4.3 GetPresentationDataValue()

```
PresentationDataValue const & gdcm::network::PDataTFPDU::GetPresentationDataValue (
            SizeType i ) const  [inline]
```

10.227.4.4 IsLastFragment()

```
bool gdcm::network::PDataTFPDU::IsLastFragment ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.227.4.5 Print()

```
void gdcm::network::PDataTFPDU::Print (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.227.4.6 Read()

```
std::istream & gdcm::network::PDataTFPDU::Read (
            std::istream & is )  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.227.4.7 ReadInto()

```
std::istream & gdcm::network::PDataTFPDU::ReadInto (
            std::istream & is,
            std::ostream & os )  [protected]
```

10.227.4.8 Size()

```
size_t gdcm::network::PDataTFPDU::Size ( ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

10.227.4.9 Write()

```
const std::ostream & gdcm::network::PDataTFPDU::Write (
            std::ostream & os ) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

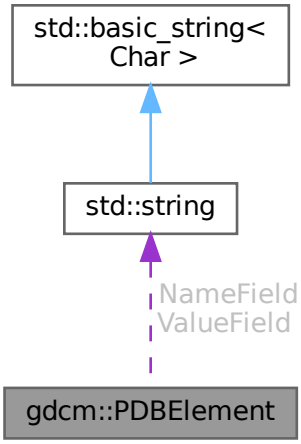
- gdcmPDataTFPDU.h

10.228 gdcm::PDBElement Class Reference

Class to represent a PDB Element.

```
#include <gdcmPDBElement.h>
```

Collaboration diagram for gdcm::PDBElement:



Public Member Functions

- PDBElement ()=default
- const char ∗ GetName () const

  Set/Get Name.
- const char ∗ GetValue () const

  Set/Get Value.
- bool operator== (const PDBElement &de) const
- void SetName (const char ∗name)
- void SetValue (const char ∗value)

Protected Attributes

- std::string NameField
- std::string ValueField

Friends

- std::ostream & operator<< (std::ostream &os, const PDBElement &val)

10.228.1 Detailed Description

Class to represent a PDB Element.

See also

PDBHeader

10.228.2 Constructor & Destructor Documentation

10.228.2.1 PDBElement()

```
gdcm::PDBElement::PDBElement ( ) [default]
```

References gdcm::operator<<().

10.228.3 Member Function Documentation

10.228.3.1 GetName()

```
const char * gdcm::PDBElement::GetName ( ) const [inline]
```

Set/Get Name.

10.228.3.2 GetValue()

```
const char * gdcm::PDBElement::GetValue ( ) const [inline]
```

Set/Get Value.

10.228.3.3 operator==()

```
bool gdcm::PDBElement::operator== (
            const PDBElement & de ) const [inline]
```

References NameField, and ValueField.

10.228.3.4 SetName()

```
void gdcm::PDBElement::SetName (
            const char * name ) [inline]
```

10.228.3.5 SetValue()

```
void gdcm::PDBElement::SetValue (
            const char * value )  [inline]
```

10.228.4 Friends And Related Symbol Documentation

10.228.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PDBElement & val )  [friend]
```

10.228.5 Member Data Documentation

10.228.5.1 NameField

```
std::string gdcm::PDBElement::NameField  [protected]
```

Referenced by operator==().

10.228.5.2 ValueField

```
std::string gdcm::PDBElement::ValueField  [protected]
```

Referenced by operator==().

The documentation for this class was generated from the following file:

- gdcmPDBElement.h

10.229 gdcm::PDBHeader Class Reference

Class for PDBHeader.

```
#include <gdcmPDBHeader.h>
```

Public Member Functions

- PDBHeader ()=default
- ~PDBHeader ()=default
- bool FindPDBElementByName (const char *name)

  Return true if the PDB element matching name is found or not.
- const PDBElement & GetPDBElementByName (const char *name)
- bool LoadFromDataElement (DataElement const &de)

  Load the PDB Header from a DataElement of a DataSet.
- void Print (std::ostream &os) const

  Print.

Static Public Member Functions

- static const PrivateTag & GetPDBInfoTag ()

  Return the Private Tag where the PDB header is stored within a DICOM DataSet.

Protected Member Functions

- const PDBElement & GetPDBEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const PDBHeader &d)

10.229.1 Detailed Description

Class for PDBHeader.

GEMS MR Image have an Attribute (0025,1b,GEMS_SERS_01) which store the Acquisition parameter of the MR Image. It is compressed and can therefore not be used as is. This class de-encapsulated the Protocol Data Block and allow users to query element by name.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

: the API of this class might change.

: SEDESC is not always pure ASCII it can contains latin1

See also

CSAHeader

10.229.2 Constructor & Destructor Documentation

10.229.2.1 PDBHeader()

```
gdcm::PDBHeader::PDBHeader ( ) [default]
```

10.229.2.2 ~PDBHeader()

```
gdcm::PDBHeader::~PDBHeader ( ) [default]
```

10.229.3 Member Function Documentation

10.229.3.1 FindPDBElementByName()

```
bool gdcm::PDBHeader::FindPDBElementByName (
            const char * name )
```

Return true if the PDB element matching name is found or not.

10.229.3.2 GetPDBEEnd()

```
const PDBElement & gdcm::PDBHeader::GetPDBEEnd ( ) const [protected]
```

10.229.3.3 GetPDBElementByName()

```
const PDBElement & gdcm::PDBHeader::GetPDBElementByName (
            const char * name )
```

Lookup in the PDB header if a PDB element match the name 'name':

Warning

Case Sensitive

10.229.3.4 GetPDBInfoTag()

```
static const PrivateTag & gdcm::PDBHeader::GetPDBInfoTag ( ) [static]
```

Return the Private Tag where the PDB header is stored within a DICOM DataSet.

10.229.3.5 LoadFromDataElement()

```
bool gdcm::PDBHeader::LoadFromDataElement (
            DataElement const & de )
```

Load the PDB Header from a DataElement of a DataSet.

10.229.3.6 Print()

```
void gdcm::PDBHeader::Print (
            std::ostream & os ) const
```

Print.

10.229.4 Friends And Related Symbol Documentation

10.229.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PDBHeader & d )  [friend]
```

The documentation for this class was generated from the following file:

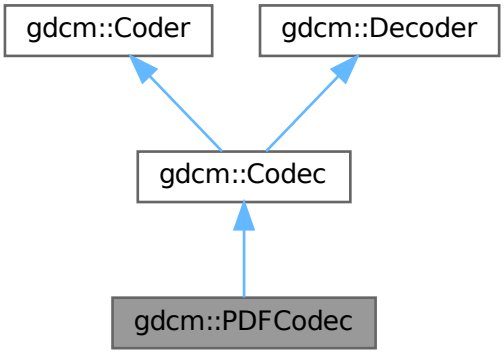
- gdcmPDBHeader.h

10.230 gdcm::PDFCodec Class Reference

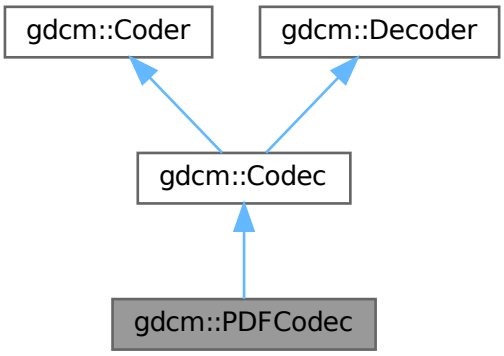
PDFCodec class.

`#include <gdcmPDFCodec.h>`

Inheritance diagram for gdcm::PDFCodec:



Collaboration diagram for gdcm::PDFCodec:



Public Member Functions

- PDFCodec ()
- ~PDFCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it)
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

10.230.1 Detailed Description

PDFCodec class.

10.230.2 Constructor & Destructor Documentation

10.230.2.1 PDFCodec()

```
gdcm::PDFCodec::PDFCodec ( )
```

10.230.2.2 ~PDFCodec()

```
gdcm::PDFCodec::~PDFCodec ( )  [override]
```

10.230.3 Member Function Documentation

10.230.3.1 CanCode()

```
bool gdcm::PDFCodec::CanCode (
            TransferSyntax const &  ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Implements gdcm::Coder.

10.230.3.2 CanDecode()

```
bool gdcm::PDFCodec::CanDecode (
            TransferSyntax const &  ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Implements gdcm::Decoder.

10.230.3.3 Decode()

```
bool gdcm::PDFCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmPDFCodec.h

10.231 gdcm::network::PDUFactory Class Reference

PDUFactory basically, given an initial byte, construct the.

```
#include <gdcmPDUFactory.h>
```

Static Public Member Functions

- static BasePDU ∗ ConstructAbortPDU ()
- static BasePDU ∗ ConstructPDU (uint8_t itemtype)
- static BasePDU ∗ ConstructReleasePDU ()
- static std::vector< BasePDU ∗ > CreateCEchoPDU (const ULConnection &inConnection)
- static std::vector< BasePDU ∗ > CreateCFindPDU (const ULConnection &inConnection, const BaseRootQuery ∗inRootQuery)
- static std::vector< BasePDU ∗ > CreateCMovePDU (const ULConnection &inConnection, const BaseRootQuery ∗inRootQuery)
- static std::vector< BasePDU ∗ > CreateCStoreRQPDU (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< BasePDU ∗ > CreateCStoreRSPPDU (const DataSet ∗inDataSet, const BasePDU ∗inPC)
- static std::vector< BasePDU ∗ > CreateNActionPDU (const ULConnection &inConnection, const BaseQuery ∗inQuery)
- static std::vector< BasePDU ∗ > CreateNCreatePDU (const ULConnection &inConnection, const BaseQuery ∗inQuery)
- static std::vector< BasePDU ∗ > CreateNDeletePDU (const ULConnection &inConnection, const BaseQuery ∗inQuery)
- static std::vector< BasePDU ∗ > CreateNEventReportPDU (const ULConnection &inConnection, const BaseQuery ∗inQuery)
- static std::vector< BasePDU ∗ > CreateNGetPDU (const ULConnection &inConnection, const BaseQuery ∗in↩ Query)
- static std::vector< BasePDU ∗ > CreateNSetPDU (const ULConnection &inConnection, const BaseQuery ∗in↩ Query)
- static EEventID DetermineEventByPDU (const BasePDU ∗inPDU)
- static std::vector< PresentationDataValue > GetPDVs (const std::vector< BasePDU ∗ > &inDataPDUs)

10.231.1 Detailed Description

PDUFactory basically, given an initial byte, construct the.

appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.

10.231.2 Member Function Documentation

10.231.2.1 ConstructAbortPDU()

```
static BasePDU * gdcm::network::PDUFactory::ConstructAbortPDU ( )  [static]
```

10.231.2.2 ConstructPDU()

```
static BasePDU * gdcm::network::PDUFactory::ConstructPDU (
            uint8_t itemtype )  [static]
```

10.231.2.3 ConstructReleasePDU()

```
static BasePDU * gdcm::network::PDUFactory::ConstructReleasePDU ( )  [static]
```

10.231.2.4 CreateCEchoPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCEchoPDU (
            const ULConnection & inConnection )  [static]
```

10.231.2.5 CreateCFindPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCFindPDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [static]
```

10.231.2.6 CreateCMovePDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCMovePDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery )  [static]
```

10.231.2.7 CreateCStoreRQPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRQPDU (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true )  [static]
```

10.231.2.8 CreateCStoreRSPPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRSPPDU (
            const DataSet * inDataSet,
            const BasePDU * inPC )  [static]
```

10.231.2.9 CreateNActionPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNActionPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.10 CreateNCreatePDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNCreatePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.11 CreateNDeletePDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNDeletePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.12 CreateNEventReportPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNEventReportPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.13 CreateNGetPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNGetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.14 CreateNSetPDU()

```
static std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNSetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery )  [static]
```

10.231.2.15 DetermineEventByPDU()

```
static EEventID gdcm::network::PDUFactory::DetermineEventByPDU (
            const BasePDU * inPDU )  [static]
```

10.231.2.16 GetPDVs()

```
static std::vector< PresentationDataValue > gdcm::network::PDUFactory::GetPDVs (
            const std::vector< BasePDU * > & inDataPDUs )  [static]
```

The documentation for this class was generated from the following file:

- gdcmPDUFactory.h

10.232 gdcm::PersonName Class Reference

PersonName class.

```
#include <gdcmPersonName.h>
```

Public Member Functions

- unsigned int GetMaxLength () const
- unsigned int GetNumberOfComponents () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void SetComponents (const char *comp1="", const char *comp2="", const char *comp3="", const char *comp4="", const char *comp5="")
- void SetComponents (const char *components[ ])

Public Attributes

- char Component [MaxNumberOfComponents][MaxLength+1]

Static Public Attributes

- static const unsigned int MaxLength = 64
- static const unsigned int MaxNumberOfComponents = 5
- static const char Padding = ' '
- static const char Separator = '^'

10.232.1 Detailed Description

PersonName class.

10.232.2 Member Function Documentation

10.232.2.1 GetMaxLength()

```
unsigned int gdcm::PersonName::GetMaxLength ( ) const  [inline]
```

10.232.2.2 GetNumberOfComponents()

```
unsigned int gdcm::PersonName::GetNumberOfComponents ( ) const  [inline]
```

10.232.2.3 Print()

```
void gdcm::PersonName::Print (
            std::ostream & os ) const  [inline]
```

10.232.2.4 SetBlob()

```
void gdcm::PersonName::SetBlob (
            const std::vector< char > & v )  [inline]
```

10.232.2.5 SetComponents() [1/2]

```
void gdcm::PersonName::SetComponents (
            const char * comp1 = "",
            const char * comp2 = "",
            const char * comp3 = "",
            const char * comp4 = "",
            const char * comp5 = "" )  [inline]
```

10.232.2.6 SetComponents() [2/2]

```
void gdcm::PersonName::SetComponents (
            const char * components[] )  [inline]
```

10.232.3 Member Data Documentation

10.232.3.1 Component

```
char gdcm::PersonName::Component[MaxNumberOfComponents][MaxLength+1]
```

10.232.3.2 MaxLength

```
const unsigned int gdcm::PersonName::MaxLength = 64  [static]
```

10.232.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::PersonName::MaxNumberOfComponents = 5  [static]
```

10.232.3.4 Padding

```
const char gdcm::PersonName::Padding = ' '  [static]
```

10.232.3.5 Separator

```
const char gdcm::PersonName::Separator = '^'  [static]
```

The documentation for this class was generated from the following file:

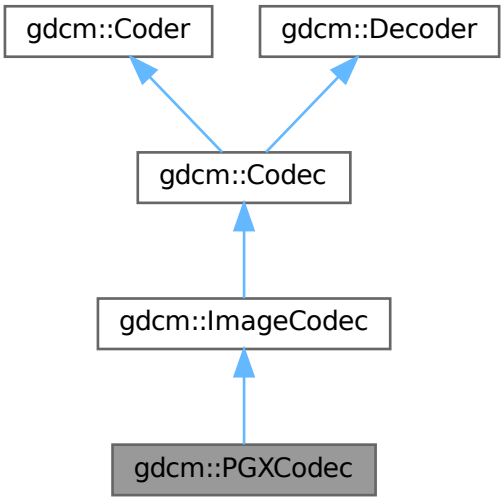
- gdcmPersonName.h

10.233 gdcm::PGXCodec Class Reference

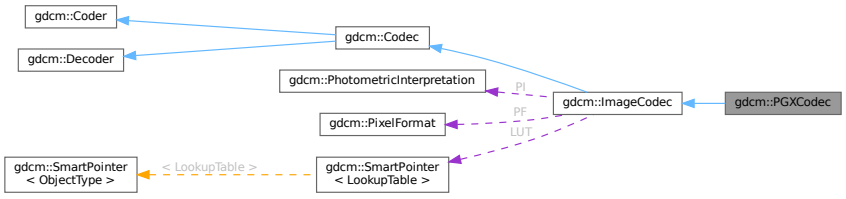
Class to do PGX.

```
#include <gdcmPGXCodec.h>
```

Inheritance diagram for gdcm::PGXCodec:



Collaboration diagram for gdcm::PGXCodec:



Public Member Functions

- PGXCodec ()
- ~PGXCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)

- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.233.1 Detailed Description

Class to do PGX.

See PGX as used in JPEG 2000 implementation and reference images

10.233.2 Constructor & Destructor Documentation

10.233.2.1 PGXCodec()

```
gdcm::PGXCodec::PGXCodec ( )
```

10.233.2.2 ~PGXCodec()

```
gdcm::PGXCodec::~PGXCodec ( )  [override]
```

10.233.3 Member Function Documentation

10.233.3.1 CanCode()

```
bool gdcm::PGXCodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.233.3.2 CanDecode()

```
bool gdcm::PGXCodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.233.3.3 Clone()

```
ImageCodec * gdcm::PGXCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.233.3.4 GetHeaderInfo()

```
bool gdcm::PGXCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.233.3.5 Read()

```
bool gdcm::PGXCodec::Read (
            const char * filename,
            DataElement & out ) const
```

10.233.3.6 Write()

```
bool gdcm::PGXCodec::Write (
            const char * filename,
            const DataElement & out ) const
```

The documentation for this class was generated from the following file:

- gdcmPGXCodec.h

10.234 gdcm::PhotometricInterpretation Class Reference

Class to represent an PhotometricInterpretation.

```
#include <gdcmPhotometricInterpretation.h>
```

Public Types

- enum PIType {
  UNKNOWN = 0 ,
  MONOCHROME1 ,
  MONOCHROME2 ,
  PALETTE_COLOR ,
  RGB ,
  HSV ,
  ARGB ,
  CMYK ,
  YBR_FULL ,
  YBR_FULL_422 ,
  YBR_PARTIAL_422 ,
  YBR_PARTIAL_420 ,
  YBR_ICT ,
  YBR_RCT ,
  PI_END }

Public Member Functions

- PhotometricInterpretation (PIType pi=UNKNOWN)
- unsigned short GetSamplesPerPixel () const

  return the value for Sample Per Pixel associated with a particular Photometric Interpretation
- const char * GetString () const
- PIType GetType () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsSameColorSpace (PhotometricInterpretation const &pi) const
- operator PIType () const

Static Public Member Functions

- static const char * GetPIString (PIType pi)
- static PIType GetPIType (const char *pi)
- static bool IsRetired (PIType pi)

Friends

- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &pi)

10.234.1 Detailed Description

Class to represent an PhotometricInterpretation.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, FileChangeTS.cs, FileChangeTSLossy.cs, HelloVizWorld.cxx, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

10.234.2 Member Enumeration Documentation

10.234.2.1 PIType

`enum gdcm::PhotometricInterpretation::PIType`

Enumerator

UNKNOWN	
MONOCHROME1	
MONOCHROME2	
PALETTE_COLOR	
RGB	
HSV	

Enumerator

ARGB	
CMYK	
YBR_FULL	
YBR_FULL_422	
YBR_PARTIAL_422	
YBR_PARTIAL_420	
YBR_ICT	
YBR_RCT	
PI_END	

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, and MpegVideoInfo.cs.

10.234.3 Constructor & Destructor Documentation

10.234.3.1 PhotometricInterpretation()

```
gdcm::PhotometricInterpretation::PhotometricInterpretation (
            PIType pi = UNKNOWN )  [inline]
```

10.234.4 Member Function Documentation

10.234.4.1 GetPIString()

```
static const char * gdcm::PhotometricInterpretation::GetPIString (
            PIType pi )  [static]
```

10.234.4.2 GetPIType()

```
static PIType gdcm::PhotometricInterpretation::GetPIType (
            const char * pi )  [static]
```

10.234.4.3 GetSamplesPerPixel()

```
unsigned short gdcm::PhotometricInterpretation::GetSamplesPerPixel ( ) const
```

return the value for Sample Per Pixel associated with a particular Photometric Interpretation

References gdcm::operator<<().

10.234.4.4 GetString()

```
const char * gdcm::PhotometricInterpretation::GetString ( ) const
```

10.234.4.5 GetType()

```
PIType gdcm::PhotometricInterpretation::GetType ( ) const  [inline]
```

10.234.4.6 IsLossless()

```
bool gdcm::PhotometricInterpretation::IsLossless ( ) const
```

10.234.4.7 IsLossy()

```
bool gdcm::PhotometricInterpretation::IsLossy ( ) const
```

10.234.4.8 IsRetired()

```
static bool gdcm::PhotometricInterpretation::IsRetired (
            PIType pi )  [static]
```

10.234.4.9 IsSameColorSpace()

```
bool gdcm::PhotometricInterpretation::IsSameColorSpace (
            PhotometricInterpretation const & pi ) const
```

10.234.4.10 operator PIType()

```
gdcm::PhotometricInterpretation::operator PIType ( ) const  [inline]
```

10.234.5 Friends And Related Symbol Documentation

10.234.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PhotometricInterpretation & pi )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmPhotometricInterpretation.h

10.235 gdcm::PixelFormat Class Reference

PixelFormat.

```
#include <gdcmPixelFormat.h>
```

Public Types

- enum ScalarType {
  UINT8 ,
  INT8 ,
  UINT12 ,
  INT12 ,
  UINT16 ,
  INT16 ,
  UINT32 ,
  INT32 ,
  UINT64 ,
  INT64 ,
  FLOAT16 ,
  FLOAT32 ,
  FLOAT64 ,
  SINGLEBIT ,
  UNKNOWN }

Public Member Functions

- PixelFormat ()
- PixelFormat (ScalarType st)
- PixelFormat (unsigned short samplesperpixel, unsigned short bitsallocated=8, unsigned short bitsstored=8, unsigned short highbit=7, unsigned short pixelrepresentation=0)
- unsigned short GetBitsAllocated () const

  BitsAllocated see Tag (0028,0100) US Bits Allocated.
- unsigned short GetBitsStored () const

  BitsStored see Tag (0028,0101) US Bits Stored.
- unsigned short GetHighBit () const

  HighBit see Tag (0028,0102) US High Bit.
- int64_t GetMax () const

  return the max possible of the pixel
- int64_t GetMin () const

  return the min possible of the pixel
- unsigned short GetPixelRepresentation () const

  PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.
- uint8_t GetPixelSize () const
- unsigned short GetSamplesPerPixel () const
- ScalarType GetScalarType () const

  ScalarType does not take into account the sample per pixel.
- const char * GetScalarTypeAsString () const

- bool IsCompatible (const TransferSyntax &ts) const
- bool IsValid () const

  return IsValid
- operator ScalarType () const
- bool operator!= (const PixelFormat &pf) const
- bool operator!= (ScalarType st) const
- bool operator== (const PixelFormat &pf) const
- bool operator== (ScalarType st) const
- void Print (std::ostream &os) const

  Print.
- void SetBitsAllocated (unsigned short ba)
- void SetBitsStored (unsigned short bs)
- void SetHighBit (unsigned short hb)
- void SetPixelRepresentation (unsigned short pr)
- void SetSamplesPerPixel (unsigned short spp)
- void SetScalarType (ScalarType st)

Protected Member Functions

- bool Validate ()

  When image with 24/24/23 was read, need to validate.

Friends

- class Bitmap
- std::ostream & operator<< (std::ostream &_os, const PixelFormat &pf)

10.235.1 Detailed Description

PixelFormat.

By default the Pixel Type will be instantiated with the following parameters:

- SamplesPerPixel : 1
- BitsAllocated : 8
- BitsStored : 8
- HighBit : 7
- PixelRepresentation : 0

Fundamentally PixelFormat is very close to what DICOM allows. It will be very hard to extend this class for the upcoming DICOM standard where Floating 32 and 64bits will be allowed.

It is also very hard for this class to fully support 64bits integer type (see GetMin / GetMax signature restricted to 64bits signed).

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, MpegVideoInfo.cs, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

10.235.2 Member Enumeration Documentation

10.235.2.1 ScalarType

```
enum gdcm::PixelFormat::ScalarType
```

Enumerator

UINT8	
INT8	
UINT12	
INT12	
UINT16	
INT16	
UINT32	
INT32	
UINT64	
INT64	
FLOAT16	
FLOAT32	
FLOAT64	
SINGLEBIT	
UNKNOWN	

Examples

GetArray.cs.

10.235.3 Constructor & Destructor Documentation

10.235.3.1 PixelFormat() [1/3]

```
gdcm::PixelFormat::PixelFormat ( ) [inline]
```

10.235.3.2 PixelFormat() [2/3]

```
gdcm::PixelFormat::PixelFormat (
            unsigned short samplesperpixel,
            unsigned short bitsallocated = 8,
            unsigned short bitsstored = 8,
            unsigned short highbit = 7,
            unsigned short pixelrepresentation = 0 ) [inline], [explicit]
```

10.235.3.3 PixelFormat() [3/3]

```
gdcm::PixelFormat::PixelFormat (
            ScalarType st )
```

10.235.4 Member Function Documentation

10.235.4.1 GetBitsAllocated()

```
unsigned short gdcm::PixelFormat::GetBitsAllocated ( ) const  [inline]
```

BitsAllocated see Tag (0028,0100) US Bits Allocated.

Examples

GetJPEGSamplePrecision.cxx.

10.235.4.2 GetBitsStored()

```
unsigned short gdcm::PixelFormat::GetBitsStored ( ) const  [inline]
```

BitsStored see Tag (0028,0101) US Bits Stored.

Examples

GetJPEGSamplePrecision.cxx.

10.235.4.3 GetHighBit()

```
unsigned short gdcm::PixelFormat::GetHighBit ( ) const  [inline]
```

HighBit see Tag (0028,0102) US High Bit.

10.235.4.4 GetMax()

```
int64_t gdcm::PixelFormat::GetMax ( ) const
```

return the max possible of the pixel

10.235.4.5 GetMin()

```
int64_t gdcm::PixelFormat::GetMin ( ) const
```

return the min possible of the pixel

10.235.4.6 GetPixelRepresentation()

```
unsigned short gdcm::PixelFormat::GetPixelRepresentation ( ) const  [inline]
```

PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.

10.235.4.7 GetPixelSize()

```
uint8_t gdcm::PixelFormat::GetPixelSize ( ) const
```

return the size of the pixel This is the number of words it would take to store one pixel

Warning

the return value takes into account the SamplesPerPixel

in the rare case when BitsAllocated == 12, the function assume word padding and value returned will be identical as if BitsAllocated == 16

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, and threadgdcm.cxx.

10.235.4.8 GetSamplesPerPixel()

```
unsigned short gdcm::PixelFormat::GetSamplesPerPixel ( ) const
```

Samples Per Pixel see (0028,0002) US Samples Per Pixel DICOM - only allows 1, 3 and 4 as valid value. Other value are undefined behavior.

Examples

threadgdcm.cxx.

10.235.4.9 GetScalarType()

```
ScalarType gdcm::PixelFormat::GetScalarType ( ) const
```

ScalarType does not take into account the sample per pixel.

Examples

GetArray.cs.

10.235.4.10 GetScalarTypeAsString()

```
const char * gdcm::PixelFormat::GetScalarTypeAsString ( ) const
```

Examples

GetArray.cs.

10.235.4.11 IsCompatible()

```
bool gdcm::PixelFormat::IsCompatible (
            const TransferSyntax & ts ) const
```

10.235.4.12 IsValid()

```
bool gdcm::PixelFormat::IsValid ( ) const
```

return IsValid

10.235.4.13 operator ScalarType()

```
gdcm::PixelFormat::operator ScalarType ( ) const  [inline]
```

10.235.4.14 operator"!=() [1/2]

```
bool gdcm::PixelFormat::operator!= (
            const PixelFormat & pf ) const  [inline]
```

10.235.4.15 operator"!=() [2/2]

```
bool gdcm::PixelFormat::operator!= (
            ScalarType st ) const  [inline]
```

10.235.4.16 operator==() [1/2]

```
bool gdcm::PixelFormat::operator== (
            const PixelFormat & pf ) const  [inline]
```

10.235.4.17 operator==() [2/2]

```
bool gdcm::PixelFormat::operator== (
            ScalarType st ) const  [inline]
```

10.235.4.18 Print()

```
void gdcm::PixelFormat::Print (
            std::ostream & os ) const
```

Print.

10.235.4.19 SetBitsAllocated()

```
void gdcm::PixelFormat::SetBitsAllocated (
            unsigned short ba )  [inline]
```

10.235.4.20 SetBitsStored()

```
void gdcm::PixelFormat::SetBitsStored (
            unsigned short bs )  [inline]
```

10.235.4.21 SetHighBit()

```
void gdcm::PixelFormat::SetHighBit (
            unsigned short hb )  [inline]
```

10.235.4.22 SetPixelRepresentation()

```
void gdcm::PixelFormat::SetPixelRepresentation (
            unsigned short pr )  [inline]
```

Examples

TemplateEmptyImage.cxx.

10.235.4.23 SetSamplesPerPixel()

```
void gdcm::PixelFormat::SetSamplesPerPixel (
            unsigned short spp )  [inline]
```

Examples

CreateARGBImage.cxx, and CreateCMYKImage.cxx.

References gdcmAssertMacro.

10.235.4.24 SetScalarType()

```
void gdcm::PixelFormat::SetScalarType (
            ScalarType st )
```

Set PixelFormat based only on the ScalarType

Warning

: You need to call SetScalarType *before* SetSamplesPerPixel

10.235.4.25 Validate()

```
bool gdcm::PixelFormat::Validate ( )  [protected]
```

When image with 24/24/23 was read, need to validate.

Referenced by gdcm::Bitmap::SetPixelFormat().

10.235.5 Friends And Related Symbol Documentation

10.235.5.1 Bitmap

```
friend class Bitmap  [friend]
```

10.235.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PixelFormat & pf )  [friend]
```

The documentation for this class was generated from the following file:

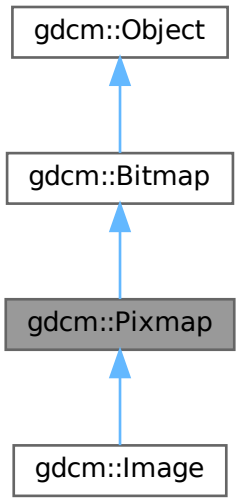
- gdcmPixelFormat.h

10.236 gdcm::Pixmap Class Reference

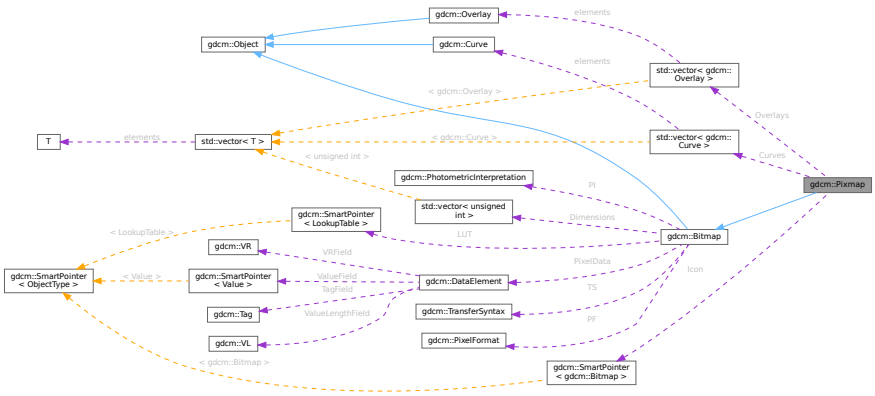
Pixmap class.

```
#include <gdcmPixmap.h>
```

Inheritance diagram for gdcm::Pixmap:



Collaboration diagram for gdcm::Pixmap:



Public Member Functions

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.236.1 Detailed Description

Pixmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

See also

PixmapReader

Examples

FileChangeTS.cs, FileChangeTSLossy.cs, and StandardizeFiles.cs.

10.236.2 Constructor & Destructor Documentation

10.236.2.1 Pixmap()

```
gdcm::Pixmap::Pixmap ( )
```

10.236.2.2 ~Pixmap()

```
gdcm::Pixmap::~Pixmap ( )  [override]
```

10.236.3 Member Function Documentation

10.236.3.1 AreOverlaysInPixelData()

```
bool gdcm::Pixmap::AreOverlaysInPixelData ( ) const  [override], [virtual]
```

returns if Overlays are stored in the unused bit of the pixel data:

Reimplemented from gdcm::Bitmap.

10.236.3.2 GetCurve() [1/2]

```
Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0 )  [inline]
```

Curve: group 50xx.

10.236.3.3 GetCurve() [2/2]

```
const Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0 ) const  [inline]
```

10.236.3.4 GetIconImage() [1/2]

```
IconImage & gdcm::Pixmap::GetIconImage ( )  [inline]
```

10.236.3.5 GetIconImage() [2/2]

```
const IconImage & gdcm::Pixmap::GetIconImage ( ) const  [inline]
```

Set/Get Icon Image.

10.236.3.6 GetNumberOfCurves()

```
size_t gdcm::Pixmap::GetNumberOfCurves ( ) const  [inline]
```

10.236.3.7 GetNumberOfOverlays()

```
size_t gdcm::Pixmap::GetNumberOfOverlays ( ) const  [inline]
```

10.236.3.8 GetOverlay() [1/2]

```
Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0 )  [inline]
```

Overlay: group 60xx.

10.236.3.9 GetOverlay() [2/2]

```
const Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0 ) const  [inline]
```

10.236.3.10 Print()

```
void gdcm::Pixmap::Print (
            std::ostream &  ) const  [override], [virtual]
```

Reimplemented from gdcm::Bitmap.

10.236.3.11 RemoveOverlay()

```
void gdcm::Pixmap::RemoveOverlay (
            size_t i )  [inline]
```

10.236.3.12 SetIconImage()

```
void gdcm::Pixmap::SetIconImage (
            IconImage const & ii )  [inline]
```

10.236.3.13 SetNumberOfCurves()

```
void gdcm::Pixmap::SetNumberOfCurves (
            size_t n )  [inline]
```

10.236.3.14 SetNumberOfOverlays()

```
void gdcm::Pixmap::SetNumberOfOverlays (
            size_t n )  [inline]
```

10.236.3.15 UnusedBitsPresentInPixelData()

```
bool gdcm::Pixmap::UnusedBitsPresentInPixelData ( ) const  [override], [virtual]
```

returns if there are unused bits in the pixel data

Reimplemented from gdcm::Bitmap.

10.236.4 Member Data Documentation

10.236.4.1 Curves

```
std::vector<Curve> gdcm::Pixmap::Curves  [protected]
```

10.236.4.2 Icon

```
SmartPointer<IconImage> gdcm::Pixmap::Icon  [protected]
```

10.236.4.3 Overlays

```
std::vector<Overlay> gdcm::Pixmap::Overlays  [protected]
```

The documentation for this class was generated from the following file:

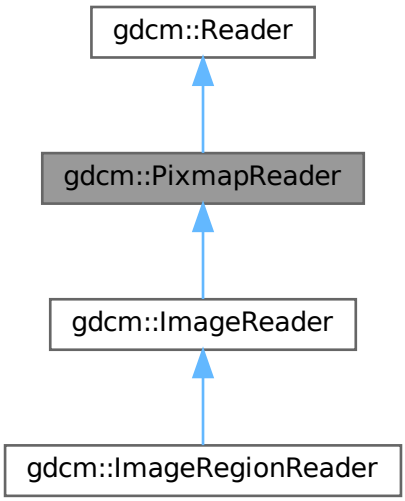
- gdcmPixmap.h

10.237 gdcm::PixmapReader Class Reference

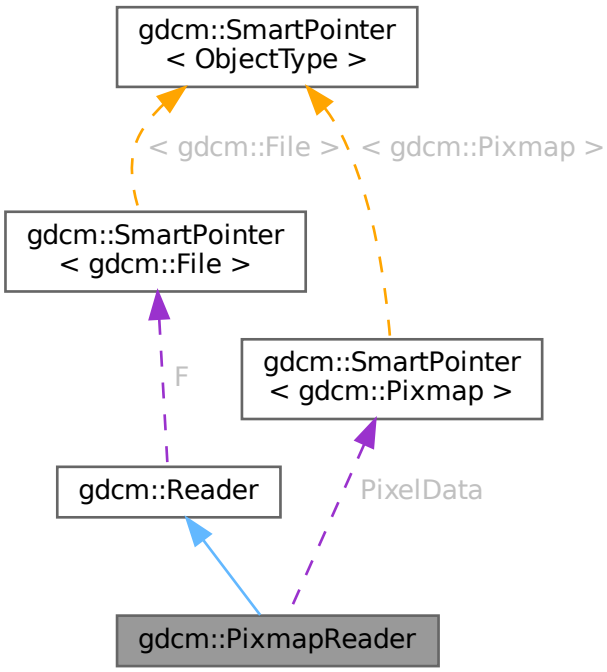
PixmapReader.

```
#include <gdcmPixmapReader.h>
```

Inheritance diagram for gdcm::PixmapReader:



Collaboration diagram for gdcm::PixmapReader:



Public Member Functions

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first)
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const

- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- virtual bool ReadACRNEMAImage ()
- virtual bool ReadImage (MediaStorage const &ms)
- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

10.237.1 Detailed Description

PixmapReader.

Note

its role is to convert the DICOM DataSet into a Pixmap representation By default it is also loading the lookup table and overlay when found as they impact the rendering or the image

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES for the list of attribute that belong to what gdcm calls a 'Pixmap'

Warning

the API ReadUpToTag and ReadSelectedTag

See also

Pixmap

Examples

StandardizeFiles.cs.

10.237.2 Constructor & Destructor Documentation

10.237.2.1 PixmapReader()

```
gdcm::PixmapReader::PixmapReader ( )
```

10.237.2.2 ~PixmapReader()

```
gdcm::PixmapReader::~PixmapReader ( ) [override]
```

10.237.3 Member Function Documentation

10.237.3.1 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapReader::GetPixmap ( )
```

10.237.3.2 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapReader::GetPixmap ( ) const
```

Return the read image (need to call Read() first)

Examples

StandardizeFiles.cs.

10.237.3.3 Read()

```
bool gdcm::PixmapReader::Read ( ) [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Pixmap.

Reimplemented from gdcm::Reader.

Examples

StandardizeFiles.cs.

10.237.3.4 ReadACRNEMAImage()

```
virtual bool gdcm::PixmapReader::ReadACRNEMAImage ( )  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

10.237.3.5 ReadImage()

```
virtual bool gdcm::PixmapReader::ReadImage (
            MediaStorage const & ms )  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

10.237.3.6 ReadImageInternal()

```
bool gdcm::PixmapReader::ReadImageInternal (
            MediaStorage const & ms,
            bool handlepixeldata = true )  [protected]
```

10.237.4 Member Data Documentation

10.237.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapReader::PixelData  [protected]
```

The documentation for this class was generated from the following file:

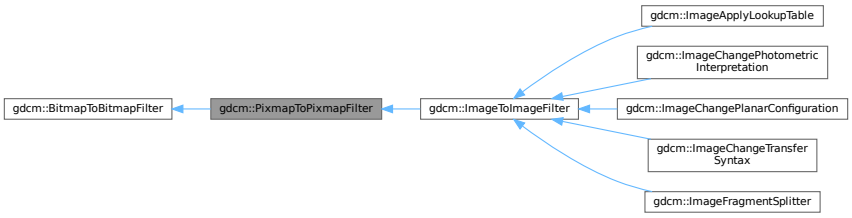
- gdcmPixmapReader.h

10.238 gdcm::PixmapToPixmapFilter Class Reference

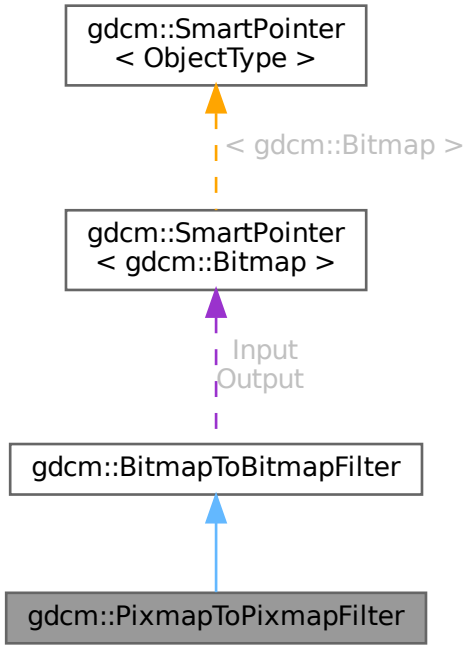
PixmapToPixmapFilter class.

```
#include <gdcmPixmapToPixmapFilter.h>
```

Inheritance diagram for gdcm::PixmapToPixmapFilter:



Collaboration diagram for gdcm::PixmapToPixmapFilter:



Public Member Functions

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

10.238.1 Detailed Description

PixmapToPixmapFilter class.

Super class for all filter taking an image and producing an output image

Examples

StandardizeFiles.cs.

10.238.2 Constructor & Destructor Documentation

10.238.2.1 PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::PixmapToPixmapFilter ( )
```

10.238.2.2 ~PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::~PixmapToPixmapFilter ( ) [default]
```

10.238.3 Member Function Documentation

10.238.3.1 GetInput()

```
Pixmap & gdcm::PixmapToPixmapFilter::GetInput ( )
```

10.238.3.2 GetOutput()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutput ( ) const
```

Get Output image.

10.238.3.3 GetOutputAsPixmap()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutputAsPixmap ( ) const
```

The documentation for this class was generated from the following file:

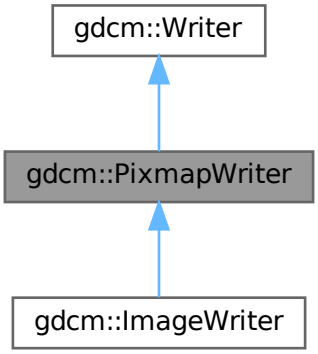
- gdcmPixmapToPixmapFilter.h

10.239 gdcm::PixmapWriter Class Reference

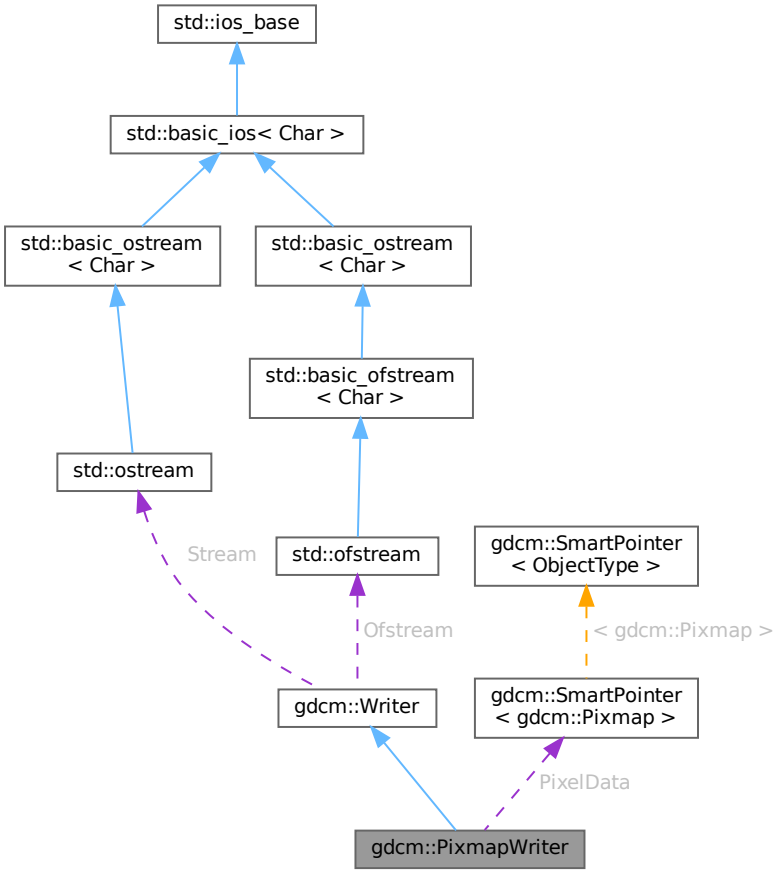
PixmapWriter.

```
#include <gdcmPixmapWriter.h>
```

Inheritance diagram for gdcm::PixmapWriter:



Collaboration diagram for gdcm::PixmapWriter:



Public Member Functions

- PixmapWriter ()
- ~PixmapWriter () override
- virtual Pixmap & GetImage ()
- virtual const Pixmap & GetImage () const
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default)
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header)
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

10.239.1 Detailed Description

PixmapWriter.

This class will takes two inputs:

1. The DICOM DataSet
2. The Image input It will override any info from the Image over the DataSet.

For instance when one read in a lossy compressed image and write out as unencapsulated (ie implicitly lossless) then some attribute are definitely needed to mark this dataset as Lossy (typically 0028,2114)

Examples

StandardizeFiles.cs.

10.239.2 Constructor & Destructor Documentation

10.239.2.1 PixmapWriter()

```
gdcm::PixmapWriter::PixmapWriter ( )
```

10.239.2.2 ~PixmapWriter()

```
gdcm::PixmapWriter::~PixmapWriter ( ) [override]
```

10.239.3 Member Function Documentation

10.239.3.1 DoIconImage()

```
void gdcm::PixmapWriter::DoIconImage (
            DataSet & ds,
            Pixmap const & image ) [protected]
```

10.239.3.2 GetImage() [1/2]

```
virtual Pixmap & gdcm::PixmapWriter::GetImage ( ) [inline], [virtual]
```

Reimplemented in gdcm::ImageWriter.

10.239.3.3 GetImage() [2/2]

```
virtual const Pixmap & gdcm::PixmapWriter::GetImage ( ) const [inline], [virtual]
```

Set/Get Pixmap to be written It will overwrite anything Pixmap infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented in gdcm::ImageWriter.

10.239.3.4 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapWriter::GetPixmap ( ) [inline]
```

10.239.3.5 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapWriter::GetPixmap ( ) const [inline]
```

10.239.3.6 PrepareWrite()

```
bool gdcm::PixmapWriter::PrepareWrite (
            MediaStorage const & refms )  [protected]
```

10.239.3.7 SetImage()

```
virtual void gdcm::PixmapWriter::SetImage (
            Pixmap const & img )  [virtual]
```

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, and TemplateEmptyImage.cxx.

10.239.3.8 SetPixmap()

```
void gdcm::PixmapWriter::SetPixmap (
            Pixmap const & img )
```

Examples

StandardizeFiles.cs.

10.239.3.9 Write()

```
bool gdcm::PixmapWriter::Write ( )  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

StandardizeFiles.cs.

10.239.4 Member Data Documentation

10.239.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapWriter::PixelData  [protected]
```

The documentation for this class was generated from the following file:

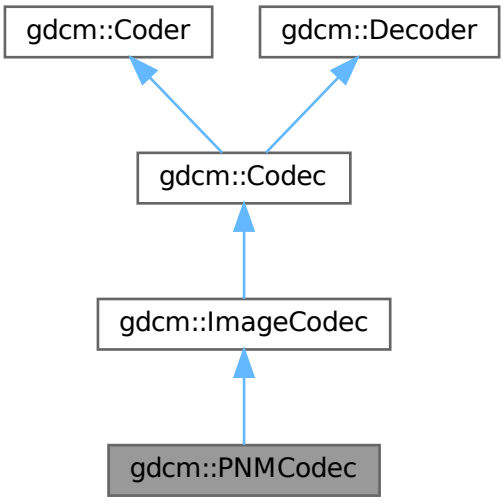
- gdcmPixmapWriter.h

10.240 gdcm::PNMCodec Class Reference

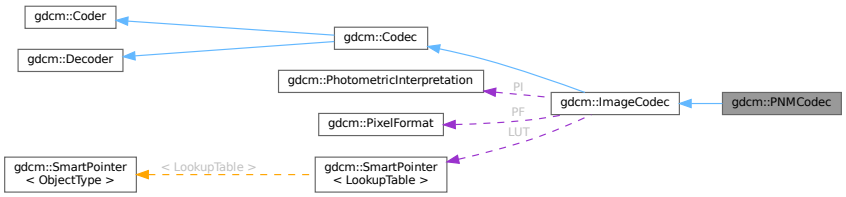
Class to do PNM.

```
#include <gdcmPNMCodec.h>
```

Inheritance diagram for gdcm::PNMCodec:



Collaboration diagram for gdcm::PNMCodec:



Public Member Functions

- PNMCodec ()
- ~PNMCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)

- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- void SetBufferLength (unsigned long l)
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.240.1 Detailed Description

Class to do PNM.

PNM is the Portable anymap file format. The main web page can be found at: http://netpbm.↩ sourceforge.net/

Note

Only support P5 & P6 PNM file (binary grayscale and binary rgb)

Examples

ExtractIconFromFile.cxx.

10.240.2 Constructor & Destructor Documentation

10.240.2.1 PNMCodec()

```
gdcm::PNMCodec::PNMCodec ( )
```

10.240.2.2 ~PNMCodec()

```
gdcm::PNMCodec::~PNMCodec ( ) [override]
```

10.240.3 Member Function Documentation

10.240.3.1 CanCode()

```
bool gdcm::PNMCodec::CanCode (
            TransferSyntax const & ) const [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.240.3.2 CanDecode()

```
bool gdcm::PNMCodec::CanDecode (
            TransferSyntax const & ) const [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.240.3.3 Clone()

```
ImageCodec * gdcm::PNMCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.240.3.4 GetBufferLength()

```
unsigned long gdcm::PNMCodec::GetBufferLength ( ) const  [inline]
```

10.240.3.5 GetHeaderInfo()

```
bool gdcm::PNMCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.240.3.6 Read()

```
bool gdcm::PNMCodec::Read (
            const char * filename,
            DataElement & out ) const
```

10.240.3.7 SetBufferLength()

```
void gdcm::PNMCodec::SetBufferLength (
            unsigned long l )  [inline]
```

10.240.3.8 Write()

```
bool gdcm::PNMCodec::Write (
            const char * filename,
            const DataElement & out ) const
```

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmPNMCodec.h

10.241 gdcm::Preamble Class Reference

DICOM Preamble (Part 10)

```
#include <gdcmPreamble.h>
```

Public Member Functions

- Preamble ()
- Preamble (Preamble const &)
- ~Preamble ()
- void Clear ()

  Clear.
- void Create ()
- const char * GetInternal () const

  Get internal pointer to preamble.
- VL GetLength () const

  Return size of Preamble.
- bool IsEmpty () const

  Check if Preamble is empty.
- Preamble & operator= (Preamble const &)
- void Print (std::ostream &os) const

  Print Preamble.
- std::istream & Read (std::istream &is)

  Read Preamble.
- void Remove ()
- void Valid ()

  Set Preamble to the default one.
- std::ostream const & Write (std::ostream &os) const

  Write Preamble.

Protected Member Functions

- bool IsValid () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Preamble &_val)

10.241.1 Detailed Description

DICOM Preamble (Part 10)

10.241.2 Constructor & Destructor Documentation

10.241.2.1 Preamble() [1/2]

```
gdcm::Preamble::Preamble ( )
```

10.241.2.2 ~Preamble()

```
gdcm::Preamble::~Preamble ( )
```

References gdcm::operator<<().

10.241.2.3 Preamble() [2/2]

```
gdcm::Preamble::Preamble (
            Preamble const &  )  [inline]
```

10.241.3 Member Function Documentation

10.241.3.1 Clear()

```
void gdcm::Preamble::Clear ( )
```

Clear.

10.241.3.2 Create()

```
void gdcm::Preamble::Create ( )
```

10.241.3.3 GetInternal()

```
const char * gdcm::Preamble::GetInternal ( ) const  [inline]
```

Get internal pointer to preamble.

10.241.3.4 GetLength()

```
VL gdcm::Preamble::GetLength ( ) const  [inline]
```

Return size of Preamble.

10.241.3.5 IsEmpty()

```
bool gdcm::Preamble::IsEmpty ( ) const  [inline]
```

Check if Preamble is empty.

10.241.3.6 IsValid()

```
bool gdcm::Preamble::IsValid ( ) const  [inline], [protected]
```

10.241.3.7 operator=()

```
Preamble & gdcm::Preamble::operator= (
            Preamble const &  )  [inline]
```

10.241.3.8 Print()

```
void gdcm::Preamble::Print (
            std::ostream & os ) const
```

Print Preamble.

10.241.3.9 Read()

```
std::istream & gdcm::Preamble::Read (
            std::istream & is )
```

Read Preamble.

10.241.3.10 Remove()

```
void gdcm::Preamble::Remove ( )
```

10.241.3.11 Valid()

```
void gdcm::Preamble::Valid ( )
```

Set Preamble to the default one.

10.241.3.12 Write()

```
std::ostream const & gdcm::Preamble::Write (
            std::ostream & os ) const
```

Write Preamble.

10.241.4 Friends And Related Symbol Documentation

10.241.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Preamble & _val )  [friend]
```

The documentation for this class was generated from the following file:

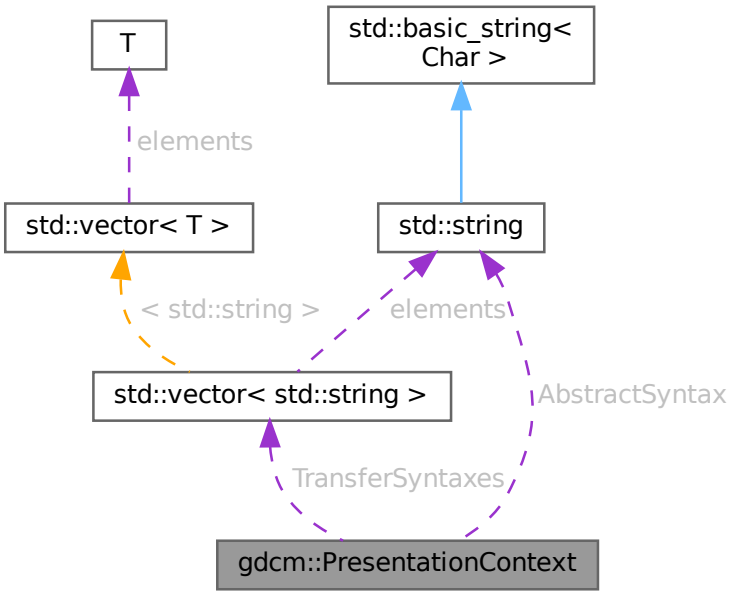
- gdcmPreamble.h

10.242 gdcm::PresentationContext Class Reference

PresentationContext.

```
#include <gdcmPresentationContext.h>
```

Collaboration diagram for gdcm::PresentationContext:



Public Types

- typedef TransferSyntaxArrayType::size_type SizeType
- typedef std::vector< std::string > TransferSyntaxArrayType

Public Member Functions

- PresentationContext ()
- PresentationContext (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM
- void AddTransferSyntax (const char *tsstr)
- const char * GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- const char * GetTransferSyntax (SizeType i) const
- bool operator== (const PresentationContext &pc) const
- void Print (std::ostream &os) const
- void SetAbstractSyntax (const char *absyn)
- void SetPresentationContextID (uint8_t id)

Protected Attributes

- std::string AbstractSyntax
- uint8_t ID
- std::vector< std::string > TransferSyntaxes

10.242.1 Detailed Description

PresentationContext.

See also

PresentationContextAC PresentationContextRQ

10.242.2 Member Typedef Documentation

10.242.2.1 SizeType

```
typedef TransferSyntaxArrayType::size_type gdcm::PresentationContext::SizeType
```

10.242.2.2 TransferSyntaxArrayType

```
typedef std::vector<std::string> gdcm::PresentationContext::TransferSyntaxArrayType
```

10.242.3 Constructor & Destructor Documentation

10.242.3.1 PresentationContext() [1/2]

```
gdcm::PresentationContext::PresentationContext ( )
```

10.242.3.2 PresentationContext() [2/2]

```
gdcm::PresentationContext::PresentationContext (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM )
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (default to Implicit VR LittleEndian when not specified).

10.242.4 Member Function Documentation

10.242.4.1 AddTransferSyntax()

```
void gdcm::PresentationContext::AddTransferSyntax (
            const char * tsstr )
```

10.242.4.2 GetAbstractSyntax()

```
const char * gdcm::PresentationContext::GetAbstractSyntax ( ) const  [inline]
```

10.242.4.3 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::PresentationContext::GetNumberOfTransferSyntaxes ( ) const  [inline]
```

10.242.4.4 GetPresentationContextID()

```
uint8_t gdcm::PresentationContext::GetPresentationContextID ( ) const
```

10.242.4.5 GetTransferSyntax()

```
const char * gdcm::PresentationContext::GetTransferSyntax (
            SizeType i ) const  [inline]
```

10.242.4.6 operator==()

```
bool gdcm::PresentationContext::operator== (
            const PresentationContext & pc ) const  [inline]
```

References AbstractSyntax, and TransferSyntaxes.

10.242.4.7 Print()

```
void gdcm::PresentationContext::Print (
            std::ostream & os ) const
```

10.242.4.8 SetAbstractSyntax()

```
void gdcm::PresentationContext::SetAbstractSyntax (
            const char * absyn )  [inline]
```

10.242.4.9 SetPresentationContextID()

```
void gdcm::PresentationContext::SetPresentationContextID (
            uint8_t id )
```

10.242.5 Member Data Documentation

10.242.5.1 AbstractSyntax

```
std::string gdcm::PresentationContext::AbstractSyntax  [protected]
```

Referenced by operator==().

10.242.5.2 ID

```
uint8_t gdcm::PresentationContext::ID  [protected]
```

10.242.5.3 TransferSyntaxes

```
std::vector<std::string> gdcm::PresentationContext::TransferSyntaxes  [protected]
```

Referenced by operator==().

The documentation for this class was generated from the following file:

- gdcmPresentationContext.h

10.243 gdcm::network::PresentationContextAC Class Reference

PresentationContextAC.

```
#include <gdcmPresentationContextAC.h>
```

Public Member Functions

- PresentationContextAC ()
- uint8_t GetPresentationContextID () const
- uint8_t GetReason () const
- TransferSyntaxSub const & GetTransferSyntax () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetPresentationContextID (uint8_t id)
- void SetReason (uint8_t r)
- void SetTransferSyntax (TransferSyntaxSub const &ts)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.243.1 Detailed Description

PresentationContextAC.

Table 9-18 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContext

10.243.2 Constructor & Destructor Documentation

10.243.2.1 PresentationContextAC()

```
gdcm::network::PresentationContextAC::PresentationContextAC ( )
```

10.243.3 Member Function Documentation

10.243.3.1 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextAC::GetPresentationContextID ( ) const  [inline]
```

10.243.3.2 GetReason()

```
uint8_t gdcm::network::PresentationContextAC::GetReason ( ) const  [inline]
```

10.243.3.3 GetTransferSyntax()

```
TransferSyntaxSub const & gdcm::network::PresentationContextAC::GetTransferSyntax ( ) const  [inline]
```

10.243.3.4 Print()

```
void gdcm::network::PresentationContextAC::Print (
            std::ostream & os ) const
```

10.243.3.5 Read()

```
std::istream & gdcm::network::PresentationContextAC::Read (
            std::istream & is )
```

10.243.3.6 SetPresentationContextID()

```
void gdcm::network::PresentationContextAC::SetPresentationContextID (
            uint8_t id )
```

10.243.3.7 SetReason()

```
void gdcm::network::PresentationContextAC::SetReason (
            uint8_t r )  [inline]
```

10.243.3.8 SetTransferSyntax()

```
void gdcm::network::PresentationContextAC::SetTransferSyntax (
            TransferSyntaxSub const & ts )
```

10.243.3.9 Size()

```
size_t gdcm::network::PresentationContextAC::Size ( ) const
```

10.243.3.10 Write()

```
const std::ostream & gdcm::network::PresentationContextAC::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextAC.h

10.244 gdcm::PresentationContextGenerator Class Reference

PresentationContextGenerator.

```
#include <gdcmPresentationContextGenerator.h>
```

Public Types

- typedef std::vector< PresentationContext > PresentationContextArrayType
- typedef PresentationContextArrayType::size_type SizeType

Public Member Functions

- PresentationContextGenerator ()
- bool AddFromFile (const File &file)
- bool GenerateFromFilenames (const Directory::FilenamesType &files)
- bool GenerateFromUID (UIDs::TSName asname)

  Generate the PresentationContext array from a UID (eg. VerificationSOPClass)
- PresentationContextArrayType const & GetPresentationContexts ()
- void SetDefaultTransferSyntax (const TransferSyntax &ts)

  Not implemented for now. GDCM internally uses Implicit Little Endian.
- void SetMergeModeToAbstractSyntax ()
- void SetMergeModeToTransferSyntax ()

Protected Member Functions

- bool AddPresentationContext (const char *absyn, const char *ts)
- const char * GetDefaultTransferSyntax () const

10.244.1 Detailed Description

PresentationContextGenerator.

This class is responsible for generating the proper PresentationContext that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.

For example a PresentationContext will express that negotiation requires that CT Image Storage are send using JPEG Lossless, while US Image Storage are sent using RLE Transfer Syntax.

Two very different API are exposed one which will always default to little endian transfer syntax see GenerateFromUID() This API is used for C-ECHO, C-FIND and C-MOVE (SCU). Another API: GenerateFromFilenames() is used for C-↩ STORE (SCU) as it will loop over all filenames argument to detect the actual encoding. and therefore find the proper encoding to be used.

Two modes are available. The default mode (SetMergeModeToAbstractSyntax) append PresentationContext (one AbstractSyntax and one TransferSyntax), as long a they are different. Eg MR Image Storage/JPEG2000 and MR Image Storage/JPEGLossless would be considered different. the other mode SetMergeModeToTransferSyntax merge any new TransferSyntax to the already existing PresentationContext in order to re-use the same AbstractSyntax.

See also

PresentationContext

Examples

CStoreQtProgress.cxx.

10.244.2 Member Typedef Documentation

10.244.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContext> gdcm::PresentationContextGenerator::PresentationContextArrayType
```

10.244.2.2 SizeType

```
typedef PresentationContextArrayType::size_type gdcm::PresentationContextGenerator::SizeType
```

10.244.3 Constructor & Destructor Documentation

10.244.3.1 PresentationContextGenerator()

```
gdcm::PresentationContextGenerator::PresentationContextGenerator ( )
```

10.244.4 Member Function Documentation

10.244.4.1 AddFromFile()

```
bool gdcm::PresentationContextGenerator::AddFromFile (
            const File & file )
```

Add a single PresentationContext from a single File. Call multiple times when dealing with multiple files.

10.244.4.2 AddPresentationContext()

```
bool gdcm::PresentationContextGenerator::AddPresentationContext (
            const char * absyn,
            const char * ts )  [protected]
```

10.244.4.3 GenerateFromFilenames()

```
bool gdcm::PresentationContextGenerator::GenerateFromFilenames (
            const Directory::FilenamesType & files )
```

Generate the PresentationContext array from a File-Set. File specified needs to be valid DICOM files. Used for C-↩ STORE operations

Examples

CStoreQtProgress.cxx.

10.244.4.4 GenerateFromUID()

```
bool gdcm::PresentationContextGenerator::GenerateFromUID (
            UIDs::TSName asname )
```

Generate the PresentationContext array from a UID (eg. VerificationSOPClass)

10.244.4.5 GetDefaultTransferSyntax()

```
const char * gdcm::PresentationContextGenerator::GetDefaultTransferSyntax ( ) const  [protected]
```

10.244.4.6 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::PresentationContextGenerator::GetPresentationContexts (
)  [inline]
```

Examples

CStoreQtProgress.cxx.

10.244.4.7 SetDefaultTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetDefaultTransferSyntax (
            const TransferSyntax & ts )
```

Not implemented for now. GDCM internally uses Implicit Little Endian.

10.244.4.8 SetMergeModeToAbstractSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToAbstractSyntax ( )
```

10.244.4.9 SetMergeModeToTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToTransferSyntax ( )
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextGenerator.h

10.245 gdcm::network::PresentationContextRQ Class Reference

PresentationContextRQ.

```
#include <gdcmPresentationContextRQ.h>
```

Public Types

- typedef std::vector< TransferSyntaxSub >::size_type SizeType

Public Member Functions

- PresentationContextRQ ()
- PresentationContextRQ (const PresentationContext &pc)
- PresentationContextRQ (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDIC
- void AddTransferSyntax (TransferSyntaxSub const &ts)
- AbstractSyntax & GetAbstractSyntax ()
- AbstractSyntax const & GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- TransferSyntaxSub & GetTransferSyntax (SizeType i)
- TransferSyntaxSub const & GetTransferSyntax (SizeType i) const
- std::vector< TransferSyntaxSub > const & GetTransferSyntaxes () const
- bool operator== (const PresentationContextRQ &pc) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetAbstractSyntax (AbstractSyntax const &absyn)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.245.1 Detailed Description

PresentationContextRQ.

Table 9-13 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContextAC

10.245.2 Member Typedef Documentation

10.245.2.1 SizeType

```
typedef std::vector<TransferSyntaxSub>::size_type gdcm::network::PresentationContextRQ::SizeType
```

10.245.3 Constructor & Destructor Documentation

10.245.3.1 PresentationContextRQ() [1/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ ( )
```

10.245.3.2 PresentationContextRQ() [2/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM )
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (dfault to Implicit VR LittleEndian when not specified).

10.245.3.3 PresentationContextRQ() [3/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            const PresentationContext & pc )
```

10.245.4 Member Function Documentation

10.245.4.1 AddTransferSyntax()

```
void gdcm::network::PresentationContextRQ::AddTransferSyntax (
            TransferSyntaxSub const & ts )
```

10.245.4.2 GetAbstractSyntax() [1/2]

```
AbstractSyntax & gdcm::network::PresentationContextRQ::GetAbstractSyntax ( ) [inline]
```

10.245.4.3 GetAbstractSyntax() [2/2]

```
AbstractSyntax const & gdcm::network::PresentationContextRQ::GetAbstractSyntax ( ) const [inline]
```

10.245.4.4 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::network::PresentationContextRQ::GetNumberOfTransferSyntaxes ( ) const [inline]
```

10.245.4.5 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextRQ::GetPresentationContextID ( ) const
```

10.245.4.6 GetTransferSyntax() [1/2]

```
TransferSyntaxSub & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i ) [inline]
```

10.245.4.7 GetTransferSyntax() [2/2]

```
TransferSyntaxSub const & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i ) const [inline]
```

10.245.4.8 GetTransferSyntaxes()

```
std::vector< TransferSyntaxSub > const & gdcm::network::PresentationContextRQ::GetTransfer↩
Syntaxes ( ) const [inline]
```

10.245.4.9 operator==()

```
bool gdcm::network::PresentationContextRQ::operator== (
            const PresentationContextRQ & pc ) const [inline]
```

10.245.4.10 Print()

```
void gdcm::network::PresentationContextRQ::Print (
            std::ostream & os ) const
```

10.245.4.11 Read()

```
std::istream & gdcm::network::PresentationContextRQ::Read (
            std::istream & is )
```

10.245.4.12 SetAbstractSyntax()

```
void gdcm::network::PresentationContextRQ::SetAbstractSyntax (
            AbstractSyntax const & absyn )
```

10.245.4.13 SetPresentationContextID()

```
void gdcm::network::PresentationContextRQ::SetPresentationContextID (
            uint8_t id )
```

10.245.4.14 Size()

```
size_t gdcm::network::PresentationContextRQ::Size ( ) const
```

10.245.4.15 Write()

```
const std::ostream & gdcm::network::PresentationContextRQ::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextRQ.h

10.246 gdcm::network::PresentationDataValue Class Reference

PresentationDataValue.

```
#include <gdcmPresentationDataValue.h>
```

Public Member Functions

- PresentationDataValue ()
- const std::string & GetBlob () const
- bool GetIsCommand () const
- bool GetIsLastFragment () const
- uint8_t GetMessageHeader () const
- uint8_t GetPresentationContextID () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- std::istream & ReadInto (std::istream &is, std::ostream &os)
- void SetBlob (const std::string &partialblob)
- void SetCommand (bool inCommand)
- void SetDataSet (const DataSet &ds)
- void SetLastFragment (bool inLast)
- void SetMessageHeader (uint8_t messageheader)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static DataSet ConcatenatePDVBlobs (const std::vector< PresentationDataValue > &inPDVs)
- static DataSet ConcatenatePDVBlobsAsExplicit (const std::vector< PresentationDataValue > &inPDVs)

10.246.1 Detailed Description

PresentationDataValue.

Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS

10.246.2 Constructor & Destructor Documentation

10.246.2.1 PresentationDataValue()

```
gdcm::network::PresentationDataValue::PresentationDataValue ( )
```

10.246.3 Member Function Documentation

10.246.3.1 ConcatenatePDVBlobs()

```
static DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobs (
            const std::vector< PresentationDataValue > & inPDVs )  [static]
```

Warning

DataSet will be read as Implicit Little Endian TS

10.246.3.2 ConcatenatePDVBlobsAsExplicit()

```
static DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobsAsExplicit (
            const std::vector< PresentationDataValue > & inPDVs )  [static]
```

10.246.3.3 GetBlob()

```
const std::string & gdcm::network::PresentationDataValue::GetBlob ( ) const
```

10.246.3.4 GetIsCommand()

```
bool gdcm::network::PresentationDataValue::GetIsCommand ( ) const
```

10.246.3.5 GetIsLastFragment()

```
bool gdcm::network::PresentationDataValue::GetIsLastFragment ( ) const
```

10.246.3.6 GetMessageHeader()

```
uint8_t gdcm::network::PresentationDataValue::GetMessageHeader ( ) const  [inline]
```

10.246.3.7 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationDataValue::GetPresentationContextID ( ) const  [inline]
```

10.246.3.8 Print()

```
void gdcm::network::PresentationDataValue::Print (
            std::ostream & os ) const
```

10.246.3.9 Read()

```
std::istream & gdcm::network::PresentationDataValue::Read (
            std::istream & is )
```

10.246.3.10 ReadInto()

```
std::istream & gdcm::network::PresentationDataValue::ReadInto (
            std::istream & is,
            std::ostream & os )
```

10.246.3.11 SetBlob()

```
void gdcm::network::PresentationDataValue::SetBlob (
            const std::string & partialblob )
```

10.246.3.12 SetCommand()

```
void gdcm::network::PresentationDataValue::SetCommand (
            bool inCommand )
```

10.246.3.13 SetDataSet()

```
void gdcm::network::PresentationDataValue::SetDataSet (
            const DataSet & ds )
```

Set DataSet. Write DataSet in implicit.

Warning

size of dataset should be below maxpdusize

10.246.3.14 SetLastFragment()

```
void gdcm::network::PresentationDataValue::SetLastFragment (
            bool inLast )
```

10.246.3.15 SetMessageHeader()

```
void gdcm::network::PresentationDataValue::SetMessageHeader (
            uint8_t messageheader )  [inline]
```

10.246.3.16 SetPresentationContextID()

```
void gdcm::network::PresentationDataValue::SetPresentationContextID (
            uint8_t id )  [inline]
```

10.246.3.17 Size()

```
size_t gdcm::network::PresentationDataValue::Size ( ) const
```

10.246.3.18 Write()

```
const std::ostream & gdcm::network::PresentationDataValue::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

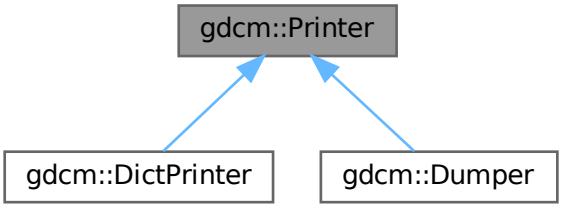
- gdcmPresentationDataValue.h

10.247 gdcm::Printer Class Reference

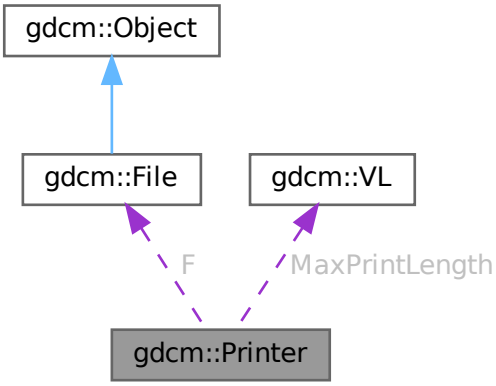
Printer class.

```
#include <gdcmPrinter.h>
```

Inheritance diagram for gdcm::Printer:



Collaboration diagram for gdcm::Printer:



Public Types

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Public Member Functions

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

10.247.1 Detailed Description

Printer class.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

10.247.2 Member Enumeration Documentation

10.247.2.1 PrintStyles

```
enum gdcm::Printer::PrintStyles
```

Enumerator

VERBOSE_STYLE	
CONDENSED_STYLE	
XML	
CXX	

10.247.3 Constructor & Destructor Documentation

10.247.3.1 Printer()

```
gdcm::Printer::Printer ( )
```

10.247.3.2 ~Printer()

```
gdcm::Printer::~Printer ( )  [default]
```

10.247.4 Member Function Documentation

10.247.4.1 GetPrintStyle()

```
PrintStyles gdcm::Printer::GetPrintStyle ( ) const  [inline]
```

Get PrintStyle value.

10.247.4.2 Print()

```
void gdcm::Printer::Print (
            std::ostream & os )
```

Print.

Examples

DumpSiemensBase64.cxx.

10.247.4.3 PrintDataElement()

```
VR gdcm::Printer::PrintDataElement (
            std::ostringstream & os,
            const Dicts & dicts,
            const DataSet & ds,
            const DataElement & de,
            std::ostream & out,
            std::string const & indent )  [protected]
```

10.247.4.4 PrintDataSet()

```
void gdcm::Printer::PrintDataSet (
            const DataSet & ds,
            std::ostream & os,
            const std::string & s = "" )
```

Print an individual dataset.

10.247.4.5 PrintSQ()

```
void gdcm::Printer::PrintSQ (
            const SequenceOfItems * sqi,
            std::ostream & os,
            std::string const & indent )  [protected]
```

10.247.4.6 SetColor()

```
void gdcm::Printer::SetColor (
            bool c )
```

Set color mode or not.

10.247.4.7 SetFile()

```
void gdcm::Printer::SetFile (
            File const & f )  [inline]
```

Set file.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

10.247.4.8 SetStyle()

```
void gdcm::Printer::SetStyle (
            PrintStyles ps )  [inline]
```

Set PrintStyle value.

10.247.5 Member Data Documentation

10.247.5.1 F

```
const File* gdcm::Printer::F  [protected]
```

10.247.5.2 MaxPrintLength

```
VL gdcm::Printer::MaxPrintLength [protected]
```

10.247.5.3 PrintStyle

```
PrintStyles gdcm::Printer::PrintStyle [protected]
```

The documentation for this class was generated from the following file:

- gdcmPrinter.h

10.248 gdcm::PrivateDict Class Reference

Private Dict.

```
#include <gdcmDict.h>
```

Public Member Functions

- PrivateDict ()=default
- ~PrivateDict ()=default
- void AddDictEntry (const PrivateTag &tag, const DictEntry &de)
- bool FindDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- bool IsEmpty () const
- void PrintXML () const
- bool RemoveDictEntry (const PrivateTag &tag)

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)

10.248.1 Detailed Description

Private Dict.

10.248.2 Constructor & Destructor Documentation

10.248.2.1 PrivateDict()

```
gdcm::PrivateDict::PrivateDict ( ) [default]
```

10.248.2.2 ~PrivateDict()

```
gdcm::PrivateDict::~PrivateDict ( ) [default]
```

10.248.3 Member Function Documentation

10.248.3.1 AddDictEntry()

```
void gdcm::PrivateDict::AddDictEntry (
            const PrivateTag & tag,
            const DictEntry & de ) [inline]
```

References gdcm::DictEntry::GetVM(), gdcm::DictEntry::GetVR(), gdcm::DictEntry::SetVM(), and gdcm::DictEntry::SetVR().

10.248.3.2 FindDictEntry()

```
bool gdcm::PrivateDict::FindDictEntry (
            const PrivateTag & tag ) const [inline]
```

10.248.3.3 GetDictEntry()

```
const DictEntry & gdcm::PrivateDict::GetDictEntry (
            const PrivateTag & tag ) const [inline]
```

10.248.3.4 IsEmpty()

```
bool gdcm::PrivateDict::IsEmpty ( ) const [inline]
```

10.248.3.5 LoadDefault()

```
void gdcm::PrivateDict::LoadDefault ( ) [protected]
```

10.248.3.6 PrintXML()

```
void gdcm::PrivateDict::PrintXML ( ) const  [inline]
```

References gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::DictEntry::GetName(), gdcm::PrivateTag::GetOwner(), gdcm::DictEntry::GetVM(), and gdcm::DictEntry::GetVR().

10.248.3.7 RemoveDictEntry()

```
bool gdcm::PrivateDict::RemoveDictEntry (
            const PrivateTag & tag )  [inline]
```

Remove entry 'tag'. Return true on success (element was found and remove). return false if element was not found.

10.248.4 Friends And Related Symbol Documentation

10.248.4.1 Dicts

```
friend class Dicts  [friend]
```

10.248.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PrivateDict & val )  [friend]
```

The documentation for this class was generated from the following file:

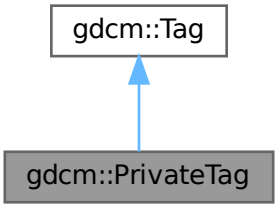
- gdcmDict.h

10.249 gdcm::PrivateTag Class Reference

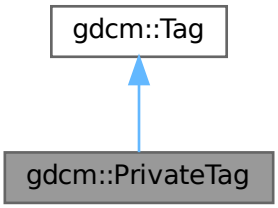
Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner)

```
#include <gdcmPrivateTag.h>
```

Inheritance diagram for gdcm::PrivateTag:



Collaboration diagram for gdcm::PrivateTag:



Public Member Functions

- PrivateTag (Tag const &t, const char ∗owner="")
- PrivateTag (uint16_t group=0, uint16_t element=0, const char ∗owner="")
- DataElement GetAsDataElement () const
- const char ∗ GetOwner () const
- bool operator!= (const PrivateTag &_val) const
- bool operator!= (const Tag &_val) const
- bool operator< (const PrivateTag &_val) const
- PrivateTag & operator= (const PrivateTag &_val)
- bool operator== (const PrivateTag &_val) const
- bool operator== (const Tag &_val) const
- bool ReadFromCommaSeparatedString (const char ∗str)
- void SetOwner (const char ∗owner)

Public Member Functions inherited from gdcm::Tag

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  Constructor with 2∗uint16_t.
- Tag (uint32_t tag=0)

  Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

  Returns the 'Group number' of the given Tag.
- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const
- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1)
- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1)
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char ∗str)
- bool ReadFromContinuousString (const char ∗str)
- bool ReadFromPipeSeparatedString (const char ∗str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

Sets the 'Group number' & 'Element number' of the given Tag.

- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.

- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.

- void SetPrivateCreator (Tag const &t)

  Set private creator:

- template<typename TSwap >
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const PrivateTag &_val)

10.249.1 Detailed Description

Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner)

Note

private tag have element value in: [0x10,0xff], for instance 0x0009,0x0000 is NOT a private tag

Examples

ChangePrivateTags.cxx, Cleaner.cs, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, FileStreaming.cs, GetSubSequenceData.cxx, MrProtocol.cxx, PublicDict.cxx, ReadGEMSSDO.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.249.2 Constructor & Destructor Documentation

10.249.2.1 PrivateTag() [1/2]

```
gdcm::PrivateTag::PrivateTag (
            uint16_t group = 0,
            uint16_t element = 0,
            const char * owner = "" )  [inline]
```

10.249.2.2 PrivateTag() [2/2]

```
gdcm::PrivateTag::PrivateTag (
            Tag const & t,
            const char * owner = "" )  [inline]
```

References gdcm::Tag::GetElement().

10.249.3 Member Function Documentation

10.249.3.1 GetAsDataElement()

```
DataElement gdcm::PrivateTag::GetAsDataElement ( ) const
```

10.249.3.2 GetOwner()

```
const char * gdcm::PrivateTag::GetOwner ( ) const  [inline]
```

Examples

PublicDict.cxx.

Referenced by gdcm::PrivateDict::PrintXML().

10.249.3.3 operator"!=() [1/2]

```
bool gdcm::PrivateTag::operator!= (
            const PrivateTag & _val ) const  [inline]
```

References gdcm::Tag::GetElementTag().

10.249.3.4 operator"!=() [2/2]

```
bool gdcm::PrivateTag::operator!= (
            const Tag & _val ) const  [inline]
```

References gdcm::Tag::GetElementTag().

10.249.3.5 operator<()

```
bool gdcm::PrivateTag::operator< (
            const PrivateTag & _val ) const
```

10.249.3.6 operator=()

```
PrivateTag & gdcm::PrivateTag::operator= (
            const PrivateTag & _val )  [inline]
```

References gdcm::Tag::GetElementTag().

10.249.3.7 operator==() [1/2]

```
bool gdcm::PrivateTag::operator== (
            const PrivateTag & _val ) const  [inline]
```

References gdcm::Tag::GetElementTag().

10.249.3.8 operator==() [2/2]

```
bool gdcm::PrivateTag::operator== (
            const Tag & _val ) const  [inline]
```

References gdcm::Tag::GetElementTag().

10.249.3.9 ReadFromCommaSeparatedString()

```
bool gdcm::PrivateTag::ReadFromCommaSeparatedString (
            const char * str )
```

Read PrivateTag from a string. Element number will be truncated to 8bits. Eg: "1234,5678,GDCM" is private tag: (1234,78,"GDCM")

10.249.3.10 SetOwner()

```
void gdcm::PrivateTag::SetOwner (
            const char * owner )  [inline]
```

10.249.4 Friends And Related Symbol Documentation

10.249.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PrivateTag & _val )  [friend]
```

The documentation for this class was generated from the following file:

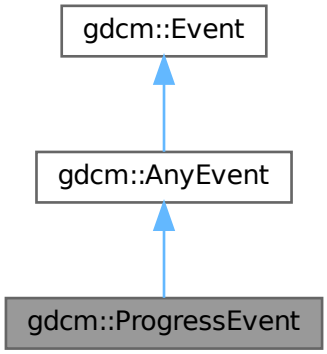
- gdcmPrivateTag.h

10.250 gdcm::ProgressEvent Class Reference

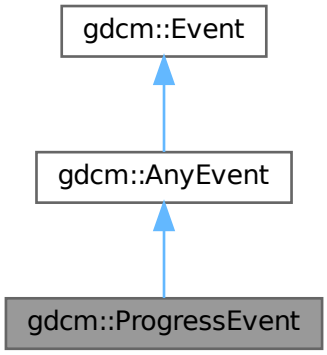
ProgressEvent.

```
#include <gdcmProgressEvent.h>
```

Inheritance diagram for gdcm::ProgressEvent:



Collaboration diagram for gdcm::ProgressEvent:



Public Types

- typedef ProgressEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- ProgressEvent (const Self &s)
- ProgressEvent (double p=0)
- ~ProgressEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- double GetProgress () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetProgress (double p)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

10.250.1 Detailed Description

ProgressEvent.

Special type of event triggered during

See also

AnyEvent

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.250.2 Member Typedef Documentation

10.250.2.1 Self

```
typedef ProgressEvent gdcm::ProgressEvent::Self
```

10.250.2.2 Superclass

```
typedef AnyEvent gdcm::ProgressEvent::Superclass
```

10.250.3 Constructor & Destructor Documentation

10.250.3.1 ProgressEvent() [1/2]

```
gdcm::ProgressEvent::ProgressEvent (
            double p = 0 )  [inline]
```

10.250.3.2 ~ProgressEvent()

```
gdcm::ProgressEvent::~ProgressEvent ( )  [override], [default]
```

10.250.3.3 ProgressEvent() [2/2]

```
gdcm::ProgressEvent::ProgressEvent (
            const Self & s )  [inline]
```

10.250.4 Member Function Documentation

10.250.4.1 CheckEvent()

```
bool gdcm::ProgressEvent::CheckEvent (
            const ::gdcm::Event * e ) const  [inline], [override]
```

10.250.4.2 GetEventName()

```
const char * gdcm::ProgressEvent::GetEventName ( ) const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

10.250.4.3 GetProgress()

```
double gdcm::ProgressEvent::GetProgress ( ) const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.250.4.4 MakeObject()

```
::gdcm::Event * gdcm::ProgressEvent::MakeObject ( ) const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

10.250.4.5 operator=()

```
void gdcm::ProgressEvent::operator= (
            const Self &  )  [delete]
```

10.250.4.6 SetProgress()

```
void gdcm::ProgressEvent::SetProgress (
            double p )  [inline]
```

The documentation for this class was generated from the following file:

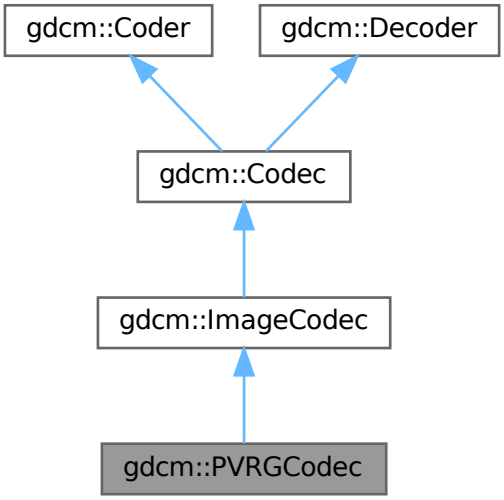
- gdcmProgressEvent.h

10.251 gdcm::PVRGCodec Class Reference

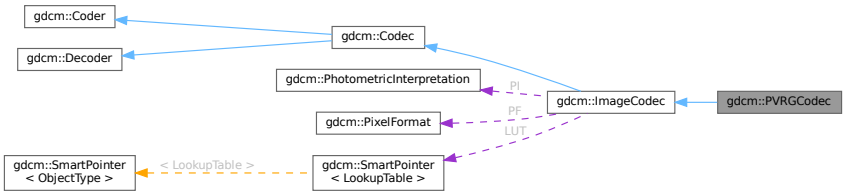
PVRGCodec.

```
#include <gdcmPVRGCodec.h>
```

Inheritance diagram for gdcm::PVRGCodec:



Collaboration diagram for gdcm::PVRGCodec:



Public Member Functions

- PVRGCodec ()
- ~PVRGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- void SetLossyFlag (bool l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.251.1 Detailed Description

PVRGCodec.

Note

pvrg is a broken implementation of the JPEG standard. It is known to have a bug in the 16bits lossless implementation of the standard.

In an ideal world, you should not need this codec at all. But to support some broken file such as:

PHILIPS_Gyroscan-12-Jpeg_Extended_Process_2_4.dcm

we have to...

10.251.2 Constructor & Destructor Documentation

10.251.2.1 PVRGCodec()

```
gdcm::PVRGCodec::PVRGCodec ( )
```

10.251.2.2 ~PVRGCodec()

```
gdcm::PVRGCodec::~PVRGCodec ( )  [override]
```

10.251.3 Member Function Documentation

10.251.3.1 CanCode()

```
bool gdcm::PVRGCodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.251.3.2 CanDecode()

```
bool gdcm::PVRGCodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.251.3.3 Clone()

```
ImageCodec * gdcm::PVRGCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.251.3.4 Code()

```
bool gdcm::PVRGCodec::Code (
            DataElement const & in_,
            DataElement & out_ )  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.251.3.5 Decode()

```
bool gdcm::PVRGCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.251.3.6 SetLossyFlag()

```
void gdcm::PVRGCodec::SetLossyFlag (
            bool l )
```

The documentation for this class was generated from the following file:

- gdcmPVRGCodec.h

10.252 gdcm::PythonFilter Class Reference

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

```
#include <gdcmPythonFilter.h>
```

Public Member Functions

- PythonFilter ()
- ~PythonFilter ()
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)
- void SetFile (const File &f)
- PyObject * ToPyObject (const Tag &t) const
- void UseDictAlways (bool)

10.252.1 Detailed Description

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

10.252.2 Constructor & Destructor Documentation

10.252.2.1 PythonFilter()

```
gdcm::PythonFilter::PythonFilter ( )
```

10.252.2.2 ~PythonFilter()

```
gdcm::PythonFilter::~PythonFilter ( )
```

10.252.3 Member Function Documentation

10.252.3.1 GetFile() [1/2]

```
File & gdcm::PythonFilter::GetFile ( )
```

10.252.3.2 GetFile() [2/2]

```
const File & gdcm::PythonFilter::GetFile ( ) const
```

10.252.3.3 SetDicts()

```
void gdcm::PythonFilter::SetDicts (
            const Dicts & dicts )
```

10.252.3.4 SetFile()

```
void gdcm::PythonFilter::SetFile (
            const File & f )
```

10.252.3.5 ToPyObject()

```
PyObject * gdcm::PythonFilter::ToPyObject (
            const Tag & t ) const
```

10.252.3.6 UseDictAlways()

```
void gdcm::PythonFilter::UseDictAlways (
            bool  )  [inline]
```

The documentation for this class was generated from the following file:

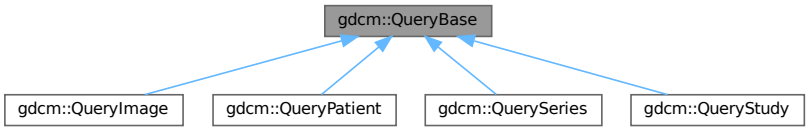
- gdcmPythonFilter.h

10.253 gdcm::QueryBase Class Reference

QueryBase.

```
#include <gdcmQueryBase.h>
```

Inheritance diagram for gdcm::QueryBase:



Public Member Functions

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const
- virtual std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const =0

  Return all Unique Key for a particular Query Root type (from the same level and above).
- virtual const char * GetName () const =0
- virtual std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const =0
- virtual DataElement GetQueryLevel () const =0
- virtual std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const =0
- virtual std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const =0

10.253.1 Detailed Description

QueryBase.

contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE

There are four levels of C-FIND and C-MOVE query:

- Patient
- Study
- Series
- Image

Each one has its own required and optional tags. This class provides an interface for getting those tags. This is an interface class.

See 3.4 C 6.1 and 3.4 C 6.2 for the patient and study root query types. These sections define the tags allowed by a particular query. The caller must pass in which root type they want, patient or study. A third root type, Modality Worklist Query, isn't yet supported.

This class (or rather it's derived classes) will be held in the RootQuery types. These query types actually make the dataset, and will use this dataset to list the required, unique, and optional tags for each type of query. This design is somewhat overly complicated, but is kept so that if we ever wanted to try to guess the query type from the given tags, we could do so.

10.253.2 Constructor & Destructor Documentation

10.253.2.1 ~QueryBase()

```
virtual gdcm::QueryBase::~QueryBase ( )  [virtual], [default]
```

10.253.3 Member Function Documentation

10.253.3.1 GetAllRequiredTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllRequiredTags (
            const ERootType & inRootType ) const
```

In order to validate a query dataset we need to check that there exists at least one required (or unique) key

10.253.3.2 GetAllTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllTags (
            const ERootType & inRootType ) const
```

In order to validate a query dataset, just check for the presence of a tag, not it's requirement level in the spec

10.253.3.3 GetHierachicalSearchTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetHierachicalSearchTags (
            const ERootType & inRootType ) const  [pure virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

10.253.3.4 GetName()

```
virtual const char * gdcm::QueryBase::GetName ( ) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

10.253.3.5 GetOptionalTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetOptionalTags (
            const ERootType & inRootType ) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

10.253.3.6 GetQueryLevel()

```
virtual DataElement gdcm::QueryBase::GetQueryLevel ( ) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

10.253.3.7 GetRequiredTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetRequiredTags (
            const ERootType & inRootType ) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

10.253.3.8 GetUniqueTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetUniqueTags (
            const ERootType & inRootType ) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

The documentation for this class was generated from the following file:

- gdcmQueryBase.h

10.254 gdcm::QueryFactory Class Reference

QueryFactory.h.

```
#include <gdcmQueryFactory.h>
```

Static Public Member Functions

- static ECharSet GetCharacterFromCurrentLocale ()
- static void ListCharSets (std::ostream &os)

  List all possible CharSet.
- static DataElement ProduceCharacterSetDataElement (const std::vector< ECharSet > &inCharSetType)
- static BaseQuery * ProduceQuery (const std::string &sopInstanceUID, ENQueryType inQueryType)
- static BaseRootQuery * ProduceQuery (ERootType inRootType, EQueryType inQueryType, EQueryLevel in↩ QueryLevel)

10.254.1 Detailed Description

QueryFactory.h.

contains: a class to produce a query based off of user-entered information

Essentially, this class is used to construct a query based off of user input (typically from the command line; if in code directly, the query itself could just be instantiated)

In theory, could also be used as the interface to validate incoming datasets as belonging to a particular query style

10.254.2 Member Function Documentation

10.254.2.1 GetCharacterFromCurrentLocale()

```
static ECharSet gdcm::QueryFactory::GetCharacterFromCurrentLocale ( )  [static]
```

This function will return the corresponding ECharSet associated with the current locale of the running system (based on the value of locale()).

10.254.2.2 ListCharSets()

```
static void gdcm::QueryFactory::ListCharSets (
            std::ostream & os )  [static]
```

List all possible CharSet.

10.254.2.3 ProduceCharacterSetDataElement()

```
static DataElement gdcm::QueryFactory::ProduceCharacterSetDataElement (
            const std::vector< ECharSet > & inCharSetType )  [static]
```

This function will produce the appropriate dataelement given a list of charsets. The first charset will be used directly, while the second and subsequent will be prepended with "ISO2022 ". Redundant character sets are not permitted, so if they are encountered, they will just be skipped. if UTF8 or GB18030 is used, no subsequent character sets will be used if the vector passed in is empty, then the dataelement that's passed out will be empty and Latin1 is the presumed encoding

10.254.2.4 ProduceQuery() [1/2]

```
static BaseQuery * gdcm::QueryFactory::ProduceQuery (
            const std::string & sopInstanceUID,
            ENQueryType inQueryType )  [static]
```

10.254.2.5 ProduceQuery() [2/2]

```
static BaseRootQuery * gdcm::QueryFactory::ProduceQuery (
            ERootType inRootType,
            EQueryType inQueryType,
            EQueryLevel inQueryLevel )  [static]
```

this function will produce a query (basically, a wrapper to a dataset that can validate whether or not the query is a valid cfind/cmove query) and the level of the query (patient, study, series, image). If the user provides an invalid instantiation (ie, study root type, query level of patient), then the result is NULL.

The documentation for this class was generated from the following file:

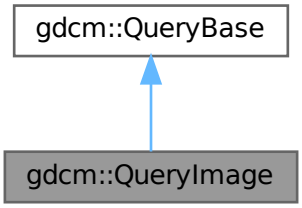
- gdcmQueryFactory.h

10.255 gdcm::QueryImage Class Reference

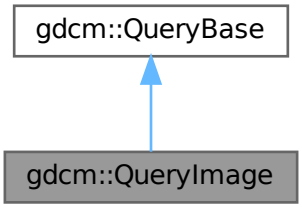
QueryImage.

```
#include <gdcmQueryImage.h>
```

Inheritance diagram for gdcm::QueryImage:



Collaboration diagram for gdcm::QueryImage:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

10.255.1 Detailed Description

QueryImage.

contains: class to construct an image-based query for C-FIND and C-MOVE

10.255.2 Member Function Documentation

10.255.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryImage::GetHierachicalSearchTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

10.255.2.2 GetName()

```
const char * gdcm::QueryImage::GetName ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.255.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryImage::GetOptionalTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.255.2.4 GetQueryLevel()

```
DataElement gdcm::QueryImage::GetQueryLevel ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.255.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryImage::GetRequiredTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.255.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryImage::GetUniqueTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

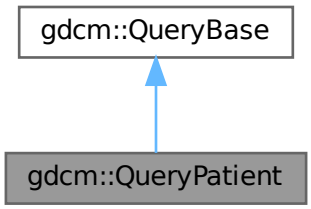
- gdcmQueryImage.h

10.256 gdcm::QueryPatient Class Reference

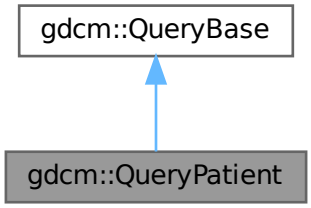
QueryPatient.

```
#include <gdcmQueryPatient.h>
```

Inheritance diagram for gdcm::QueryPatient:



Collaboration diagram for gdcm::QueryPatient:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

10.256.1 Detailed Description

QueryPatient.

contains: class to construct a patient-based query for c-find and c-move

10.256.2 Member Function Documentation

10.256.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryPatient::GetHierachicalSearchTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

10.256.2.2 GetName()

```
const char * gdcm::QueryPatient::GetName ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.256.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryPatient::GetOptionalTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.256.2.4 GetQueryLevel()

```
DataElement gdcm::QueryPatient::GetQueryLevel ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.256.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryPatient::GetRequiredTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.256.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryPatient::GetUniqueTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

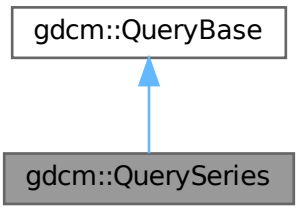
- gdcmQueryPatient.h

10.257 gdcm::QuerySeries Class Reference

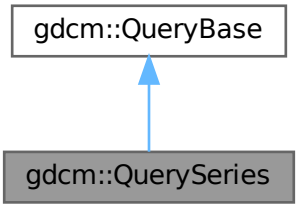
QuerySeries.

```
#include <gdcmQuerySeries.h>
```

Inheritance diagram for gdcm::QuerySeries:



Collaboration diagram for gdcm::QuerySeries:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

10.257.1 Detailed Description

QuerySeries.

contains: class to construct a series-based query for c-find and c-move

10.257.2 Member Function Documentation

10.257.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QuerySeries::GetHierachicalSearchTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

10.257.2.2 GetName()

```
const char * gdcm::QuerySeries::GetName ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.257.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QuerySeries::GetOptionalTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.257.2.4 GetQueryLevel()

```
DataElement gdcm::QuerySeries::GetQueryLevel ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.257.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QuerySeries::GetRequiredTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.257.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QuerySeries::GetUniqueTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

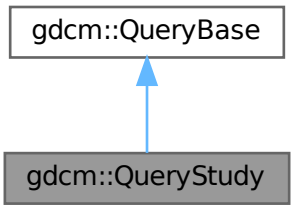
- gdcmQuerySeries.h

10.258 gdcm::QueryStudy Class Reference

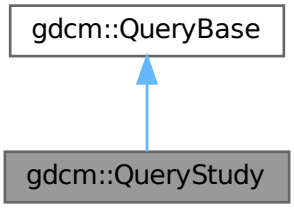
QueryStudy.h.

```
#include <gdcmQueryStudy.h>
```

Inheritance diagram for gdcm::QueryStudy:



Collaboration diagram for gdcm::QueryStudy:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

10.258.1 Detailed Description

QueryStudy.h.

contains: class to construct a study-based query for C-FIND and C-MOVE

10.258.2 Member Function Documentation

10.258.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryStudy::GetHierachicalSearchTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

10.258.2.2 GetName()

```
const char * gdcm::QueryStudy::GetName ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.258.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryStudy::GetOptionalTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.258.2.4 GetQueryLevel()

```
DataElement gdcm::QueryStudy::GetQueryLevel ( ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.258.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryStudy::GetRequiredTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

10.258.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryStudy::GetUniqueTags (
            const ERootType & inRootType ) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

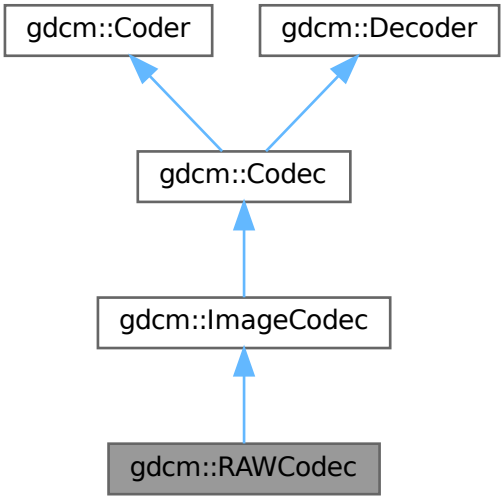
- gdcmQueryStudy.h

10.259 gdcm::RAWCodec Class Reference

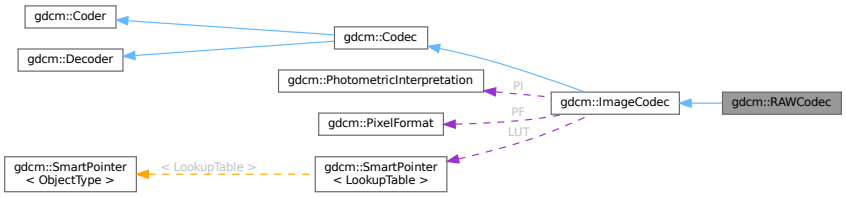
RAWCodec class.

```
#include <gdcmRAWCodec.h>
```

Inheritance diagram for gdcm::RAWCodec:



Collaboration diagram for gdcm::RAWCodec:



Public Member Functions

- RAWCodec ()
- ~RAWCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool DecodeBytes (const char *inBytes, size_t inBufferLength, char *outBytes, size_t inOutBufferLength)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool DecodeByStreams (std::istream &is, std::ostream &os) override

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.259.1 Detailed Description

RAWCodec class.

10.259.2 Constructor & Destructor Documentation

10.259.2.1 RAWCodec()

```
gdcm::RAWCodec::RAWCodec ( )
```

10.259.2.2 ~RAWCodec()

```
gdcm::RAWCodec::~RAWCodec ( )  [override]
```

10.259.3 Member Function Documentation

10.259.3.1 CanCode()

```
bool gdcm::RAWCodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.259.3.2 CanDecode()

```
bool gdcm::RAWCodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.259.3.3 Clone()

```
ImageCodec * gdcm::RAWCodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.259.3.4 Code()

```
bool gdcm::RAWCodec::Code (
            DataElement const & in_,
            DataElement & out_ )  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.259.3.5 Decode()

```
bool gdcm::RAWCodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.259.3.6 DecodeByStreams()

```
bool gdcm::RAWCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.259.3.7 DecodeBytes()

```
bool gdcm::RAWCodec::DecodeBytes (
            const char * inBytes,
            size_t inBufferLength,
            char * outBytes,
            size_t inOutBufferLength )
```

Used by the ImageStreamReader– converts a read in buffer into one with the proper encodings.

10.259.3.8 GetHeaderInfo()

```
bool gdcm::RAWCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

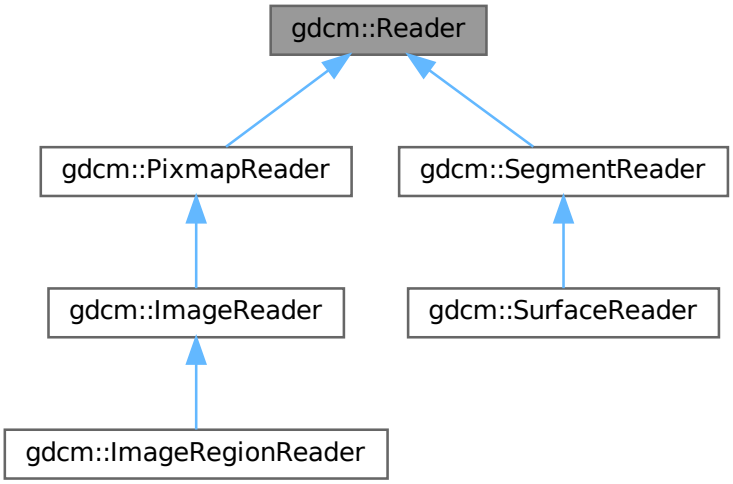
- gdcmRAWCodec.h

10.260 gdcm::Reader Class Reference

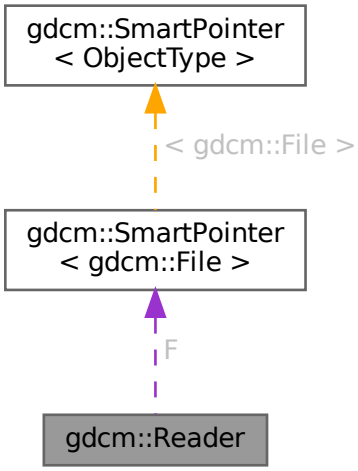
Reader ala DOM (Document Object Model)

```
#include <gdcmReader.h>
```

Inheritance diagram for gdcm::Reader:



Collaboration diagram for gdcm::Reader:



Public Member Functions

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- virtual bool Read ()

  Main function to read a file.
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< File > F

Friends

- class StreamImageReader

10.260.1 Detailed Description

Reader ala DOM (Document Object Model)

This class is a non-validating reader, it will only performs well- formedness check only, and to some extent catch known error (non well-formed document).

Detailed description here

A DataSet DOES NOT contains group 0x0002 (see FileMetaInformation)

This is really a DataSet reader. This will not make sure the dataset conform to any IOD at all. This is a completely different step. The reasoning was that user could control the IOD there lib would handle and thus we would not be able to read a DataSet if the IOD was not found Instead we separate the reading from the validation.

Note

From GDCM1.x. Users will realize that one feature is missing from this DOM implementation. In GDCM 1.x user used to be able to control the size of the Value to be read. By default it was 0xfff. The main author of GDCM2 thought this was too dangerous and harmful and therefore this feature did not make it into GDCM2

Warning

GDCM will not produce warning for unorder (non-alphabetical order).

See also

Writer FileMetaInformation DataSet File

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.260.2 Constructor & Destructor Documentation

10.260.2.1 Reader()

```
gdcm::Reader::Reader ( )
```

10.260.2.2 ~Reader()

```
virtual gdcm::Reader::~Reader ( ) [virtual]
```

10.260.3 Member Function Documentation

10.260.3.1 CanRead()

```
bool gdcm::Reader::CanRead ( ) const
```

Test whether this is a DICOM file

Warning

need to call either SetFileName or SetStream first

Examples

ReadUTF8QtDir.cxx.

10.260.3.2 GetFile() [1/2]

```
File & gdcm::Reader::GetFile ( ) [inline]
```

Set/Get File.

10.260.3.3 GetFile() [2/2]

```
const File & gdcm::Reader::GetFile ( ) const [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.260.3.4 GetStreamCurrentPosition()

```
size_t gdcm::Reader::GetStreamCurrentPosition ( ) const
```

For wrapped language. return type is compatible with System::FileSize return type Use native std::streampos / std↩ ::streamoff directly from the stream from C++

Examples

ExtractImageRegion.cs.

10.260.3.5 GetStreamPtr()

```
std::istream * gdcm::Reader::GetStreamPtr ( ) const  [inline], [protected]
```

10.260.3.6 Read()

```
virtual bool gdcm::Reader::Read ( )  [virtual]
```

Main function to read a file.

Reimplemented in gdcm::ImageReader, gdcm::ImageRegionReader, gdcm::PixmapReader, gdcm::SegmentReader, and gdcm::SurfaceReader.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.260.3.7 ReadDataSet()

```
bool gdcm::Reader::ReadDataSet ( )  [protected]
```

10.260.3.8 ReadMetaInformation()

```
bool gdcm::Reader::ReadMetaInformation ( )  [protected]
```

10.260.3.9 ReadPreamble()

```
bool gdcm::Reader::ReadPreamble ( )  [protected]
```

10.260.3.10 ReadSelectedPrivateTags()

```
bool gdcm::Reader::ReadSelectedPrivateTags (
            std::set< PrivateTag > const & ptags,
            bool readvalues = true )
```

Will only read the specified selected private tags.

10.260.3.11 ReadSelectedTags()

```
bool gdcm::Reader::ReadSelectedTags (
            std::set< Tag > const & tags,
            bool readvalues = true )
```

Will only read the specified selected tags.

10.260.3.12 ReadUpToTag()

```
bool gdcm::Reader::ReadUpToTag (
            const Tag & tag,
            std::set< Tag > const & skiptags = std::set< Tag >() )
```

Will read only up to Tag

Parameters

tag	and skipping any tag specified in
skiptags	

Examples

DumpVisusChange.cxx.

10.260.3.13 SetFile()

```
void gdcm::Reader::SetFile (
            File & file )  [inline]
```

Set/Get File.

10.260.3.14 SetFileName()

```
void gdcm::Reader::SetFileName (
            const char * filename_native )
```

Set the filename to open. This will create a std::ifstream internally See SetStream if you are dealing with different std::istream object

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CheckBigEndianBug.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, PrintLUT.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadMultiTimesException.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, RescaleImage.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, rle2img.cxx, and threadgdcm.cxx.

10.260.3.15 SetStream()

```
void gdcm::Reader::SetStream (
            std::istream & input_stream )  [inline]
```

Set the open-ed stream directly.

Examples

ReadUTF8QtDir.cxx.

10.260.4 Friends And Related Symbol Documentation

10.260.4.1 StreamImageReader

```
friend class StreamImageReader  [friend]
```

10.260.5 Member Data Documentation

10.260.5.1 F

```
SmartPointer<File> gdcm::Reader::F  [protected]
```

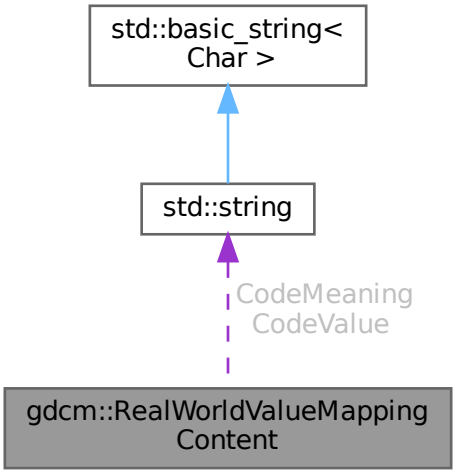
The documentation for this class was generated from the following file:

- gdcmReader.h

10.261 gdcm::RealWorldValueMappingContent Struct Reference

```
#include <gdcmImageHelper.h>
```

Collaboration diagram for gdcm::RealWorldValueMappingContent:



Public Attributes

- std::string CodeMeaning
- std::string CodeValue
- double RealWorldValueIntercept
- double RealWorldValueSlope

10.261.1 Member Data Documentation

10.261.1.1 CodeMeaning

```
std::string gdcm::RealWorldValueMappingContent::CodeMeaning
```

10.261.1.2 CodeValue

```
std::string gdcm::RealWorldValueMappingContent::CodeValue
```

10.261.1.3 RealWorldValueIntercept

```
double gdcm::RealWorldValueMappingContent::RealWorldValueIntercept
```

10.261.1.4 RealWorldValueSlope

```
double gdcm::RealWorldValueMappingContent::RealWorldValueSlope
```

The documentation for this struct was generated from the following file:

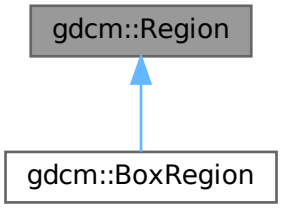
- gdcmImageHelper.h

10.262 gdcm::Region Class Reference

Class for manipulation region.

```
#include <gdcmRegion.h>
```

Inheritance diagram for gdcm::Region:



Public Member Functions

- Region ()
- virtual ~Region ()
- virtual size_t Area () const =0

  compute the area
- virtual Region * Clone () const =0
- virtual BoxRegion ComputeBoundingBox ()=0

  Return the Axis-Aligned minimum bounding box for all regions.
- virtual bool Empty () const =0

  return whether this domain is empty:
- virtual bool IsValid () const =0

  return whether this is valid domain
- virtual void Print (std::ostream &os=std::cout) const

  Print.

10.262.1 Detailed Description

Class for manipulation region.

10.262.2 Constructor & Destructor Documentation

10.262.2.1 Region()

```
gdcm::Region::Region ( )
```

10.262.2.2 ~Region()

```
virtual gdcm::Region::~Region ( )  [virtual]
```

10.262.3 Member Function Documentation

10.262.3.1 Area()

```
virtual size_t gdcm::Region::Area ( ) const  [pure virtual]
```

compute the area

Implemented in gdcm::BoxRegion.

10.262.3.2 Clone()

```
virtual Region * gdcm::Region::Clone ( ) const  [pure virtual]
```

Implemented in gdcm::BoxRegion.

10.262.3.3 ComputeBoundingBox()

```
virtual BoxRegion gdcm::Region::ComputeBoundingBox ( )  [pure virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implemented in gdcm::BoxRegion.

10.262.3.4 Empty()

```
virtual bool gdcm::Region::Empty ( ) const  [pure virtual]
```

return whether this domain is empty:

Implemented in gdcm::BoxRegion.

10.262.3.5 IsValid()

```
virtual bool gdcm::Region::IsValid ( ) const  [pure virtual]
```

return whether this is valid domain

Implemented in gdcm::BoxRegion.

10.262.3.6 Print()

```
virtual void gdcm::Region::Print (
            std::ostream & os = std::cout ) const  [virtual]
```

Print.

Reimplemented in gdcm::BoxRegion.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

- gdcmRegion.h

10.263 gdcm::Rescaler Class Reference

Rescale class.

```
#include <gdcmRescaler.h>
```

Public Member Functions

- Rescaler ()
- ~Rescaler ()=default
- PixelFormat::ScalarType ComputeInterceptSlopePixelType ()
- PixelFormat ComputePixelTypeFromMinMax ()
- double GetIntercept () const
- double GetSlope () const
- bool InverseRescale (char *out, const char *in, size_t n)

  Inverse transform.
- bool Rescale (char *out, const char *in, size_t n)

  Direct transform.
- void SetIntercept (double i)

  Set Intercept: used for both direct&inverse transformation.
- void SetMinMaxForPixelType (double min, double max)
- void SetPixelFormat (PixelFormat const &pf)

  Set Pixel Format of input data.
- void SetSlope (double s)

  Set Slope: user for both direct&inverse transformation.
- void SetTargetPixelType (PixelFormat const &targetst)
- void SetUseTargetPixelType (bool b)

  Override default behavior of Rescale.

Protected Member Functions

- template<typename TIn >
  void InverseRescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)
- template<typename TIn >
  void RescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)

10.263.1 Detailed Description

Rescale class.

This class is meant to apply the linear transform of Stored Pixel Value to Real World Value. This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel Type is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World Value will be 16 bits signed type.

In PET: the linear transform is generally floating point based. Since the dynamic range can be quite high, the Rescale Slope / Rescale Intercept can be changing throughout the Series. So it is important to read all linear transform and deduce the best Pixel Type only at the end (when all the images to be read have been parsed).

Warning

Internally any time a floating point value is found either in the Rescale Slope or the Rescale Intercept it is assumed that the best matching output pixel type is FLOAT64 (in previous implementation it was FLOAT32). Because VR:DS is closer to a 64bits floating point type FLOAT64 is thus a best matching pixel type for the floating point transformation.

Example: Let say input is FLOAT64, and we want UINT16 as output, we would do:

```
Rescaler ir;
ir.SetIntercept( 0 );
ir.SetSlope( 5.6789 );
ir.SetPixelFormat( FLOAT64 );
ir.SetMinMaxForPixelType( ((PixelFormat)UINT16).GetMin(), ((PixelFormat)UINT16).GetMax() );
ir.InverseRescale(output,input,numberofbytes );
```

Note

handle floating point transformation back and forth to integer properly (no loss)

See also

Unpacker12Bits

Examples

RescaleImage.cs.

10.263.2 Constructor & Destructor Documentation

10.263.2.1 Rescaler()

```
gdcm::Rescaler::Rescaler ( ) [inline]
```

10.263.2.2 ~Rescaler()

```
gdcm::Rescaler::~Rescaler ( ) [default]
```

10.263.3 Member Function Documentation

10.263.3.1 ComputeInterceptSlopePixelType()

```
PixelFormat::ScalarType gdcm::Rescaler::ComputeInterceptSlopePixelType ( )
```

Compute the Pixel Format of the output data Used for direct transformation

Examples

RescaleImage.cs.

10.263.3.2 ComputePixelTypeFromMinMax()

```
PixelFormat gdcm::Rescaler::ComputePixelTypeFromMinMax ( )
```

Compute the Pixel Format of the output data Used for inverse transformation

10.263.3.3 GetIntercept()

```
double gdcm::Rescaler::GetIntercept ( ) const  [inline]
```

10.263.3.4 GetSlope()

```
double gdcm::Rescaler::GetSlope ( ) const  [inline]
```

10.263.3.5 InverseRescale()

```
bool gdcm::Rescaler::InverseRescale (
            char * out,
            const char * in,
            size_t n )
```

Inverse transform.

10.263.3.6 InverseRescaleFunctionIntoBestFit()

```
template<typename TIn >
void gdcm::Rescaler::InverseRescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n )  [protected]
```

10.263.3.7 Rescale()

```
bool gdcm::Rescaler::Rescale (
            char * out,
            const char * in,
            size_t n )
```

Direct transform.

Examples

RescaleImage.cs.

10.263.3.8 RescaleFunctionIntoBestFit()

```
template<typename TIn >
void gdcm::Rescaler::RescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n )  [protected]
```

10.263.3.9 SetIntercept()

```
void gdcm::Rescaler::SetIntercept (
            double i )  [inline]
```

Set Intercept: used for both direct&inverse transformation.

Examples

RescaleImage.cs.

10.263.3.10 SetMinMaxForPixelType()

```
void gdcm::Rescaler::SetMinMaxForPixelType (
            double min,
            double max )
```

Set target interval for output data. A best match will be computed (if possible) Used for inverse transformation

10.263.3.11 SetPixelFormat()

```
void gdcm::Rescaler::SetPixelFormat (
            PixelFormat const & pf )  [inline]
```

Set Pixel Format of input data.

Examples

RescaleImage.cs.

10.263.3.12 SetSlope()

```
void gdcm::Rescaler::SetSlope (
            double s )  [inline]
```

Set Slope: user for both direct&inverse transformation.

Examples

RescaleImage.cs.

10.263.3.13 SetTargetPixelType()

```
void gdcm::Rescaler::SetTargetPixelType (
            PixelFormat const & targetst )
```

By default (when UseTargetPixelType is false), a best matching Target Pixel Type is computed. However user can override this auto selection by switching UseTargetPixelType:true and also specifying the specific Target Pixel Type

10.263.3.14 SetUseTargetPixelType()

```
void gdcm::Rescaler::SetUseTargetPixelType (
            bool b )
```

Override default behavior of Rescale.

The documentation for this class was generated from the following file:

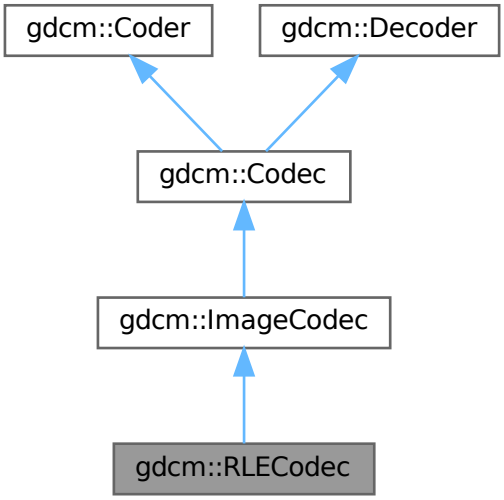
- gdcmRescaler.h

10.264 gdcm::RLECodec Class Reference

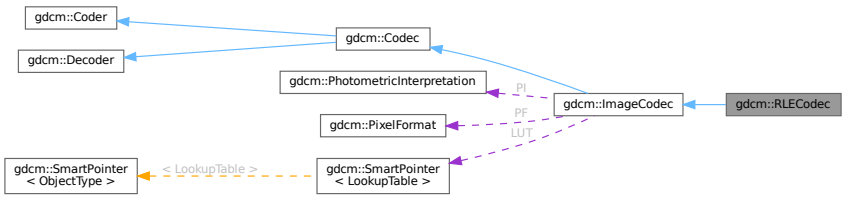
Class to do RLE.

```
#include <gdcmRLECodec.h>
```

Inheritance diagram for gdcm::RLECodec:



Collaboration diagram for gdcm::RLECodec:



Public Member Functions

- RLECodec ()
- ~RLECodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it)
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it)
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- void SetBufferLength (unsigned long l)
- void SetLength (unsigned long l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)

- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

10.264.1 Detailed Description

Class to do RLE.

Note

ANSI X3.9 A.4.2 RLE Compression Annex G defines a RLE Compression Transfer Syntax. This transfer Syntax is identified by the UID value "1.2.840.10008.1.2.5". If the object allows multi-frame images in the pixel data field, then each frame shall be encoded separately. Each frame shall be encoded in one and only one Fragment (see PS 3.5.8.2).

10.264.2 Constructor & Destructor Documentation

10.264.2.1 RLECodec()

```
gdcm::RLECodec::RLECodec ( )
```

10.264.2.2 ~RLECodec()

```
gdcm::RLECodec::~RLECodec ( ) [override]
```

10.264.3 Member Function Documentation

10.264.3.1 AppendFrameEncode()

```
bool gdcm::RLECodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.2 AppendRowEncode()

```
bool gdcm::RLECodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.3 CanCode()

```
bool gdcm::RLECodec::CanCode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it)

Reimplemented from gdcm::ImageCodec.

10.264.3.4 CanDecode()

```
bool gdcm::RLECodec::CanDecode (
            TransferSyntax const &  ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from gdcm::ImageCodec.

10.264.3.5 Clone()

```
ImageCodec * gdcm::RLECodec::Clone ( ) const  [override], [virtual]
```

Implements gdcm::ImageCodec.

10.264.3.6 Code()

```
bool gdcm::RLECodec::Code (
            DataElement const & in_,
            DataElement & out_ )  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

10.264.3.7 Decode()

```
bool gdcm::RLECodec::Decode (
            DataElement const & ,
            DataElement &  )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

10.264.3.8 DecodeByStreams()

```
bool gdcm::RLECodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.9 DecodeExtent()

```
bool gdcm::RLECodec::DecodeExtent (
            char * buffer,
            unsigned int XMin,
            unsigned int XMax,
            unsigned int YMin,
            unsigned int YMax,
            unsigned int ZMin,
            unsigned int ZMax,
            std::istream & is )  [protected]
```

10.264.3.10 GetBufferLength()

```
unsigned long gdcm::RLECodec::GetBufferLength ( ) const  [inline]
```

10.264.3.11 GetHeaderInfo()

```
bool gdcm::RLECodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts )  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.12 IsFrameEncoder()

```
bool gdcm::RLECodec::IsFrameEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.13 IsRowEncoder()

```
bool gdcm::RLECodec::IsRowEncoder ( )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.14 SetBufferLength()

```
void gdcm::RLECodec::SetBufferLength (
            unsigned long l )  [inline]
```

10.264.3.15 SetLength()

```
void gdcm::RLECodec::SetLength (
            unsigned long l )  [inline]
```

10.264.3.16 StartEncode()

```
bool gdcm::RLECodec::StartEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.3.17 StopEncode()

```
bool gdcm::RLECodec::StopEncode (
            std::ostream &  )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

10.264.4 Friends And Related Symbol Documentation

10.264.4.1 ImageRegionReader

```
friend class ImageRegionReader [friend]
```

The documentation for this class was generated from the following file:

- gdcmRLECodec.h

10.265 gdcm::network::RoleSelectionSub Class Reference

RoleSelectionSub.

```
#include <gdcmRoleSelectionSub.h>
```

Public Member Functions

- RoleSelectionSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t scurole, uint8_t scprole)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.265.1 Detailed Description

RoleSelectionSub.

PS 3.7 Table D.3-9 SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.265.2 Constructor & Destructor Documentation

10.265.2.1 RoleSelectionSub()

```
gdcm::network::RoleSelectionSub::RoleSelectionSub ( )
```

10.265.3 Member Function Documentation

10.265.3.1 Print()

```
void gdcm::network::RoleSelectionSub::Print (
            std::ostream & os ) const
```

10.265.3.2 Read()

```
std::istream & gdcm::network::RoleSelectionSub::Read (
            std::istream & is )
```

10.265.3.3 SetTuple()

```
void gdcm::network::RoleSelectionSub::SetTuple (
            const char * uid,
            uint8_t scurole,
            uint8_t scprole )
```

10.265.3.4 Size()

```
size_t gdcm::network::RoleSelectionSub::Size ( ) const
```

10.265.3.5 Write()

```
const std::ostream & gdcm::network::RoleSelectionSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

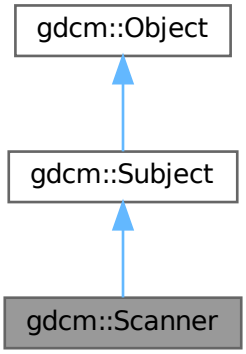
- gdcmRoleSelectionSub.h

10.266 gdcm::Scanner Class Reference

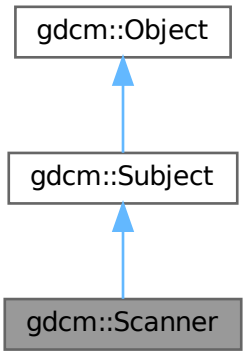
Scanner.

```
#include <gdcmScanner.h>
```

Inheritance diagram for gdcm::Scanner:



Collaboration diagram for gdcm::Scanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner ()
- ~Scanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char ∗filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char ∗value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char ∗ GetValue (const char ∗filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order)
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char ∗filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ∼Subject () override
- unsigned long AddObserver (const Event &event, Command ∗)
- unsigned long AddObserver (const Event &event, Command ∗) const
- Command ∗ GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ∼Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner &s)

10.266.1 Detailed Description

Scanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

10.266.2 Member Typedef Documentation

10.266.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::Scanner::ConstIterator
```

10.266.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::Scanner::MappingType
```

10.266.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char $*$ and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) $<=$ sizeof(pointer)

10.266.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::Scanner::TagToValueValueType
```

10.266.2.5 ValuesType

```
typedef std::set< std::string > gdcm::Scanner::ValuesType
```

10.266.3 Constructor & Destructor Documentation

10.266.3.1 Scanner()

```
gdcm::Scanner::Scanner ( )  [inline]
```

10.266.3.2 ~Scanner()

```
gdcm::Scanner::~Scanner ( )  [override]
```

10.266.4 Member Function Documentation

10.266.4.1 AddPrivateTag()

```
void gdcm::Scanner::AddPrivateTag (
            PrivateTag const & t )
```

10.266.4.2 AddSkipTag()

```
void gdcm::Scanner::AddSkipTag (
            Tag const & t )
```

Add a tag that will need to be skipped. Those are root level skip tags.

10.266.4.3 AddTag()

```
void gdcm::Scanner::AddTag (
            Tag const & t )
```

Add a tag that will need to be read. Those are root level tags.

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

10.266.4.4 Begin()

```
ConstIterator gdcm::Scanner::Begin ( ) const  [inline]
```

10.266.4.5 ClearSkipTags()

```
void gdcm::Scanner::ClearSkipTags ( )
```

10.266.4.6 ClearTags()

```
void gdcm::Scanner::ClearTags ( )
```

10.266.4.7 End()

```
ConstIterator gdcm::Scanner::End ( ) const  [inline]
```

10.266.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::Scanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

10.266.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::Scanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

10.266.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner::GetFilenames ( ) const  [inline]
```

10.266.4.11 GetKeys()

```
Directory::FilenamesType gdcm::Scanner::GetKeys ( ) const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

Examples

VolumeSorter.cxx.

10.266.4.12 GetMapping()

```
TagToValue const & gdcm::Scanner::GetMapping (
            const char * filename ) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

DumpToSQLITE3.cxx.

10.266.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::Scanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value ) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

10.266.4.14 GetMappings()

```
MappingType const & gdcm::Scanner::GetMappings ( ) const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.266.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::Scanner::GetOrderedValues (
            Tag const & t ) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.266.4.16 GetValue()

```
const char * gdcm::Scanner::GetValue (
            const char * filename,
            Tag const & t ) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

10.266.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::Scanner::GetValues ( ) const  [inline]
```

Get all the values found (in lexicographic order)

Examples

SortImage.cxx, and VolumeSorter.cxx.

10.266.4.18 GetValues() [2/2]

```
ValuesType gdcm::Scanner::GetValues (
            Tag const & t ) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

10.266.4.19 IsKey()

```
bool gdcm::Scanner::IsKey (
            const char * filename ) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

DumpToSQLITE3.cxx.

10.266.4.20 New()

```
static SmartPointer< Scanner > gdcm::Scanner::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

10.266.4.21 Print()

```
void gdcm::Scanner::Print (
            std::ostream & os ) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

10.266.4.22 PrintTable()

```
void gdcm::Scanner::PrintTable (
            std::ostream & os ) const
```

10.266.4.23 ProcessPublicTag()

```
void gdcm::Scanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.266.4.24 Scan()

```
bool gdcm::Scanner::Scan (
            Directory::FilenamesType const & filenames )
```

Start the scan !

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

10.266.5 Friends And Related Symbol Documentation

10.266.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Scanner & s )  [friend]
```

The documentation for this class was generated from the following file:

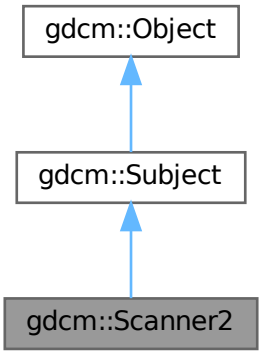
- gdcmScanner.h

10.267 gdcm::Scanner2 Class Reference

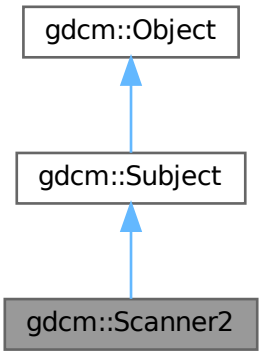
Scanner2.

```
#include <gdcmScanner2.h>
```

Inheritance diagram for gdcm::Scanner2:



Collaboration diagram for gdcm::Scanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner2 ()
- ~Scanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()

- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const

  Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order)
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner2 &s)

10.267.1 Detailed Description

Scanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

10.267.2 Member Typedef Documentation

10.267.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::Scanner2::PrivateConstIterator
```

10.267.2.2 PrivateMappingType

```
typedef std::map<const char *,PrivateTagToValue, ltstr> gdcm::Scanner2::PrivateMappingType
```

10.267.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char*> gdcm::Scanner2::PrivateTagToValue
```

10.267.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::Scanner2::PrivateTagToValueValueType
```

10.267.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::Scanner2::PublicConstIterator
```

10.267.2.6 PublicMappingType

```
typedef std::map<const char *,PublicTagToValue, ltstr> gdcm::Scanner2::PublicMappingType
```

10.267.2.7 PublicTagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char $*$ and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

10.267.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::Scanner2::PublicTagToValueValueType
```

10.267.2.9 ValuesType

```
typedef std::set< std::string > gdcm::Scanner2::ValuesType
```

10.267.3 Constructor & Destructor Documentation

10.267.3.1 Scanner2()

```
gdcm::Scanner2::Scanner2 ( ) [inline]
```

10.267.3.2 ~Scanner2()

```
gdcm::Scanner2::~Scanner2 ( ) [override]
```

10.267.4 Member Function Documentation

10.267.4.1 AddPrivateTag()

```
bool gdcm::Scanner2::AddPrivateTag (
            PrivateTag const & pt )
```

10.267.4.2 AddPublicTag()

```
bool gdcm::Scanner2::AddPublicTag (
            Tag const & t )
```

Add a tag that will need to be read. Those are root level tags.

10.267.4.3 AddSkipTag()

```
bool gdcm::Scanner2::AddSkipTag (
            Tag const & t )
```

Add a tag that will need to be skipped. Those are root level skip tags.

10.267.4.4 Begin()

```
PublicConstIterator gdcm::Scanner2::Begin ( ) const [inline]
```

10.267.4.5 ClearPrivateTags()

```
void gdcm::Scanner2::ClearPrivateTags ( )
```

10.267.4.6 ClearPublicTags()

```
void gdcm::Scanner2::ClearPublicTags ( )
```

10.267.4.7 ClearSkipTags()

```
void gdcm::Scanner2::ClearSkipTags ( )
```

10.267.4.8 End()

```
PublicConstIterator gdcm::Scanner2::End ( ) const  [inline]
```

10.267.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref ) const
```

10.267.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

10.267.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref ) const
```

10.267.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

10.267.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner2::GetFilenames ( ) const  [inline]
```

Return the list of filenames.

10.267.4.14 GetKeys()

```
Directory::FilenamesType gdcm::Scanner2::GetKeys ( ) const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

10.267.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::Scanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value ) const
```

10.267.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::Scanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value ) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

10.267.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::Scanner2::GetPrivateMapping (
            const char * filename ) const
```

10.267.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::Scanner2::GetPrivateMappings ( ) const  [inline]
```

10.267.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPrivateOrderedValues (
            PrivateTag const & pt ) const
```

10.267.4.20 GetPrivateValue()

```
const char * gdcm::Scanner2::GetPrivateValue (
            const char * filename,
            PrivateTag const & t ) const
```

10.267.4.21 GetPrivateValues()

```
ValuesType gdcm::Scanner2::GetPrivateValues (
            PrivateTag const & pt ) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.

10.267.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::Scanner2::GetPublicMapping (
            const char * filename ) const
```

Get the std::map mapping filenames to value for file 'filename'.

10.267.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::Scanner2::GetPublicMappings ( ) const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.267.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPublicOrderedValues (
            Tag const & t ) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.267.4.25 GetPublicValue()

```
const char * gdcm::Scanner2::GetPublicValue (
            const char * filename,
            Tag const & t ) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

10.267.4.26 GetPublicValues()

```
ValuesType gdcm::Scanner2::GetPublicValues (
            Tag const & t ) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

10.267.4.27 GetValues()

```
ValuesType const & gdcm::Scanner2::GetValues ( ) const  [inline]
```

Get all the values found (in lexicographic order)

10.267.4.28 IsKey()

```
bool gdcm::Scanner2::IsKey (
            const char * filename ) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

10.267.4.29 New()

```
static SmartPointer< Scanner2 > gdcm::Scanner2::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

10.267.4.30 Print()

```
void gdcm::Scanner2::Print (
            std::ostream & os ) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

10.267.4.31 PrintTable()

```
void gdcm::Scanner2::PrintTable (
            std::ostream & os,
            bool header = false ) const
```

Print result as CSV table.

10.267.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::Scanner2::PrivateBegin ( ) const  [inline]
```

10.267.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::Scanner2::PrivateEnd ( ) const  [inline]
```

10.267.4.34 ProcessPrivateTag()

```
void gdcm::Scanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.267.4.35 ProcessPublicTag()

```
void gdcm::Scanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.267.4.36 Scan()

```
bool gdcm::Scanner2::Scan (
            Directory::FilenamesType const & filenames )
```

Start the scan !

10.267.5 Friends And Related Symbol Documentation

10.267.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Scanner2 & s )  [friend]
```

The documentation for this class was generated from the following file:

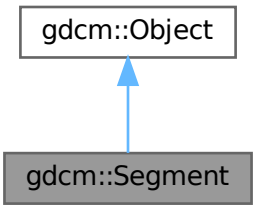
- gdcmScanner2.h

10.268 gdcm::Segment Class Reference

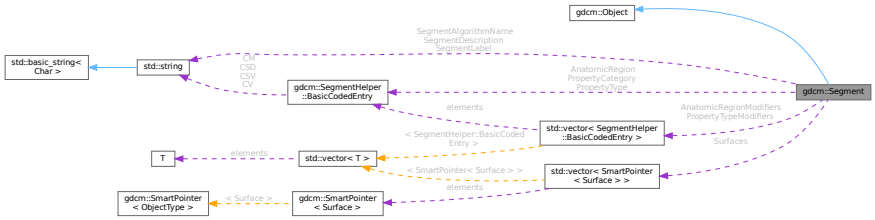
This class defines a segment.

```
#include <gdcmSegment.h>
```

Inheritance diagram for gdcm::Segment:



Collaboration diagram for gdcm::Segment:



Public Types

- enum ALGOType {
  AUTOMATIC = 0 ,
  SEMIAUTOMATIC ,
  MANUAL ,
  ALGOType_END }
- typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector
- typedef std::vector< SmartPointer< Surface > > SurfaceVector

Public Member Functions

- Segment ()
- ~Segment () override
- void AddSurface (SmartPointer< Surface > surface)
- SegmentHelper::BasicCodedEntry & GetAnatomicRegion ()
- SegmentHelper::BasicCodedEntry const & GetAnatomicRegion () const
- BasicCodedEntryVector & GetAnatomicRegionModifiers ()
- BasicCodedEntryVector const & GetAnatomicRegionModifiers () const
- SegmentHelper::BasicCodedEntry & GetPropertyCategory ()
- SegmentHelper::BasicCodedEntry const & GetPropertyCategory () const
- SegmentHelper::BasicCodedEntry & GetPropertyType ()
- SegmentHelper::BasicCodedEntry const & GetPropertyType () const
- BasicCodedEntryVector & GetPropertyTypeModifiers ()
- BasicCodedEntryVector const & GetPropertyTypeModifiers () const
- const char * GetSegmentAlgorithmName () const
- ALGOType GetSegmentAlgorithmType () const
- const char * GetSegmentDescription () const
- const char * GetSegmentLabel () const
- unsigned short GetSegmentNumber () const
- SmartPointer< Surface > GetSurface (const unsigned int idx=0) const
- unsigned long GetSurfaceCount ()
- SurfaceVector & GetSurfaces ()
- SurfaceVector const & GetSurfaces () const
- void SetAnatomicRegion (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAnatomicRegionModifiers (BasicCodedEntryVector const &BSEV)
- void SetPropertyCategory (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyType (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyTypeModifiers (BasicCodedEntryVector const &BSEV)
- void SetSegmentAlgorithmName (const char *name)
- void SetSegmentAlgorithmType (ALGOType type)
- void SetSegmentAlgorithmType (const char *typeStr)
- void SetSegmentDescription (const char *description)
- void SetSegmentLabel (const char *label)
- void SetSegmentNumber (const unsigned short num)
- void SetSurfaceCount (const unsigned long nb)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static ALGOType GetALGOType (const char *type)
- static const char * GetALGOTypeString (ALGOType type)

Protected Attributes

- SegmentHelper::BasicCodedEntry AnatomicRegion
- BasicCodedEntryVector AnatomicRegionModifiers
- SegmentHelper::BasicCodedEntry PropertyCategory
- SegmentHelper::BasicCodedEntry PropertyType
- BasicCodedEntryVector PropertyTypeModifiers
- std::string SegmentAlgorithmName
- ALGOType SegmentAlgorithmType
- std::string SegmentDescription
- std::string SegmentLabel
- unsigned short SegmentNumber
- unsigned long SurfaceCount
- SurfaceVector Surfaces

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.268.1 Detailed Description

This class defines a segment.

It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

See also

PS 3.3 C.8.20.2 and C.8.23

10.268.2 Member Typedef Documentation

10.268.2.1 BasicCodedEntryVector

```
typedef std::vector< SegmentHelper::BasicCodedEntry > gdcm::Segment::BasicCodedEntryVector
```

10.268.2.2 SurfaceVector

```
typedef std::vector< SmartPointer< Surface > > gdcm::Segment::SurfaceVector
```

10.268.3 Member Enumeration Documentation

10.268.3.1 ALGOType

```
enum gdcm::Segment::ALGOType
```

Enumerator

AUTOMATIC	
SEMIAUTOMATIC	
MANUAL	
ALGOType_END	

10.268.4 Constructor & Destructor Documentation

10.268.4.1 Segment()

```
gdcm::Segment::Segment ( )
```

10.268.4.2 ~Segment()

```
gdcm::Segment::~Segment ( ) [override]
```

10.268.5 Member Function Documentation

10.268.5.1 AddSurface()

```
void gdcm::Segment::AddSurface (
            SmartPointer< Surface > surface )
```

10.268.5.2 GetALGOType()

```
static ALGOType gdcm::Segment::GetALGOType (
            const char * type ) [static]
```

10.268.5.3 GetALGOTypeString()

```
static const char * gdcm::Segment::GetALGOTypeString (
            ALGOType type ) [static]
```

10.268.5.4 GetAnatomicRegion() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetAnatomicRegion ( )
```

10.268.5.5 GetAnatomicRegion() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetAnatomicRegion ( ) const
```

10.268.5.6 GetAnatomicRegionModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetAnatomicRegionModifiers ( )
```

10.268.5.7 GetAnatomicRegionModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetAnatomicRegionModifiers ( ) const
```

10.268.5.8 GetPropertyCategory() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyCategory ( )
```

10.268.5.9 GetPropertyCategory() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyCategory ( ) const
```

10.268.5.10 GetPropertyType() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyType ( )
```

10.268.5.11 GetPropertyType() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyType ( ) const
```

10.268.5.12 GetPropertyTypeModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetPropertyTypeModifiers ( )
```

10.268.5.13 GetPropertyTypeModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetPropertyTypeModifiers ( ) const
```

10.268.5.14 GetSegmentAlgorithmName()

```
const char * gdcm::Segment::GetSegmentAlgorithmName ( ) const
```

10.268.5.15 GetSegmentAlgorithmType()

```
ALGOType gdcm::Segment::GetSegmentAlgorithmType ( ) const
```

10.268.5.16 GetSegmentDescription()

```
const char * gdcm::Segment::GetSegmentDescription ( ) const
```

10.268.5.17 GetSegmentLabel()

```
const char * gdcm::Segment::GetSegmentLabel ( ) const
```

10.268.5.18 GetSegmentNumber()

```
unsigned short gdcm::Segment::GetSegmentNumber ( ) const
```

10.268.5.19 GetSurface()

```
SmartPointer< Surface > gdcm::Segment::GetSurface (
            const unsigned int idx = 0 ) const
```

10.268.5.20 GetSurfaceCount()

```
unsigned long gdcm::Segment::GetSurfaceCount ( )
```

10.268.5.21 GetSurfaces() [1/2]

```
SurfaceVector & gdcm::Segment::GetSurfaces ( )
```

10.268.5.22 GetSurfaces() [2/2]

```
SurfaceVector const & gdcm::Segment::GetSurfaces ( ) const
```

10.268.5.23 SetAnatomicRegion()

```
void gdcm::Segment::SetAnatomicRegion (
            SegmentHelper::BasicCodedEntry const & BSE )
```

10.268.5.24 SetAnatomicRegionModifiers()

```
void gdcm::Segment::SetAnatomicRegionModifiers (
            BasicCodedEntryVector const & BSEV )
```

10.268.5.25 SetPropertyCategory()

```
void gdcm::Segment::SetPropertyCategory (
            SegmentHelper::BasicCodedEntry const & BSE )
```

10.268.5.26 SetPropertyType()

```
void gdcm::Segment::SetPropertyType (
            SegmentHelper::BasicCodedEntry const & BSE )
```

10.268.5.27 SetPropertyTypeModifiers()

```
void gdcm::Segment::SetPropertyTypeModifiers (
            BasicCodedEntryVector const & BSEV )
```

10.268.5.28 SetSegmentAlgorithmName()

```
void gdcm::Segment::SetSegmentAlgorithmName (
            const char * name )
```

10.268.5.29 SetSegmentAlgorithmType() [1/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            ALGOType type )
```

10.268.5.30 SetSegmentAlgorithmType() [2/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            const char * typeStr )
```

10.268.5.31 SetSegmentDescription()

```
void gdcm::Segment::SetSegmentDescription (
            const char * description )
```

10.268.5.32 SetSegmentLabel()

```
void gdcm::Segment::SetSegmentLabel (
            const char * label )
```

10.268.5.33 SetSegmentNumber()

```
void gdcm::Segment::SetSegmentNumber (
            const unsigned short num )
```

10.268.5.34 SetSurfaceCount()

```
void gdcm::Segment::SetSurfaceCount (
            const unsigned long nb )
```

10.268.6 Member Data Documentation

10.268.6.1 AnatomicRegion

```
SegmentHelper::BasicCodedEntry gdcm::Segment::AnatomicRegion  [protected]
```

10.268.6.2 AnatomicRegionModifiers

```
BasicCodedEntryVector gdcm::Segment::AnatomicRegionModifiers  [protected]
```

10.268.6.3 PropertyCategory

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyCategory  [protected]
```

10.268.6.4 PropertyType

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyType  [protected]
```

10.268.6.5 PropertyTypeModifiers

```
BasicCodedEntryVector gdcm::Segment::PropertyTypeModifiers  [protected]
```

10.268.6.6 SegmentAlgorithmName

```
std::string gdcm::Segment::SegmentAlgorithmName  [protected]
```

10.268.6.7 SegmentAlgorithmType

```
ALGOType gdcm::Segment::SegmentAlgorithmType [protected]
```

10.268.6.8 SegmentDescription

```
std::string gdcm::Segment::SegmentDescription [protected]
```

10.268.6.9 SegmentLabel

```
std::string gdcm::Segment::SegmentLabel [protected]
```

10.268.6.10 SegmentNumber

```
unsigned short gdcm::Segment::SegmentNumber [protected]
```

10.268.6.11 SurfaceCount

```
unsigned long gdcm::Segment::SurfaceCount [protected]
```

10.268.6.12 Surfaces

```
SurfaceVector gdcm::Segment::Surfaces [protected]
```

The documentation for this class was generated from the following file:

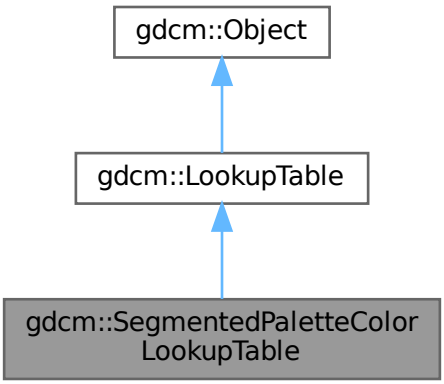
- gdcmSegment.h

10.269 gdcm::SegmentedPaletteColorLookupTable Class Reference

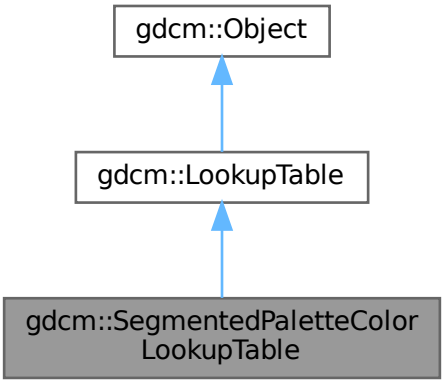
SegmentedPaletteColorLookupTable class.

```
#include <gdcmSegmentedPaletteColorLookupTable.h>
```

Inheritance diagram for gdcm::SegmentedPaletteColorLookupTable:



Collaboration diagram for gdcm::SegmentedPaletteColorLookupTable:



Public Member Functions

- SegmentedPaletteColorLookupTable ()
- ~SegmentedPaletteColorLookupTable () override
- void Print (std::ostream &) const override
- void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length) override

  Initialize a SegmentedPaletteColorLookupTable.

Public Member Functions inherited from gdcm::LookupTable

- LookupTable ()
- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Public Types inherited from gdcm::LookupTable

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::LookupTable

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

10.269.1 Detailed Description

SegmentedPaletteColorLookupTable class.

10.269.2 Constructor & Destructor Documentation

10.269.2.1 SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::SegmentedPaletteColorLookupTable ( )
```

10.269.2.2 ~SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::~SegmentedPaletteColorLookupTable ( )  [override]
```

10.269.3 Member Function Documentation

10.269.3.1 Print()

```
void gdcm::SegmentedPaletteColorLookupTable::Print (
            std::ostream &  ) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::LookupTable.

10.269.3.2 SetLUT()

```
void gdcm::SegmentedPaletteColorLookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length )  [override], [virtual]
```

Initialize a SegmentedPaletteColorLookupTable.

Reimplemented from gdcm::LookupTable.

The documentation for this class was generated from the following file:

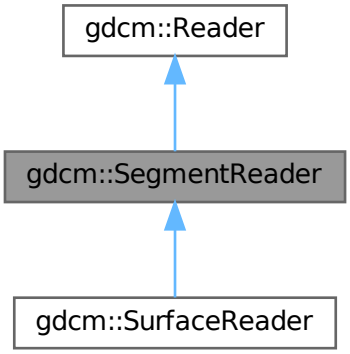
- gdcmSegmentedPaletteColorLookupTable.h

10.270 gdcm::SegmentReader Class Reference

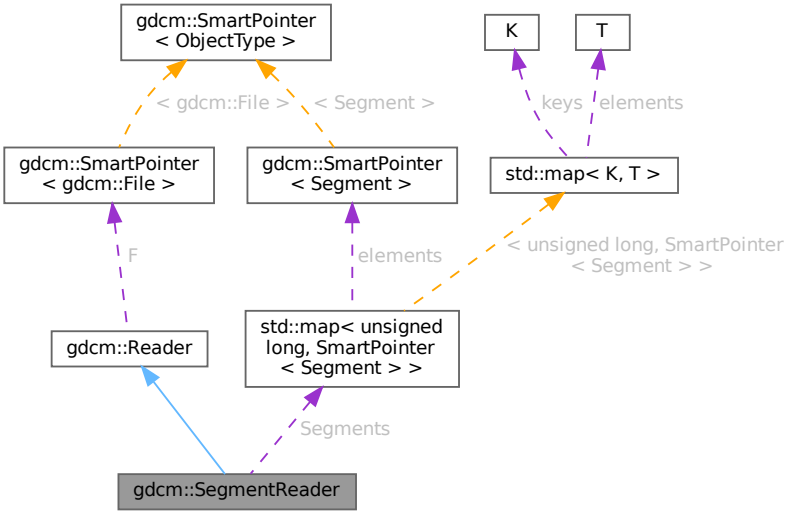
This class defines a segment reader.

```
#include <gdcmSegmentReader.h>
```

Inheritance diagram for gdcm::SegmentReader:



Collaboration diagram for gdcm::SegmentReader:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

Will only read the specified selected private tags.

- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Types

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Member Functions

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

10.270.1 Detailed Description

This class defines a segment reader.

It reads attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

10.270.2 Member Typedef Documentation

10.270.2.1 SegmentMap

```
typedef std::map< unsigned long, SmartPointer< Segment > > gdcm::SegmentReader::SegmentMap [protected]
```

10.270.2.2 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentReader::SegmentVector
```

10.270.3 Constructor & Destructor Documentation

10.270.3.1 SegmentReader()

```
gdcm::SegmentReader::SegmentReader ( )
```

10.270.3.2 ~SegmentReader()

```
gdcm::SegmentReader::~SegmentReader ( ) [override]
```

10.270.4 Member Function Documentation

10.270.4.1 GetSegments() [1/2]

```
SegmentVector gdcm::SegmentReader::GetSegments ( )
```

10.270.4.2 GetSegments() [2/2]

```
SegmentVector gdcm::SegmentReader::GetSegments ( ) const
```

10.270.4.3 Read()

```
bool gdcm::SegmentReader::Read ( ) [override], [virtual]
```

Read.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::SurfaceReader.

10.270.4.4 ReadSegment()

```
bool gdcm::SegmentReader::ReadSegment (
            const Item & segmentItem,
            const unsigned int idx )  [protected]
```

10.270.4.5 ReadSegments()

```
bool gdcm::SegmentReader::ReadSegments ( )  [protected]
```

10.270.5 Member Data Documentation

10.270.5.1 Segments

```
SegmentMap gdcm::SegmentReader::Segments  [protected]
```

The documentation for this class was generated from the following file:

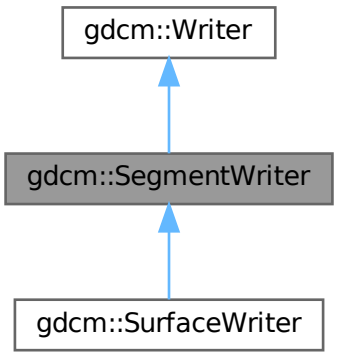
- gdcmSegmentReader.h

10.271 gdcm::SegmentWriter Class Reference

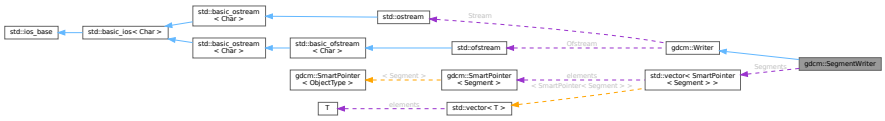
This class defines a segment writer.

```
#include <gdcmSegmentWriter.h>
```

Inheritance diagram for gdcm::SegmentWriter:



Collaboration diagram for gdcm::SegmentWriter:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentWriter ()
- ~SegmentWriter () override
- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default)
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header)
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

10.271.1 Detailed Description

This class defines a segment writer.

It writes attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

10.271.2 Member Typedef Documentation

10.271.2.1 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentWriter::SegmentVector
```

10.271.3 Constructor & Destructor Documentation

10.271.3.1 SegmentWriter()

```
gdcm::SegmentWriter::SegmentWriter ( )
```

10.271.3.2 ~SegmentWriter()

```
gdcm::SegmentWriter::~SegmentWriter ( ) [override]
```

10.271.4 Member Function Documentation

10.271.4.1 AddSegment()

```
void gdcm::SegmentWriter::AddSegment (
            SmartPointer< Segment > segment )
```

10.271.4.2 GetNumberOfSegments()

```
unsigned int gdcm::SegmentWriter::GetNumberOfSegments ( ) const
```

10.271.4.3 GetSegment()

```
SmartPointer< Segment > gdcm::SegmentWriter::GetSegment (
            const unsigned int idx = 0 ) const
```

10.271.4.4 GetSegments() [1/2]

```
SegmentVector & gdcm::SegmentWriter::GetSegments ( )
```

10.271.4.5 GetSegments() [2/2]

```
const SegmentVector & gdcm::SegmentWriter::GetSegments ( ) const
```

10.271.4.6 PrepareWrite()

```
bool gdcm::SegmentWriter::PrepareWrite ( )  [protected]
```

10.271.4.7 SetNumberOfSegments()

```
void gdcm::SegmentWriter::SetNumberOfSegments (
            const unsigned int size )
```

10.271.4.8 SetSegments()

```
void gdcm::SegmentWriter::SetSegments (
            SegmentVector & segments )
```

10.271.4.9 Write()

```
bool gdcm::SegmentWriter::Write ( ) [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Reimplemented in gdcm::SurfaceWriter.

10.271.5 Member Data Documentation

10.271.5.1 Segments

```
SegmentVector gdcm::SegmentWriter::Segments [protected]
```

The documentation for this class was generated from the following file:

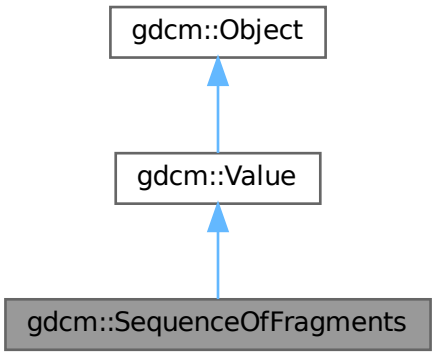
- gdcmSegmentWriter.h

10.272 gdcm::SequenceOfFragments Class Reference

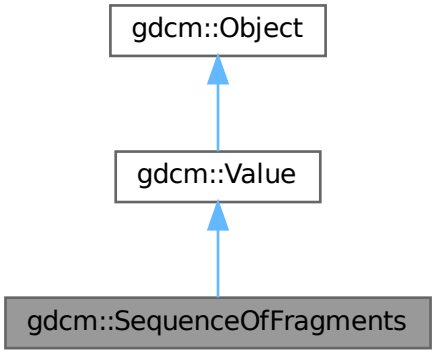
Class to represent a Sequence Of Fragments.

```
#include <gdcmSequenceOfFragments.h>
```

Inheritance diagram for gdcm::SequenceOfFragments:



Collaboration diagram for gdcm::SequenceOfFragments:



Public Types

- typedef FragmentVector::const_iterator ConstIterator
- typedef std::vector< Fragment > FragmentVector
- typedef FragmentVector::iterator Iterator
- typedef FragmentVector::size_type SizeType

Public Member Functions

- SequenceOfFragments ()

  constructor (UndefinedLength by default)
- void AddFragment (Fragment const &item)

  Appends a Fragment to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  Clear.
- unsigned long ComputeByteLength () const
- VL ComputeLength () const
- Iterator End ()
- ConstIterator End () const
- bool GetBuffer (char *buffer, unsigned long length) const
- bool GetFragBuffer (unsigned int fragNb, char *buffer, unsigned long &length) const
- const Fragment & GetFragment (SizeType num) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfFragments () const
- BasicOffsetTable & GetTable ()

- const BasicOffsetTable & GetTable () const
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TSwap >
  std::istream & Read (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool)
- void SetLength (VL length) override

  Sets the actual SQ length.
- template<typename TSwap >
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfFragments > New ()

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.272.1 Detailed Description

Class to represent a Sequence Of Fragments.

Todo I do not enforce that Sequence of Fragments ends with a SQ end del

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cxx, and MpegVideoInfo.cs.

10.272.2 Member Typedef Documentation

10.272.2.1 ConstIterator

```
typedef FragmentVector::const_iterator gdcm::SequenceOfFragments::ConstIterator
```

10.272.2.2 FragmentVector

```
typedef std::vector<Fragment> gdcm::SequenceOfFragments::FragmentVector
```

10.272.2.3 Iterator

```
typedef FragmentVector::iterator gdcm::SequenceOfFragments::Iterator
```

10.272.2.4 SizeType

```
typedef FragmentVector::size_type gdcm::SequenceOfFragments::SizeType
```

10.272.3 Constructor & Destructor Documentation

10.272.3.1 SequenceOfFragments()

```
gdcm::SequenceOfFragments::SequenceOfFragments ( ) [inline]
```

constructor (UndefinedLength by default)

10.272.4 Member Function Documentation

10.272.4.1 AddFragment()

```
void gdcm::SequenceOfFragments::AddFragment (
            Fragment const & item )
```

Appends a Fragment to the already added ones.

10.272.4.2 Begin() [1/2]

```
Iterator gdcm::SequenceOfFragments::Begin ( ) [inline]
```

10.272.4.3 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::Begin ( ) const [inline]
```

10.272.4.4 Clear()

```
void gdcm::SequenceOfFragments::Clear ( ) [override], [virtual]
```

Clear.

Implements gdcm::Value.

10.272.4.5 ComputeByteLength()

```
unsigned long gdcm::SequenceOfFragments::ComputeByteLength ( ) const
```

10.272.4.6 ComputeLength()

```
VL gdcm::SequenceOfFragments::ComputeLength ( ) const
```

10.272.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfFragments::End ( ) [inline]
```

10.272.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::End ( ) const [inline]
```

10.272.4.9 GetBuffer()

```
bool gdcm::SequenceOfFragments::GetBuffer (
            char * buffer,
            unsigned long length ) const
```

10.272.4.10 GetFragBuffer()

```
bool gdcm::SequenceOfFragments::GetFragBuffer (
            unsigned int fragNb,
            char * buffer,
            unsigned long & length ) const
```

10.272.4.11 GetFragment()

```
const Fragment & gdcm::SequenceOfFragments::GetFragment (
            SizeType num ) const
```

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, and FixJAIBugJPEGLS.cxx.

10.272.4.12 GetLength()

```
VL gdcm::SequenceOfFragments::GetLength ( ) const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

10.272.4.13 GetNumberOfFragments()

```
SizeType gdcm::SequenceOfFragments::GetNumberOfFragments ( ) const
```

Examples

FixJAIBugJPEGLS.cxx.

10.272.4.14 GetTable() [1/2]

```
BasicOffsetTable & gdcm::SequenceOfFragments::GetTable ( )  [inline]
```

10.272.4.15 GetTable() [2/2]

```
const BasicOffsetTable & gdcm::SequenceOfFragments::GetTable ( ) const  [inline]
```

10.272.4.16 New()

```
static SmartPointer< SequenceOfFragments > gdcm::SequenceOfFragments::New ( )  [inline], [static]
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, and MpegVideoInfo.cs.

10.272.4.17 operator==()

```
bool gdcm::SequenceOfFragments::operator== (
            const Value & val ) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

10.272.4.18 Print()

```
void gdcm::SequenceOfFragments::Print (
            std::ostream & os ) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

10.272.4.19 Read()

```
template<typename TSwap >
std::istream & gdcm::SequenceOfFragments::Read (
            std::istream & is,
            bool readvalues = true )  [inline]
```

10.272.4.20 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::SequenceOfFragments::ReadPreValue (
            std::istream & is )  [inline]
```

References gdcmDebugMacro.

10.272.4.21 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::SequenceOfFragments::ReadValue (
            std::istream & is,
            bool  )  [inline]
```

References gdcmAssertAlwaysMacro, gdcmDebugMacro, gdcmWarningMacro, gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), gdcm::Fragment::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Exception::what().

10.272.4.22 SetLength()

```
void gdcm::SequenceOfFragments::SetLength (
            VL length )  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

10.272.4.23 Write()

```
template<typename TSwap >
std::ostream const & gdcm::SequenceOfFragments::Write (
            std::ostream & os ) const  [inline]
```

References gdcm::Tag::Write(), and gdcm::VL::Write().

10.272.4.24 WriteBuffer()

```
bool gdcm::SequenceOfFragments::WriteBuffer (
            std::ostream & os ) const
```

Examples

GetJPEGSamplePrecision.cxx.

The documentation for this class was generated from the following file:

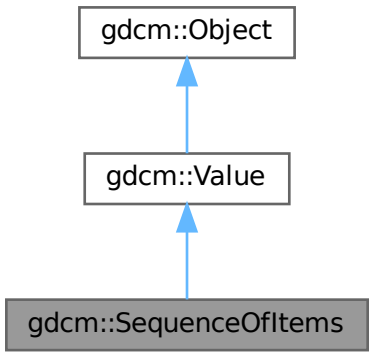
- gdcmSequenceOfFragments.h

10.273 gdcm::SequenceOfItems Class Reference

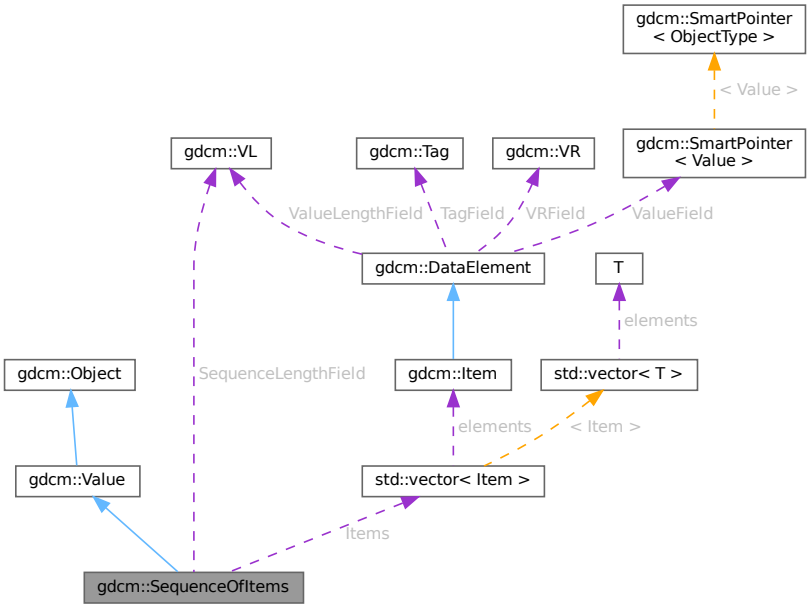
Class to represent a Sequence Of Items.

```
#include <gdcmSequenceOfItems.h>
```

Inheritance diagram for gdcm::SequenceOfItems:



Collaboration diagram for gdcm::SequenceOfItems:



Public Types

- typedef ItemVector::const_iterator ConstIterator
- typedef std::vector< Item > ItemVector
- typedef ItemVector::iterator Iterator
- typedef ItemVector::size_type SizeType

Public Member Functions

- SequenceOfItems ()

  constructor (UndefinedLength by default)
- void AddItem (Item const &item)

  Appends an Item to the already added ones.
- Item & AddNewUndefinedLengthItem ()

  Appends an Item to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  remove all items within the sequence
- template<typename TDE >
  VL ComputeLength () const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const Tag &t) const
- Item & GetItem (SizeType position)
- const Item & GetItem (SizeType position) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfItems () const
- bool IsEmpty () const
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- SequenceOfItems & operator= (const SequenceOfItems &val)
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is, bool readvalues=true)
- bool RemoveItemByIndex (const SizeType index)
- void SetLength (VL length) override

  Sets the actual SQ length.
- void SetLengthToUndefined ()

  Properly set the Sequence of Item to be undefined length.
- void SetNumberOfItems (SizeType n)
- template<typename TDE , typename TSwap >
  std::ostream const & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfItems > New ()

Public Attributes

- ItemVector Items

  Vector of Sequence Items.
- VL SequenceLengthField

  Total length of the Sequence (or 0xffffffff) if undefined.

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.273.1 Detailed Description

Class to represent a Sequence Of Items.

(value representation : SQ)

- a Value Representation for Data Elements that contains a sequence of Data Sets.
- Sequence of Item allows for Nested Data Sets

See PS 3.5, 7.4.6 Data Element Type Within a Sequence

Note

SEQUENCE OF ITEMS (VALUE REPRESENTATION SQ) A Value Representation for Data Elements that contain a sequence of Data Sets. Sequence of Items allows for Nested Data Sets.

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, and ReadExplicitLengthSQIVR.cxx.

10.273.2 Member Typedef Documentation

10.273.2.1 ConstIterator

```
typedef ItemVector::const_iterator gdcm::SequenceOfItems::ConstIterator
```

10.273.2.2 ItemVector

```
typedef std::vector< Item > gdcm::SequenceOfItems::ItemVector
```

10.273.2.3 Iterator

```
typedef ItemVector::iterator gdcm::SequenceOfItems::Iterator
```

10.273.2.4 SizeType

```
typedef ItemVector::size_type gdcm::SequenceOfItems::SizeType
```

10.273.3 Constructor & Destructor Documentation

10.273.3.1 SequenceOfItems()

```
gdcm::SequenceOfItems::SequenceOfItems ( )  [inline]
```

constructor (UndefinedLength by default)

10.273.4 Member Function Documentation

10.273.4.1 AddItem()

```
void gdcm::SequenceOfItems::AddItem (
            Item const & item )
```

Appends an Item to the already added ones.

Examples

Extracting_All_Resolution.cxx.

10.273.4.2 AddNewUndefinedLengthItem()

```
Item & gdcm::SequenceOfItems::AddNewUndefinedLengthItem ( )
```

Appends an Item to the already added ones.

10.273.4.3 Begin() [1/2]

```
Iterator gdcm::SequenceOfItems::Begin ( )  [inline]
```

10.273.4.4 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfItems::Begin ( ) const  [inline]
```

10.273.4.5 Clear()

```
void gdcm::SequenceOfItems::Clear ( )  [override], [virtual]
```

remove all items within the sequence

Implements gdcm::Value.

10.273.4.6 ComputeLength()

```
template<typename TDE >
VL gdcm::SequenceOfItems::ComputeLength ( ) const
```

10.273.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfItems::End ( )  [inline]
```

10.273.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfItems::End ( ) const  [inline]
```

10.273.4.9 FindDataElement()

```
bool gdcm::SequenceOfItems::FindDataElement (
            const Tag & t ) const
```

10.273.4.10 GetItem() [1/2]

```
Item & gdcm::SequenceOfItems::GetItem (
            SizeType position )
```

10.273.4.11 GetItem() [2/2]

```
const Item & gdcm::SequenceOfItems::GetItem (
            SizeType position ) const
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

10.273.4.12 GetLength()

```
VL gdcm::SequenceOfItems::GetLength ( ) const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

10.273.4.13 GetNumberOfItems()

```
SizeType gdcm::SequenceOfItems::GetNumberOfItems ( ) const  [inline]
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

10.273.4.14 IsEmpty()

```
bool gdcm::SequenceOfItems::IsEmpty ( ) const  [inline]
```

10.273.4.15 IsUndefinedLength()

```
bool gdcm::SequenceOfItems::IsUndefinedLength ( ) const  [inline]
```

return if Value Length if of undefined length

10.273.4.16 New()

```
static SmartPointer< SequenceOfItems > gdcm::SequenceOfItems::New ( )  [inline], [static]
```

Examples

NewSequence.cs.

10.273.4.17 operator=()

```
SequenceOfItems & gdcm::SequenceOfItems::operator= (
            const SequenceOfItems & val )  [inline]
```

References Items, and SequenceLengthField.

10.273.4.18 operator==()

```
bool gdcm::SequenceOfItems::operator== (
            const Value & val ) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References Items, and SequenceLengthField.

10.273.4.19 Print()

```
void gdcm::SequenceOfItems::Print (
            std::ostream & os ) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

10.273.4.20 Read()

```
template<typename TDE , typename TSwap >
std::istream & gdcm::SequenceOfItems::Read (
            std::istream & is,
            bool readvalues = true )  [inline]
```

References gdcm::Item::Clear(), gdcmDebugMacro, gdcmWarningMacro, gdcm::Exception::GetDescription(), gdcm::Item::GetNestedDataSet(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), gdcm::Item::Read(), and gdcm::DataSet::Size().

10.273.4.21 RemoveItemByIndex()

```
bool gdcm::SequenceOfItems::RemoveItemByIndex (
            const SizeType index )
```

Remove an Item as specified by its index, if index > size, false is returned Index starts at 1 not 0

10.273.4.22 SetLength()

```
void gdcm::SequenceOfItems::SetLength (
            VL length )  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

10.273.4.23 SetLengthToUndefined()

```
void gdcm::SequenceOfItems::SetLengthToUndefined ( )
```

Properly set the Sequence of Item to be undefined length.

10.273.4.24 SetNumberOfItems()

```
void gdcm::SequenceOfItems::SetNumberOfItems (
            SizeType n )  [inline]
```

10.273.4.25 Write()

```
template<typename TDE , typename TSwap >
std::ostream const & gdcm::SequenceOfItems::Write (
            std::ostream & os ) const  [inline]
```

References gdcm::Tag::Write(), and gdcm::VL::Write().

10.273.5 Member Data Documentation

10.273.5.1 Items

```
ItemVector gdcm::SequenceOfItems::Items
```

Vector of Sequence Items.

Referenced by operator=(), and operator==().

10.273.5.2 SequenceLengthField

```
VL gdcm::SequenceOfItems::SequenceLengthField
```

Total length of the Sequence (or 0xffffffff) if undefined.

Referenced by operator=(), and operator==().

The documentation for this class was generated from the following file:

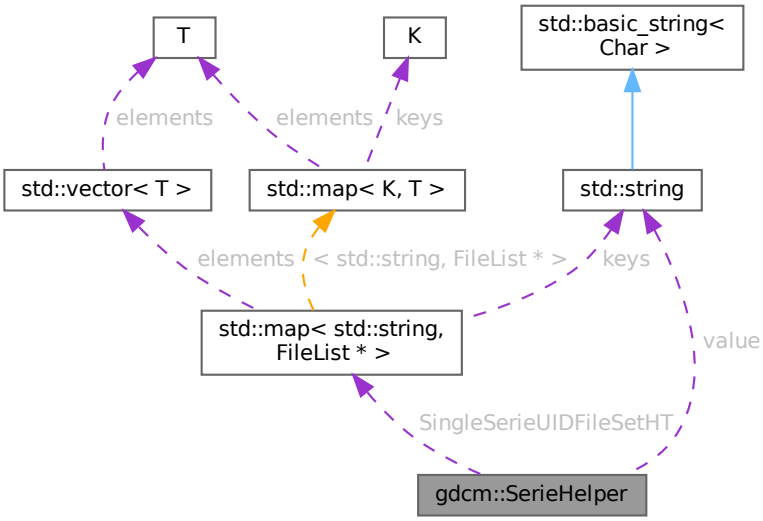
- gdcmSequenceOfItems.h

10.274 gdcm::SerieHelper Class Reference

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

```
#include <gdcmSerieHelper.h>
```

Collaboration diagram for gdcm::SerieHelper:



Public Member Functions

- SerieHelper ()
- ~SerieHelper ()
- void AddRestriction (const std::string &tag)
- void AddRestriction (uint16_t group, uint16_t elem, std::string const &value, int op)
- void Clear ()
- void CreateDefaultUniqueSeriesIdentifier ()
- std::string CreateUniqueSeriesIdentifier (File *inFile)
- FileList * GetFirstSingleSerieUIDFileSet ()
- FileList * GetNextSingleSerieUIDFileSet ()
- void OrderFileList (FileList *fileSet)
- void SetDirectory (std::string const &dir, bool recursive=false)
- void SetLoadMode (int)
- void SetUseSeriesDetails (bool useSeriesDetails)

Protected Types

- using Rule = RuleStructure{ uint16_t group
- typedef std::vector< Rule > SerieRestrictions
- typedef std::map< std::string, FileList * > SingleSerieUIDFileSetmap

Protected Member Functions

- bool AddFile (FileWithName &header)
- void AddFileName (std::string const &filename)
- void AddRestriction (const Tag &tag)
- bool FileNameOrdering (FileList *fileList)
- bool ImageNumberOrdering (FileList *fileList)
- bool ImagePositionPatientOrdering (FileList *fileSet)
- bool UserOrdering (FileList *fileSet)

Protected Attributes

- uint16_t elem
- SingleSerieUIDFileSetmap::iterator ItFileSetHt
- int op
- SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT
- std::string value

10.274.1 Detailed Description

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Instead see ImageHelper or IPPSorter

10.274.2 Member Typedef Documentation

10.274.2.1 Rule

```
using gdcm::SerieHelper::Rule = RuleStructure{ uint16_t group  [protected]
```

10.274.2.2 SerieRestrictions

```
typedef std::vector<Rule> gdcm::SerieHelper::SerieRestrictions  [protected]
```

10.274.2.3 SingleSerieUIDFileSetmap

```
typedef std::map<std::string, FileList *> gdcm::SerieHelper::SingleSerieUIDFileSetmap  [protected]
```

10.274.3 Constructor & Destructor Documentation

10.274.3.1 SerieHelper()

```
gdcm::SerieHelper::SerieHelper ( )
```

10.274.3.2 ~SerieHelper()

```
gdcm::SerieHelper::~SerieHelper ( )
```

10.274.4 Member Function Documentation

10.274.4.1 AddFile()

```
bool gdcm::SerieHelper::AddFile (
            FileWithName & header )  [protected]
```

10.274.4.2 AddFileName()

```
void gdcm::SerieHelper::AddFileName (
            std::string const & filename )  [protected]
```

10.274.4.3 AddRestriction() [1/3]

```
void gdcm::SerieHelper::AddRestriction (
            const std::string & tag )
```

10.274.4.4 AddRestriction() [2/3]

```
void gdcm::SerieHelper::AddRestriction (
            const Tag & tag )  [protected]
```

10.274.4.5 AddRestriction() [3/3]

```
void gdcm::SerieHelper::AddRestriction (
            uint16_t group,
            uint16_t elem,
            std::string const & value,
            int op )
```

10.274.4.6 Clear()

```
void gdcm::SerieHelper::Clear ( )
```

10.274.4.7 CreateDefaultUniqueSeriesIdentifier()

```
void gdcm::SerieHelper::CreateDefaultUniqueSeriesIdentifier ( )
```

10.274.4.8 CreateUniqueSeriesIdentifier()

```
std::string gdcm::SerieHelper::CreateUniqueSeriesIdentifier (
            File * inFile )
```

10.274.4.9 FileNameOrdering()

```
bool gdcm::SerieHelper::FileNameOrdering (
            FileList * fileList )  [protected]
```

10.274.4.10 GetFirstSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetFirstSingleSerieUIDFileSet ( )
```

10.274.4.11 GetNextSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetNextSingleSerieUIDFileSet ( )
```

10.274.4.12 ImageNumberOrdering()

```
bool gdcm::SerieHelper::ImageNumberOrdering (
            FileList * fileList )  [protected]
```

10.274.4.13 ImagePositionPatientOrdering()

```
bool gdcm::SerieHelper::ImagePositionPatientOrdering (
            FileList * fileSet )  [protected]
```

10.274.4.14 OrderFileList()

```
void gdcm::SerieHelper::OrderFileList (
            FileList * fileSet )
```

10.274.4.15 SetDirectory()

```
void gdcm::SerieHelper::SetDirectory (
            std::string const & dir,
            bool recursive = false )
```

10.274.4.16 SetLoadMode()

```
void gdcm::SerieHelper::SetLoadMode (
            int  )  [inline]
```

10.274.4.17 SetUseSeriesDetails()

```
void gdcm::SerieHelper::SetUseSeriesDetails (
            bool useSeriesDetails )
```

10.274.4.18 UserOrdering()

```
bool gdcm::SerieHelper::UserOrdering (
            FileList * fileSet )  [protected]
```

10.274.5 Member Data Documentation

10.274.5.1 elem

```
uint16_t gdcm::SerieHelper::elem  [protected]
```

10.274.5.2 ItFileSetHt

```
SingleSerieUIDFileSetmap::iterator gdcm::SerieHelper::ItFileSetHt  [protected]
```

10.274.5.3 op

```
int gdcm::SerieHelper::op  [protected]
```

10.274.5.4 SingleSerieUIDFileSetHT

```
SingleSerieUIDFileSetmap gdcm::SerieHelper::SingleSerieUIDFileSetHT  [protected]
```

10.274.5.5 value

```
std::string gdcm::SerieHelper::value  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSerieHelper.h

10.275 gdcm::Series Class Reference

Series.

```
#include <gdcmSeries.h>
```

Public Member Functions

- Series ()=default

10.275.1 Detailed Description

Series.

10.275.2 Constructor & Destructor Documentation

10.275.2.1 Series()

```
gdcm::Series::Series ( )  [default]
```

The documentation for this class was generated from the following file:

- gdcmSeries.h

10.276 gdcm::network::ServiceClassApplicationInformation Class Reference

```
#include <gdcmServiceClassApplicationInformation.h>
```

Public Member Functions

- ServiceClassApplicationInformation ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (uint8_t levelofsupport, uint8_t levelofdigitalsig, uint8_t elementcoercion)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.276.1 Detailed Description

PS 3.4 Table B.3-1 SERVICE-CLASS-APPLICATION-INFORMATION (A-ASSOCIATE-RQ)

10.276.2 Constructor & Destructor Documentation

10.276.2.1 ServiceClassApplicationInformation()

```
gdcm::network::ServiceClassApplicationInformation::ServiceClassApplicationInformation ( )
```

10.276.3 Member Function Documentation

10.276.3.1 Print()

```
void gdcm::network::ServiceClassApplicationInformation::Print (
            std::ostream & os ) const
```

10.276.3.2 Read()

```
std::istream & gdcm::network::ServiceClassApplicationInformation::Read (
            std::istream & is )
```

10.276.3.3 SetTuple()

```
void gdcm::network::ServiceClassApplicationInformation::SetTuple (
            uint8_t levelofsupport,
            uint8_t levelofdigitalsig,
            uint8_t elementcoercion )
```

10.276.3.4 Size()

```
size_t gdcm::network::ServiceClassApplicationInformation::Size ( ) const
```

10.276.3.5 Write()

```
const std::ostream & gdcm::network::ServiceClassApplicationInformation::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

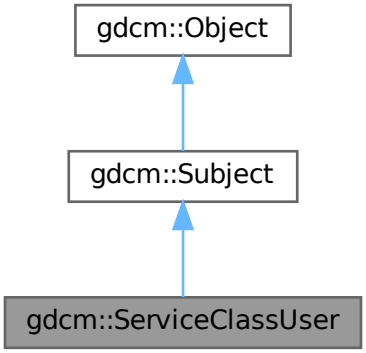
- gdcmServiceClassApplicationInformation.h

10.277 gdcm::ServiceClassUser Class Reference

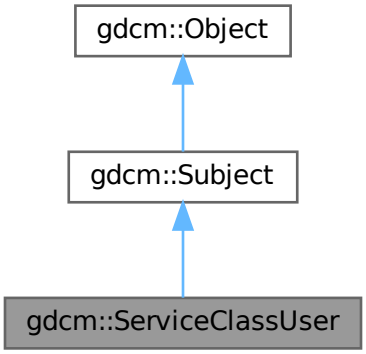
ServiceClassUser.

```
#include <gdcmServiceClassUser.h>
```

Inheritance diagram for gdcm::ServiceClassUser:



Collaboration diagram for gdcm::ServiceClassUser:



Public Member Functions

- ServiceClassUser ()
- ServiceClassUser (const ServiceClassUser &)=delete
- ~ServiceClassUser () override
- const char * GetAETitle () const
- const char * GetCalledAETitle () const
- double GetTimeout () const
- bool InitializeConnection ()
- bool IsPresentationContextAccepted (const PresentationContext &pc) const

  Return if the passed in presentation was accepted during association negotiation.
- void operator= (const ServiceClassUser &)=delete
- bool SendEcho ()

  C-ECHO.
- bool SendFind (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  C-FIND a query, return result are in retDatasets.
- bool SendMove (const BaseRootQuery *query, const char *outputdir)

  Execute a C-MOVE, based on query, return files are written in outputdir.
- bool SendMove (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  Execute a C-MOVE, based on query, returned dataset are Implicit.
- bool SendMove (const BaseRootQuery *query, std::vector< File > &retFile)

  Execute a C-MOVE, based on query, returned Files are stored in vector.
- bool SendStore (const char *filename)

  Execute a C-STORE on file on disk, named filename.
- bool SendStore (DataSet const &ds)

  Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.
- bool SendStore (File const &file)
- void SetAETitle (const char *aetitle)

set calling ae title

- void SetCalledAETitle (const char *aetitle)

  set called ae title

- void SetHostname (const char *hostname)

  Set the name of the called hostname (hostname or IP address)

- void SetPort (uint16_t port)

  Set port of remote host (called application)

- void SetPortSCP (uint16_t portscp)

  Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE)

- void SetPresentationContexts (std::vector< PresentationContext > const &pcs)

  Set the Presentation Context used for the Association.

- void SetTimeout (double t)

  set/get Timeout

- bool StartAssociation ()

  Start the association. Need to call SetPresentationContexts before.

- bool StopAssociation ()

  Stop the running association.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.

- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< ServiceClassUser > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.277.1 Detailed Description

ServiceClassUser.

Examples

CStoreQtProgress.cxx.

10.277.2 Constructor & Destructor Documentation

10.277.2.1 ServiceClassUser() [1/2]

```
gdcm::ServiceClassUser::ServiceClassUser ( )
```

Construct a SCU with default:

- hostname = localhost
- port = 104

10.277.2.2 ~ServiceClassUser()

```
gdcm::ServiceClassUser::~ServiceClassUser ( )  [override]
```

10.277.2.3 ServiceClassUser() [2/2]

```
gdcm::ServiceClassUser::ServiceClassUser (
            const ServiceClassUser &  )  [delete]
```

10.277.3 Member Function Documentation

10.277.3.1 GetAETitle()

```
const char * gdcm::ServiceClassUser::GetAETitle ( ) const
```

10.277.3.2 GetCalledAETitle()

```
const char * gdcm::ServiceClassUser::GetCalledAETitle ( ) const
```

10.277.3.3 GetTimeout()

```
double gdcm::ServiceClassUser::GetTimeout ( ) const
```

10.277.3.4 InitializeConnection()

```
bool gdcm::ServiceClassUser::InitializeConnection ( )
```

Will try to connect This will setup the actual timeout used during the whole connection time. Need to call SetTimeout first

Examples

CStoreQtProgress.cxx.

10.277.3.5 IsPresentationContextAccepted()

```
bool gdcm::ServiceClassUser::IsPresentationContextAccepted (
            const PresentationContext & pc ) const
```

Return if the passed in presentation was accepted during association negotiation.

10.277.3.6 New()

```
static SmartPointer< ServiceClassUser > gdcm::ServiceClassUser::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

10.277.3.7 operator=()

```
void gdcm::ServiceClassUser::operator= (
            const ServiceClassUser &  )  [delete]
```

10.277.3.8 SendEcho()

```
bool gdcm::ServiceClassUser::SendEcho ( )
```

C-ECHO.

10.277.3.9 SendFind()

```
bool gdcm::ServiceClassUser::SendFind (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets )
```

C-FIND a query, return result are in retDatasets.

10.277.3.10 SendMove() [1/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            const char * outputdir )
```

Execute a C-MOVE, based on query, return files are written in outputdir.

10.277.3.11 SendMove() [2/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets )
```

Execute a C-MOVE, based on query, returned dataset are Implicit.

10.277.3.12 SendMove() [3/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< File > & retFile )
```

Execute a C-MOVE, based on query, returned Files are stored in vector.

10.277.3.13 SendStore() [1/3]

```
bool gdcm::ServiceClassUser::SendStore (
            const char * filename )
```

Execute a C-STORE on file on disk, named filename.

Examples

CStoreQtProgress.cxx.

10.277.3.14 SendStore() [2/3]

```
bool gdcm::ServiceClassUser::SendStore (
            DataSet const & ds )
```

Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.

10.277.3.15 SendStore() [3/3]

```
bool gdcm::ServiceClassUser::SendStore (
            File const & file )
```

Execute a C-STORE on a File, the transfer syntax used for the query is based on the file.

10.277.3.16 SetAETitle()

```
void gdcm::ServiceClassUser::SetAETitle (
            const char * aetitle )
```

set calling ae title

10.277.3.17 SetCalledAETitle()

```
void gdcm::ServiceClassUser::SetCalledAETitle (
            const char * aetitle )
```

set called ae title

Examples

CStoreQtProgress.cxx.

10.277.3.18 SetHostname()

```
void gdcm::ServiceClassUser::SetHostname (
            const char * hostname )
```

Set the name of the called hostname (hostname or IP address)

Examples

CStoreQtProgress.cxx.

10.277.3.19 SetPort()

```
void gdcm::ServiceClassUser::SetPort (
            uint16_t port )
```

Set port of remote host (called application)

Examples

CStoreQtProgress.cxx.

10.277.3.20 SetPortSCP()

```
void gdcm::ServiceClassUser::SetPortSCP (
            uint16_t portscp )
```

Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE)

10.277.3.21 SetPresentationContexts()

```
void gdcm::ServiceClassUser::SetPresentationContexts (
            std::vector< PresentationContext > const & pcs )
```

Set the Presentation Context used for the Association.

Examples

CStoreQtProgress.cxx.

10.277.3.22 SetTimeout()

```
void gdcm::ServiceClassUser::SetTimeout (
            double t )
```

set/get Timeout

Examples

CStoreQtProgress.cxx.

10.277.3.23 StartAssociation()

```
bool gdcm::ServiceClassUser::StartAssociation ( )
```

Start the association. Need to call SetPresentationContexts before.

Examples

CStoreQtProgress.cxx.

10.277.3.24 StopAssociation()

```
bool gdcm::ServiceClassUser::StopAssociation ( )
```

Stop the running association.

Examples

CStoreQtProgress.cxx.

The documentation for this class was generated from the following file:

- gdcmServiceClassUser.h

10.278 gdcm::SHA1 Class Reference

Class for SHA1.

```
#include <gdcmSHA1.h>
```

Public Member Functions

- SHA1 ()
- SHA1 (const SHA1 &)=delete
- ~SHA1 ()
- void operator= (const SHA1 &)=delete

Static Public Member Functions

- static bool Compute (const char *buffer, unsigned long buf_len, char digest_str[20 *2+1])
- static bool ComputeFile (const char *filename, char digest_str[20 *2+1])

10.278.1 Detailed Description

Class for SHA1.

Warning

this class is able to pick from one implementation:

1. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

10.278.2 Constructor & Destructor Documentation

10.278.2.1 SHA1() [1/2]

```
gdcm::SHA1::SHA1 ( )
```

10.278.2.2 ~SHA1()

```
gdcm::SHA1::~SHA1 ( )
```

10.278.2.3 SHA1() [2/2]

```
gdcm::SHA1::SHA1 (
            const SHA1 &  )  [delete]
```

10.278.3 Member Function Documentation

10.278.3.1 Compute()

```
static bool gdcm::SHA1::Compute (
            const char * buffer,
            unsigned long buf_len,
            char digest_str[20 *2+1] )  [static]
```

10.278.3.2 ComputeFile()

```
static bool gdcm::SHA1::ComputeFile (
            const char * filename,
            char digest_str[20 *2+1] )  [static]
```

10.278.3.3 operator=()

```
void gdcm::SHA1::operator= (
            const SHA1 &  )  [delete]
```

The documentation for this class was generated from the following file:

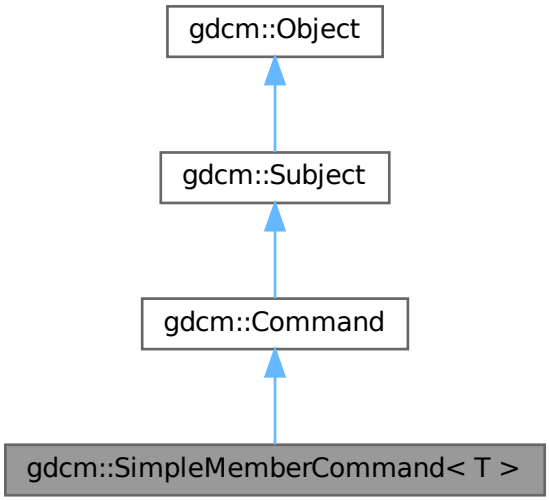
- gdcmSHA1.h

10.279 gdcm::SimpleMemberCommand< T > Class Template Reference

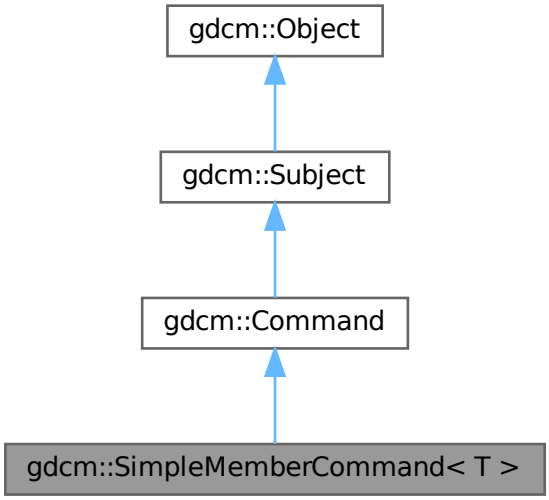
Command subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::SimpleMemberCommand< T >:



Collaboration diagram for gdcm::SimpleMemberCommand< T >:



Public Types

- typedef SimpleMemberCommand Self
- typedef void(T::* TMemberFunctionPointer) ()

Public Member Functions

- SimpleMemberCommand (const Self &)=delete
- void Execute (const Subject *, const Event &) override
- void Execute (Subject *, const Event &) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< SimpleMemberCommand > New ()

Protected Member Functions

- SimpleMemberCommand ()
- ~SimpleMemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TMemberFunctionPointer m_MemberFunction
- T * m_This

10.279.1 Detailed Description

template<typename T>
class gdcm::SimpleMemberCommand< T >

Command subclass that calls a pointer to a member function.

SimpleMemberCommand calls a pointer to a member function with no arguments.

10.279.2 Member Typedef Documentation

10.279.2.1 Self

```
template<typename T >
typedef SimpleMemberCommand gdcm::SimpleMemberCommand< T >::Self
```

Standard class typedefs.

10.279.2.2 TMemberFunctionPointer

```
template<typename T >
typedef void(T::* gdcm::SimpleMemberCommand< T >::TMemberFunctionPointer) ()
```

A method callback.

10.279.3 Constructor & Destructor Documentation

10.279.3.1 SimpleMemberCommand() [1/2]

```
template<typename T >
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand (
            const Self & ) [delete]
```

10.279.3.2 SimpleMemberCommand() [2/2]

```
template<typename T >
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand ( ) [inline], [protected]
```

Referenced by gdcm::SimpleMemberCommand< T >::New().

10.279.3.3 ~SimpleMemberCommand()

```
template<typename T >
gdcm::SimpleMemberCommand< T >::~SimpleMemberCommand ( ) [override], [protected], [default]
```

10.279.4 Member Function Documentation

10.279.4.1 Execute() [1/2]

```
template<typename T >
void gdcm::SimpleMemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event )  [inline], [override], [virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implements gdcm::Command.

References gdcm::SimpleMemberCommand< T >::m_MemberFunction.

10.279.4.2 Execute() [2/2]

```
template<typename T >
void gdcm::SimpleMemberCommand< T >::Execute (
            Subject * ,
            const Event &  )  [inline], [override], [virtual]
```

Invoke the callback function.

Implements gdcm::Command.

References gdcm::SimpleMemberCommand< T >::m_MemberFunction.

10.279.4.3 New()

```
template<typename T >
static SmartPointer< SimpleMemberCommand > gdcm::SimpleMemberCommand< T >::New ( )  [inline],
[static]
```

Run-time type information (and related methods). Method for creation through the object factory.

References gdcm::SimpleMemberCommand< T >::SimpleMemberCommand().

10.279.4.4 operator=()

```
template<typename T >
void gdcm::SimpleMemberCommand< T >::operator= (
            const Self &  )  [delete]
```

10.279.4.5 SetCallbackFunction()

```
template<typename T >
void gdcm::SimpleMemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction )  [inline]
```

Specify the callback function.

References gdcm::SimpleMemberCommand< T >::m_MemberFunction, and gdcm::SimpleMemberCommand< T >::m_This.

10.279.5 Member Data Documentation

10.279.5.1 m_MemberFunction

```
template<typename T >
TMemberFunctionPointer gdcm::SimpleMemberCommand< T >::m_MemberFunction  [protected]
```

Referenced by gdcm::SimpleMemberCommand< T >::Execute(), gdcm::SimpleMemberCommand< T >::Execute(), and gdcm::SimpleMemberCommand< T >::SetCallbackFunction().

10.279.5.2 m_This

```
template<typename T >
T* gdcm::SimpleMemberCommand< T >::m_This  [protected]
```

Referenced by gdcm::SimpleMemberCommand< T >::SetCallbackFunction().

The documentation for this class was generated from the following file:

- gdcmCommand.h

10.280 gdcm::SimpleSubjectWatcher Class Reference

SimpleSubjectWatcher.

```
#include <gdcmSimpleSubjectWatcher.h>
```

Public Member Functions

- SimpleSubjectWatcher (const SimpleSubjectWatcher &)=delete
- SimpleSubjectWatcher (Subject *s, const char *comment="")
- virtual ~SimpleSubjectWatcher ()
- void operator= (const SimpleSubjectWatcher &)=delete

Protected Member Functions

- virtual void EndFilter ()
- virtual void ShowAbort ()
- virtual void ShowAnonymization (Subject ∗caller, const Event &evt)
- virtual void ShowData (Subject ∗caller, const Event &evt)
- virtual void ShowDataSet (Subject ∗caller, const Event &evt)
- virtual void ShowFileName (Subject ∗caller, const Event &evt)
- virtual void ShowIteration ()
- virtual void ShowProgress (Subject ∗caller, const Event &evt)
- virtual void StartFilter ()
- void TestAbortOff ()
- void TestAbortOn ()

10.280.1 Detailed Description

SimpleSubjectWatcher.

This is a typical Subject Watcher class. It will observe all events.

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, FileChangeTS.cs, FileChangeTSLossy.cs, ScanDirectory.cs, and SimpleScanner.cxx.

10.280.2 Constructor & Destructor Documentation

10.280.2.1 SimpleSubjectWatcher() [1/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            Subject * s,
            const char * comment = "" )
```

10.280.2.2 ∼SimpleSubjectWatcher()

```
virtual gdcm::SimpleSubjectWatcher::~SimpleSubjectWatcher ( )  [virtual]
```

10.280.2.3 SimpleSubjectWatcher() [2/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            const SimpleSubjectWatcher &  )  [delete]
```

10.280.3 Member Function Documentation

10.280.3.1 EndFilter()

```
virtual void gdcm::SimpleSubjectWatcher::EndFilter ( ) [protected], [virtual]
```

10.280.3.2 operator=()

```
void gdcm::SimpleSubjectWatcher::operator= (
            const SimpleSubjectWatcher & ) [delete]
```

10.280.3.3 ShowAbort()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAbort ( ) [protected], [virtual]
```

10.280.3.4 ShowAnonymization()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAnonymization (
            Subject * caller,
            const Event & evt ) [protected], [virtual]
```

10.280.3.5 ShowData()

```
virtual void gdcm::SimpleSubjectWatcher::ShowData (
            Subject * caller,
            const Event & evt ) [protected], [virtual]
```

10.280.3.6 ShowDataSet()

```
virtual void gdcm::SimpleSubjectWatcher::ShowDataSet (
            Subject * caller,
            const Event & evt ) [protected], [virtual]
```

10.280.3.7 ShowFileName()

```
virtual void gdcm::SimpleSubjectWatcher::ShowFileName (
            Subject * caller,
            const Event & evt ) [protected], [virtual]
```

Examples

SimpleScanner.cxx.

10.280.3.8 ShowIteration()

```
virtual void gdcm::SimpleSubjectWatcher::ShowIteration ( )  [protected], [virtual]
```

10.280.3.9 ShowProgress()

```
virtual void gdcm::SimpleSubjectWatcher::ShowProgress (
            Subject * caller,
            const Event & evt )  [protected], [virtual]
```

10.280.3.10 StartFilter()

```
virtual void gdcm::SimpleSubjectWatcher::StartFilter ( )  [protected], [virtual]
```

10.280.3.11 TestAbortOff()

```
void gdcm::SimpleSubjectWatcher::TestAbortOff ( )  [protected]
```

10.280.3.12 TestAbortOn()

```
void gdcm::SimpleSubjectWatcher::TestAbortOn ( )  [protected]
```

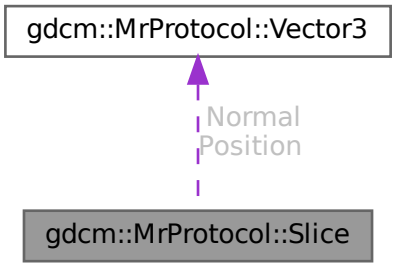
The documentation for this class was generated from the following file:

- gdcmSimpleSubjectWatcher.h

10.281 gdcm::MrProtocol::Slice Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::Slice:



Public Attributes

- Vector3 Normal
- Vector3 Position

10.281.1 Member Data Documentation

10.281.1.1 Normal

```
Vector3 gdcm::MrProtocol::Slice::Normal
```

10.281.1.2 Position

```
Vector3 gdcm::MrProtocol::Slice::Position
```

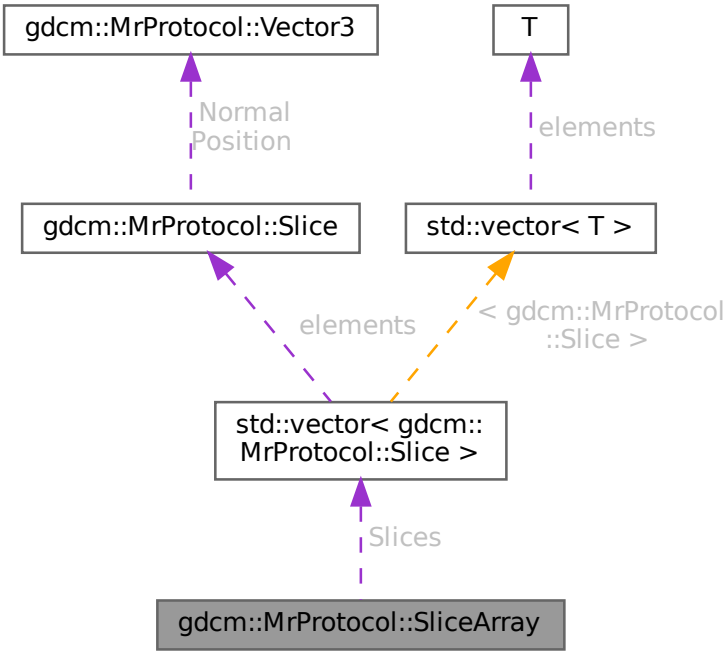
The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

10.282 gdcm::MrProtocol::SliceArray Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::SliceArray:



Public Attributes

- std::vector< Slice > Slices

10.282.1 Member Data Documentation

10.282.1.1 Slices

```
std::vector< Slice > gdcm::MrProtocol::SliceArray::Slices
```

The documentation for this struct was generated from the following file:

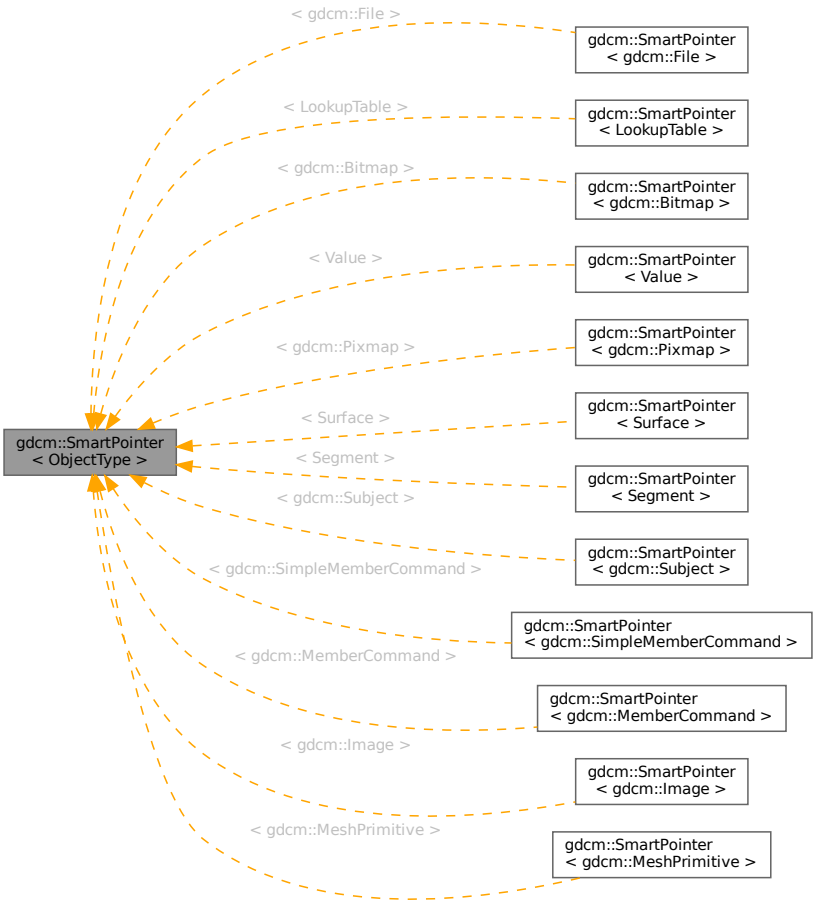
- gdcmMrProtocol.h

10.283 gdcm::SmartPointer< ObjectType > Class Template Reference

Class for Smart Pointer.

```
#include <gdcmSmartPointer.h>
```

Inheritance diagram for gdcm::SmartPointer< ObjectType >:



Public Member Functions

- SmartPointer ()
- SmartPointer (const SmartPointer< ObjectType > &p)
- SmartPointer (ObjectType *p)
- SmartPointer (ObjectType const &p)
- ~SmartPointer ()
- ObjectType * GetPointer () const

  Explicit function to retrieve the pointer.
- operator ObjectType * () const

  Return pointer to object.
- ObjectType & operator* () const
- ObjectType * operator-> () const

  Overload operator ->
- SmartPointer & operator= (ObjectType *r)

  Overload operator assignment.
- SmartPointer & operator= (ObjectType const &r)
- SmartPointer & operator= (SmartPointer const &r)

  Overload operator assignment.

10.283.1 Detailed Description

template<class ObjectType>
class gdcm::SmartPointer< ObjectType >

Class for Smart Pointer.

Will only work for subclass of gdcm::Object See tr1/shared_ptr for a more general approach (not invasive) #include <tr1/memory> { shared_ptr<Bla> b(new Bla); }

Note

Class partly based on post by Bill Hubauer: `http://groups.google.com/group/comp.lang.c++/msg/173ddc38a827a930`

See also

`http://www.davethehat.com/articles/smartp.htm`

and itk::SmartPointer

Examples

CStoreQtProgress.cxx, ChangeSequenceUltrasound.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_ FixBrokenJ2K.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, SimpleScanner.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.283.2 Constructor & Destructor Documentation

10.283.2.1 SmartPointer() [1/4]

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::SmartPointer ( ) [inline]
```

10.283.2.2 SmartPointer() [2/4]

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::SmartPointer (
            const SmartPointer< ObjectType > & p ) [inline]
```

10.283.2.3 SmartPointer() [3/4]

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType * p ) [inline]
```

10.283.2.4 SmartPointer() [4/4]

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType const & p ) [inline]
```

10.283.2.5 ~SmartPointer()

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::~SmartPointer ( ) [inline]
```

10.283.3 Member Function Documentation

10.283.3.1 GetPointer()

```
template<class ObjectType >
ObjectType * gdcm::SmartPointer< ObjectType >::GetPointer ( ) const [inline]
```

Explicit function to retrieve the pointer.

10.283.3.2 operator ObjectType *()

```
template<class ObjectType >
gdcm::SmartPointer< ObjectType >::operator ObjectType * ( ) const  [inline]
```

Return pointer to object.

10.283.3.3 operator*()

```
template<class ObjectType >
ObjectType & gdcm::SmartPointer< ObjectType >::operator* ( ) const  [inline]
```

10.283.3.4 operator->()

```
template<class ObjectType >
ObjectType * gdcm::SmartPointer< ObjectType >::operator-> ( ) const  [inline]
```

Overload operator ->

10.283.3.5 operator=() [1/3]

```
template<class ObjectType >
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType * r )  [inline]
```

Overload operator assignment.

10.283.3.6 operator=() [2/3]

```
template<class ObjectType >
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType const & r )  [inline]
```

References gdcm::SmartPointer< ObjectType >::operator=().

10.283.3.7 operator=() [3/3]

```
template<class ObjectType >
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            SmartPointer< ObjectType > const & r )  [inline]
```

Overload operator assignment.

References gdcm::SmartPointer< ObjectType >::operator=().

Referenced by gdcm::SmartPointer< ObjectType >::operator=(), and gdcm::SmartPointer< ObjectType >::operator=().

The documentation for this class was generated from the following files:

- gdcmObject.h
- gdcmSmartPointer.h

10.284 gdcm::network::SOPClassExtendedNegociationSub Class Reference

SOPClassExtendedNegociationSub.

```
#include <gdcmSOPClassExtendedNegociationSub.h>
```

Public Member Functions

- SOPClassExtendedNegociationSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t levelofsupport=3, uint8_t levelofdigitalsig=0, uint8_t elementcoercion=2)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.284.1 Detailed Description

SOPClassExtendedNegociationSub.

PS 3.7 Table D.3-11 SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-↩ ASSOCIATE-AC)

10.284.2 Constructor & Destructor Documentation

10.284.2.1 SOPClassExtendedNegociationSub()

```
gdcm::network::SOPClassExtendedNegociationSub::SOPClassExtendedNegociationSub ( )
```

10.284.3 Member Function Documentation

10.284.3.1 Print()

```
void gdcm::network::SOPClassExtendedNegociationSub::Print (
            std::ostream & os ) const
```

10.284.3.2 Read()

```
std::istream & gdcm::network::SOPClassExtendedNegociationSub::Read (
            std::istream & is )
```

10.284.3.3 SetTuple()

```
void gdcm::network::SOPClassExtendedNegociationSub::SetTuple (
            const char * uid,
            uint8_t levelofsupport = 3,
            uint8_t levelofdigitalsig = 0,
            uint8_t elementcoercion = 2 )
```

10.284.3.4 Size()

```
size_t gdcm::network::SOPClassExtendedNegociationSub::Size ( ) const
```

10.284.3.5 Write()

```
const std::ostream & gdcm::network::SOPClassExtendedNegociationSub::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmSOPClassExtendedNegociationSub.h

10.285 gdcm::SOPClassUIDToIOD Class Reference

Class convert a class SOP Class UID into IOD.

```
#include <gdcmSOPClassUIDToIOD.h>
```

Public Types

- typedef const char ∗ const(SOPClassUIDToIODType)[2]

Static Public Member Functions

- static const char ∗ GetIOD (UIDs const &uid)
- static const char ∗ GetIODFromSOPClassUID (const char ∗sopclassuid)
- static unsigned int GetNumberOfSOPClassToIOD ()

  Return the number of SOP Class UID listed internally.
- static const char ∗ GetSOPClassUIDFromIOD (const char ∗iod)
- static SOPClassUIDToIODType & GetSOPClassUIDToIOD (unsigned int i)
- static SOPClassUIDToIODType ∗ GetSOPClassUIDToIODs ()

10.285.1 Detailed Description

Class convert a class SOP Class UID into IOD.

Reference PS 3.4 Table B.5-1 STANDARD SOP CLASSES

10.285.2 Member Typedef Documentation

10.285.2.1 const

```
typedef const char * gdcm::SOPClassUIDToIOD::const(SOPClassUIDToIODType)[2]
```

10.285.3 Member Function Documentation

10.285.3.1 GetIOD()

```
static const char * gdcm::SOPClassUIDToIOD::GetIOD (
            UIDs const & uid )  [static]
```

Return the associated IOD based on a SOP Class UID uid (there is a one-to-one mapping from SOP Class UID to matching IOD)

Examples

GenerateStandardSOPClasses.cxx.

10.285.3.2 GetIODFromSOPClassUID()

```
static const char * gdcm::SOPClassUIDToIOD::GetIODFromSOPClassUID (
            const char * sopclassuid )  [static]
```

10.285.3.3 GetNumberOfSOPClassToIOD()

```
static unsigned int gdcm::SOPClassUIDToIOD::GetNumberOfSOPClassToIOD ( )  [static]
```

Return the number of SOP Class UID listed internally.

10.285.3.4 GetSOPClassUIDFromIOD()

```
static const char * gdcm::SOPClassUIDToIOD::GetSOPClassUIDFromIOD (
            const char * iod )  [static]
```

10.285.3.5 GetSOPClassUIDToIOD()

```
static SOPClassUIDToIODType & gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIOD (
            unsigned int i )  [static]
```

10.285.3.6 GetSOPClassUIDToIODs()

```
static SOPClassUIDToIODType * gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIODs ( )  [static]
```

The documentation for this class was generated from the following file:

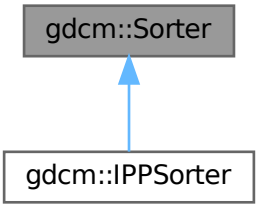
- gdcmSOPClassUIDToIOD.h

10.286 gdcm::Sorter Class Reference

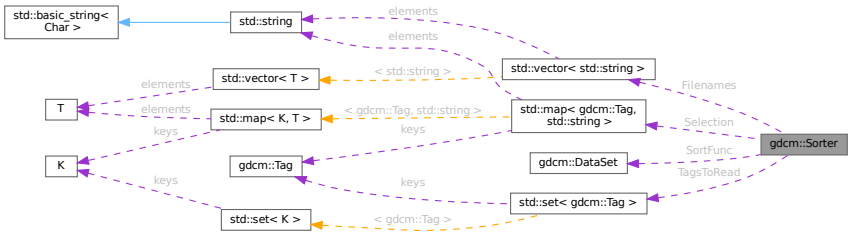
Sorter.

```
#include <gdcmSorter.h>
```

Inheritance diagram for gdcm::Sorter:



Collaboration diagram for gdcm::Sorter:



Public Types

- typedef bool(∗ SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Public Member Functions

- Sorter ()
- virtual ∼Sorter ()
- bool AddSelect (Tag const &tag, const char ∗value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool Sort (std::vector< std::string > const &filenames)

  Typically the output of Directory::GetFilenames()
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Types

- typedef std::map< Tag, std::string > SelectionMap

Protected Attributes

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Friends

- std::ostream & operator<< (std::ostream &_os, const Sorter &s)

10.286.1 Detailed Description

Sorter.

General class to do sorting using a custom function You simply need to provide a function of type: Sorter::SortFunction

Warning

implementation details. For now there is no cache mechanism. Which means that every time you call Sort, all files specified as input parameter are *read*

See also

Scanner

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

10.286.2 Member Typedef Documentation

10.286.2.1 SelectionMap

```
typedef std::map<Tag,std::string> gdcm::Sorter::SelectionMap  [protected]
```

10.286.2.2 SortFunction

```
typedef bool(* gdcm::Sorter::SortFunction) (DataSet const &, DataSet const &)
```

Set the sort function which compares one dataset to the other.

10.286.3 Constructor & Destructor Documentation

10.286.3.1 Sorter()

```
gdcm::Sorter::Sorter ( )
```

10.286.3.2 ~Sorter()

```
virtual gdcm::Sorter::~Sorter ( )  [virtual]
```

10.286.4 Member Function Documentation

10.286.4.1 AddSelect()

```
bool gdcm::Sorter::AddSelect (
            Tag const & tag,
            const char * value )
```

UNSUPPORTED FOR NOW.

10.286.4.2 GetFilenames()

```
const std::vector< std::string > & gdcm::Sorter::GetFilenames ( ) const  [inline]
```

Return the list of filenames as sorted by the specific algorithm used. Empty by default (before Sort() is called)

Examples

Compute3DSpacing.cxx, SortImage.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

10.286.4.3 Print()

```
void gdcm::Sorter::Print (
            std::ostream & os ) const
```

Print.

Examples

SortImage.cxx, VolumeSorter.cxx, and gdcmorthoplanes.cxx.

10.286.4.4 SetSortFunction()

```
void gdcm::Sorter::SetSortFunction (
            SortFunction f )
```

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

10.286.4.5 SetTagsToRead()

```
void gdcm::Sorter::SetTagsToRead (
            std::set< Tag > const & tags )
```

Specify a set of tags to be read in during the sort procedure. By default this set is empty, in which case the entire image, including pixel data, is read in.

10.286.4.6 Sort()

```
virtual bool gdcm::Sorter::Sort (
            std::vector< std::string > const & filenames )  [virtual]
```

Typically the output of Directory::GetFilenames()

Reimplemented in gdcm::IPPSorter.

Examples

SortImage.cxx.

10.286.4.7 StableSort()

```
virtual bool gdcm::Sorter::StableSort (
            std::vector< std::string > const & filenames )  [virtual]
```

Examples

SortImage.cxx, and VolumeSorter.cxx.

10.286.5 Friends And Related Symbol Documentation

10.286.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Sorter & s )  [friend]
```

10.286.6 Member Data Documentation

10.286.6.1 Filenames

```
std::vector<std::string> gdcm::Sorter::Filenames  [protected]
```

10.286.6.2 Selection

```
std::map<Tag,std::string> gdcm::Sorter::Selection  [protected]
```

10.286.6.3 SortFunc

```
SortFunction gdcm::Sorter::SortFunc  [protected]
```

10.286.6.4 TagsToRead

```
std::set<Tag> gdcm::Sorter::TagsToRead  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSorter.h

10.287 gdcm::Spacing Class Reference

Class for Spacing.

```
#include <gdcmSpacing.h>
```

Public Types

- enum SpacingType {
  DETECTOR = 0 ,
  MAGNIFIED ,
  CALIBRATED ,
  UNKNOWN }

Public Member Functions

- Spacing ()
- ~Spacing ()=default

Static Public Member Functions

- static Attribute< 0x28, 0x34 > ComputePixelAspectRatioFromPixelSpacing (const Attribute< 0x28, 0x30 > &pixelspacing)

10.287.1 Detailed Description

Class for Spacing.

It all began with a mail to WG6:

Subject: Imager Pixel Spacing vs Pixel Spacing Body: [Apologies for the duplicate post, namely to David Clunie & OFFIS team]

I have been trying to understand CP-586 in the following two cases:

On the one hand:

- DISCIMG/IMAGES/CRIMAGE taken from `http://dclunie.com/images/pixelspacingtestimages.zip`

And on the other hand:

- `http://gdcm.sourceforge.net/thingies/cr_pixelspacing.dcm`

If I understand correctly the CP, one is required to use Pixel Spacing for measurement ('true size' print) instead of Imager Pixel Spacing, since the two attributes are present and Pixel Spacing is different from Imager Pixel Spacing.

If this is correct, then the test data DISCIMG/IMAGES/CRIMAGE is incorrect. If this is incorrect (ie. I need to use Imager Pixel Spacing), then the display of cr_pixelspacing.dcm for measurement will be incorrect.

Could someone please let me know what am I missing here? I could not find any information in any header that would allow me to differentiate those.

Thank you for your time,

Ref: `http://lists.nema.org/scripts/lyris.pl?sub=488573&id=400720477`

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES

Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio values do not have a ratio of 1:1 and the physical pixel spacing is not specified by Pixel Spacing (0028,0030), or Imager Pixel Spacing (0018,1164) or Nominal Scanned Pixel Spacing (0018,2010), either for the entire Image or per-frame in a Functional Group Macro. See C.7.6.3.1.7.

PS 3.3-2008 10.7.1.3 Pixel Spacing Value Order and Valid Values All pixel spacing related attributes shall have non-zero values, except when there is only a single row or column or pixel of data present, in which case the corresponding value may be zero.

Ref: `http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

10.287.2 Member Enumeration Documentation

10.287.2.1 SpacingType

`enum gdcm::Spacing::SpacingType`

Enumerator

DETECTOR	
MAGNIFIED	
CALIBRATED	
UNKNOWN	

10.287.3 Constructor & Destructor Documentation

10.287.3.1 Spacing()

`gdcm::Spacing::Spacing ( )`

10.287.3.2 ~Spacing()

```
gdcm::Spacing::~Spacing ( ) [default]
```

10.287.4 Member Function Documentation

10.287.4.1 ComputePixelAspectRatioFromPixelSpacing()

```
static Attribute< 0x28, 0x34 > gdcm::Spacing::ComputePixelAspectRatioFromPixelSpacing (
            const Attribute< 0x28, 0x30 > & pixelspacing ) [static]
```

The documentation for this class was generated from the following file:

- gdcmSpacing.h

10.288 gdcm::Spectroscopy Class Reference

Spectroscopy class.

```
#include <gdcmSpectroscopy.h>
```

Public Member Functions

- Spectroscopy ()=default

10.288.1 Detailed Description

Spectroscopy class.

10.288.2 Constructor & Destructor Documentation

10.288.2.1 Spectroscopy()

```
gdcm::Spectroscopy::Spectroscopy ( ) [default]
```

The documentation for this class was generated from the following file:

- gdcmSpectroscopy.h

10.289 gdcm::SplitMosaicFilter Class Reference

SplitMosaicFilter class.

```
#include <gdcmSplitMosaicFilter.h>
```

Public Member Functions

- SplitMosaicFilter ()
- ~SplitMosaicFilter ()
- bool ComputeMOSAICDimensions (unsigned int dims[3])
- bool ComputeMOSAICImagePositionPatient (double pos[3], const double ipp[6], const double dircos[6], const double pixelspacing[3], const unsigned int image_dims[3], const unsigned int mosaic_dims[3], bool inverted)

  Extract the value for ImagePositionPatient.
- bool ComputeMOSAICSliceNormal (double dims[3], bool &inverted)

  Extract the value for SliceNormalVector (CSA header)
- bool ComputeMOSAICSlicePosition (double pos[3], bool inverted)
- File & GetFile ()
- const File & GetFile () const
- Image & GetImage ()
- const Image & GetImage () const
- void SetFile (const File &f)
- void SetImage (const Image &image)
- bool Split ()

  Split the SIEMENS MOSAIC image.

Static Public Member Functions

- static bool GetAcquisitionSize (unsigned int size[2], DataSet const &ds)

  Get the Acquisition Matrix (non zero value):
- static unsigned int GetNumberOfImagesInMosaic (File const &file)

  Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

10.289.1 Detailed Description

SplitMosaicFilter class.

Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA Image Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture

Warning

when private attributes are not found, the acquisition matrix is used to compute the NumberOfImagesInMosaic. This means trailing black slices will be considered in the volume (instead of discarded). CSA 0029,1010 is needed for correct NumberOfImagesInMosaic CSA 0029,1020 is needed to compute the correct origin without above info default are taken (may not be accurate).

10.289.2 Constructor & Destructor Documentation

10.289.2.1 SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::SplitMosaicFilter ( )
```

10.289.2.2 ∼SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::∼SplitMosaicFilter ( )
```

10.289.3 Member Function Documentation

10.289.3.1 ComputeMOSAICDimensions()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICDimensions (
            unsigned int dims[3] )
```

Compute the new dimensions according to private information stored in the MOSAIC header.

10.289.3.2 ComputeMOSAICImagePositionPatient()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICImagePositionPatient (
            double pos[3],
            const double ipp[6],
            const double dircos[6],
            const double pixelspacing[3],
            const unsigned int image_dims[3],
            const unsigned int mosaic_dims[3],
            bool inverted )
```

Extract the value for ImagePositionPatient.

10.289.3.3 ComputeMOSAICSliceNormal()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSliceNormal (
            double dims[3],
            bool & inverted )
```

Extract the value for SliceNormalVector (CSA header)

10.289.3.4 ComputeMOSAICSlicePosition()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSlicePosition (
            double pos[3],
            bool inverted )
```

Extract the value for ImagePositionPatient (requires inverted flag) Deprecated

10.289.3.5 GetAcquisitionSize()

```
static bool gdcm::SplitMosaicFilter::GetAcquisitionSize (
            unsigned int size[2],
            DataSet const & ds )  [static]
```

Get the Acquisition Matrix (non zero value):

10.289.3.6 GetFile() [1/2]

```
File & gdcm::SplitMosaicFilter::GetFile ( )  [inline]
```

10.289.3.7 GetFile() [2/2]

```
const File & gdcm::SplitMosaicFilter::GetFile ( ) const  [inline]
```

10.289.3.8 GetImage() [1/2]

```
Image & gdcm::SplitMosaicFilter::GetImage ( )  [inline]
```

10.289.3.9 GetImage() [2/2]

```
const Image & gdcm::SplitMosaicFilter::GetImage ( ) const  [inline]
```

10.289.3.10 GetNumberOfImagesInMosaic()

```
static unsigned int gdcm::SplitMosaicFilter::GetNumberOfImagesInMosaic (
            File const & file )  [static]
```

Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

10.289.3.11 SetFile()

```
void gdcm::SplitMosaicFilter::SetFile (
            const File & f )  [inline]
```

10.289.3.12 SetImage()

```
void gdcm::SplitMosaicFilter::SetImage (
            const Image & image )
```

10.289.3.13 Split()

```
bool gdcm::SplitMosaicFilter::Split ( )
```

Split the SIEMENS MOSAIC image.

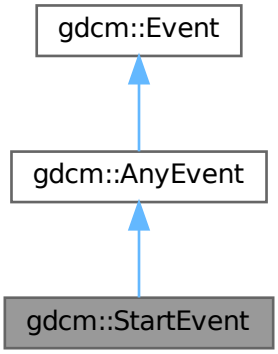
The documentation for this class was generated from the following file:

- gdcmSplitMosaicFilter.h

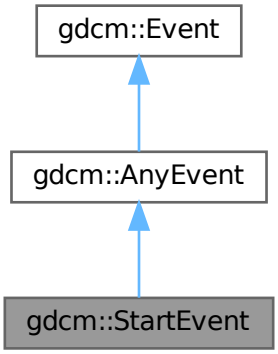
10.290 gdcm::StartEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::StartEvent:



Collaboration diagram for gdcm::StartEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.291 gdcm::static_assert_test< x > Struct Template Reference

```
#include <gdcmStaticAssert.h>
```

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

10.292 gdcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

10.293 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Reference

```
#include <gdcmStaticAssert.h>
```

Public Types

- enum { value = 1 }

10.293.1 Member Enumeration Documentation

10.293.1.1 anonymous enum

```
anonymous enum
```

Enumerator

value	

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

10.294 gdcm::StreamImageReader Class Reference

StreamImageReader.

```
#include <gdcmStreamImageReader.h>
```

Public Member Functions

- StreamImageReader ()
- virtual ~StreamImageReader ()
- bool CanReadImage () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength () const
- std::vector< unsigned int > GetDimensionsValueForResolution (unsigned int)
- File const & GetFile () const
- bool Read (char *inReadBuffer, const std::size_t &inBufferLength)
- virtual bool ReadImageInformation ()
- void SetFileName (const char *inFileName)
- void SetStream (std::istream &inStream)

10.294.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is thread safe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.2 Constructor & Destructor Documentation

10.294.2.1 StreamImageReader()

```
gdcm::StreamImageReader::StreamImageReader ( )
```

10.294.2.2 ~StreamImageReader()

```
virtual gdcm::StreamImageReader::~StreamImageReader ( ) [virtual]
```

10.294.3 Member Function Documentation

10.294.3.1 CanReadImage()

```
bool gdcm::StreamImageReader::CanReadImage ( ) const
```

Only RAW images are currently readable by the stream reader. As more streaming codecs are added, then this function will be updated to reflect those changes. Calling this function prior to reading will ensure that only streamable files are streamed. Make sure to call ReadImageInformation prior to calling this function.

Examples

StreamImageReaderTest.cxx.

10.294.3.2 DefinePixelExtent()

```
void gdcm::StreamImageReader::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1 )
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageReader::DefineProperBufferLength ( ) const
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. Call this function to determine the size of the char∗ buffer that will need to be passed in to ReadImageSubregion(). If the return is 0, then that means that the pixel extent was not defined prior

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.4 GetDimensionsValueForResolution()

```
std::vector< unsigned int > gdcm::StreamImageReader::GetDimensionsValueForResolution (
            unsigned int  )
```

10.294.3.5 GetFile()

```
File const & gdcm::StreamImageReader::GetFile ( ) const
```

Returns the dataset read by ReadImageInformation Couple this with the ImageHelper to get statistics about the image, like pixel extent, to be able to initialize buffers for reading

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.6 Read()

```
bool gdcm::StreamImageReader::Read (
            char * inReadBuffer,
            const std::size_t & inBufferLength )
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from char∗ to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.7 ReadImageInformation()

```
virtual bool gdcm::StreamImageReader::ReadImageInformation ( )  [virtual]
```

Set the spacing and dimension information for the set filename. returns false if the file is not initialized or not an image, with the pixel (7fe0,0010) tag.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.8 SetFileName()

```
void gdcm::StreamImageReader::SetFileName (
            const char * inFileName )
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

10.294.3.9 SetStream()

```
void gdcm::StreamImageReader::SetStream (
            std::istream & inStream )
```

The documentation for this class was generated from the following file:

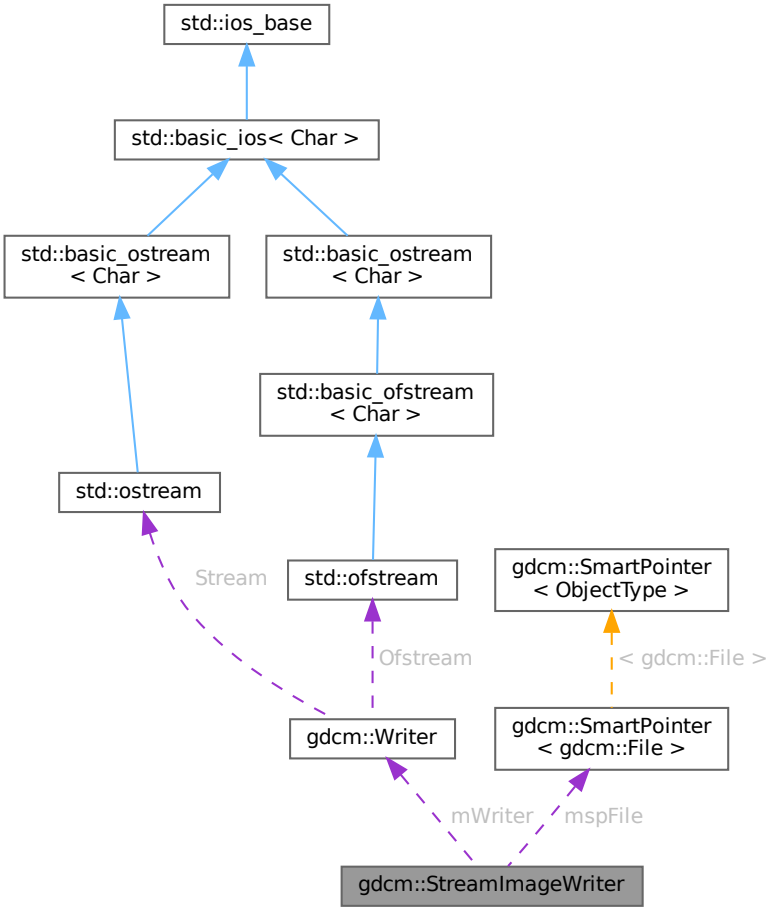
- gdcmStreamImageReader.h

10.295 gdcm::StreamImageWriter Class Reference

StreamImageReader.

```
#include <gdcmStreamImageWriter.h>
```

Collaboration diagram for gdcm::StreamImageWriter:



Public Member Functions

- StreamImageWriter ()
- virtual ~StreamImageWriter ()
- bool CanWriteFile () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength ()
- void SetFile (const File &inFile)
- void SetFileName (const char *inFileName)
- void SetStream (std::ostream &inStream)
- bool Write (void *inWriteBuffer, const std::size_t &inBufferLength)
- virtual bool WriteImageInformation ()

Protected Member Functions

- virtual bool WriteImageSubregionRAW (char ∗inWriteBuffer, const std::size_t &inBufferLength)
- int WriteRawHeader (RAWCodec ∗inCodec, std::ostream ∗inStream)

Protected Attributes

- int mElementOffsets
- int mElementOffsets1
- SmartPointer< File > mspFile
- Writer mWriter
- uint16_t mXMax
- uint16_t mXMin
- uint16_t mYMax
- uint16_t mYMin
- uint16_t mZMax
- uint16_t mZMin

10.295.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is threadsafe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.2 Constructor & Destructor Documentation

10.295.2.1 StreamImageWriter()

```
gdcm::StreamImageWriter::StreamImageWriter ( )
```

10.295.2.2 ∼StreamImageWriter()

```
virtual gdcm::StreamImageWriter::~StreamImageWriter ( )  [virtual]
```

10.295.3 Member Function Documentation

10.295.3.1 CanWriteFile()

```
bool gdcm::StreamImageWriter::CanWriteFile ( ) const
```

This function determines if a file can even be written using the streaming writer unlike the reader, can be called before WriteImageInformation, but must be called after SetFile.

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

10.295.3.2 DefinePixelExtent()

```
void gdcm::StreamImageWriter::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1 )
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation. 15 nov 2010: added z dimension, defaults to being 1 plane large

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageWriter::DefineProperBufferLength ( )
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. If the return is 0, then that means that the pixel extent was not defined prior this return is for RAW inputs which are then encoded by the writer, but are used to ensure that the writer gets the proper buffer size

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.4 SetFile()

```
void gdcm::StreamImageWriter::SetFile (
            const File & inFile )
```

Set the image information to be written to disk that is everything but the pixel information: (7fe0,0010) PixelData

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.5 SetFileName()

```
void gdcm::StreamImageWriter::SetFileName (
            const char * inFileName )
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

10.295.3.6 SetStream()

```
void gdcm::StreamImageWriter::SetStream (
            std::ostream & inStream )
```

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.7 Write()

```
bool gdcm::StreamImageWriter::Write (
            void * inWriteBuffer,
            const std::size_t & inBufferLength )
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from void∗ to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.8 WriteImageInformation()

```
virtual bool gdcm::StreamImageWriter::WriteImageInformation ( ) [virtual]
```

Write the header information to disk, and a bunch of zeros for the actual pixel information Of course, if we're doing a non-compressed format, that works but if it's compressed, we have to force the ordering of chunks that are written.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.295.3.9 WriteImageSubregionRAW()

```
virtual bool gdcm::StreamImageWriter::WriteImageSubregionRAW (
            char * inWriteBuffer,
            const std::size_t & inBufferLength ) [protected], [virtual]
```

Using the min, max, etc set by DefinePixelExtent, this will fill the given buffer Make sure to call DefinePixelExtent and to initialize the buffer with the amount given by DefineProperBufferLength prior to calling this. reads by the RAW codec; other codecs are added once implemented

10.295.3.10 WriteRawHeader()

```
int gdcm::StreamImageWriter::WriteRawHeader (
            RAWCodec * inCodec,
            std::ostream * inStream ) [protected]
```

when writing a raw file, we know the full extent, and can just write the first 12 bytes out (the tag, the VR, and the size) when we do compressed files, we'll do it in chunks, as described in 2009-3, part 5, Annex A, section 4. Pass the raw codec so that in the rare case of a bigendian explicit raw, the first 12 bytes written out should still be kosher. returns -1 if there's any failure, or the complete offset (12 bytes) if it works. Those 12 bytes are then added to the position in order to determine where to write.

10.295.4 Member Data Documentation

10.295.4.1 mElementOffsets

```
int gdcm::StreamImageWriter::mElementOffsets [protected]
```

The result of WriteRawHeader (or another header, when that's implemented) This result is saved so that the first N bytes aren't constantly being rewritten for each chunk that's passed in. For compressed data, the offset table will require rewrites of data.

10.295.4.2 mElementOffsets1

```
int gdcm::StreamImageWriter::mElementOffsets1 [protected]
```

10.295.4.3 mspFile

```
SmartPointer<File> gdcm::StreamImageWriter::mspFile [protected]
```

10.295.4.4 mWriter

```
Writer gdcm::StreamImageWriter::mWriter [protected]
```

10.295.4.5 mXMax

```
uint16_t gdcm::StreamImageWriter::mXMax [protected]
```

10.295.4.6 mXMin

```
uint16_t gdcm::StreamImageWriter::mXMin [protected]
```

10.295.4.7 mYMax

```
uint16_t gdcm::StreamImageWriter::mYMax [protected]
```

10.295.4.8 mYMin

```
uint16_t gdcm::StreamImageWriter::mYMin [protected]
```

10.295.4.9 mZMax

```
uint16_t gdcm::StreamImageWriter::mZMax [protected]
```

10.295.4.10 mZMin

```
uint16_t gdcm::StreamImageWriter::mZMin [protected]
```

The documentation for this class was generated from the following file:

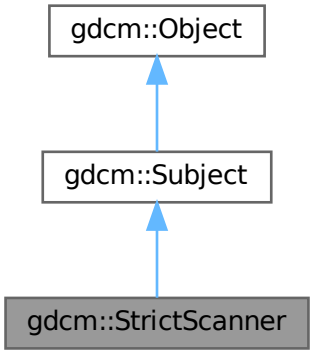
- gdcmStreamImageWriter.h

10.296 gdcm::StrictScanner Class Reference

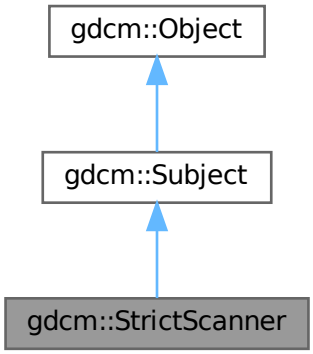
StrictScanner.

```
#include <gdcmStrictScanner.h>
```

Inheritance diagram for gdcm::StrictScanner:



Collaboration diagram for gdcm::StrictScanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner ()
- ~StrictScanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level skip tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const
- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char * GetValue (const char *filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order)
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner &s)

10.296.1 Detailed Description

StrictScanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.296.2 Member Typedef Documentation

10.296.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::StrictScanner::ConstIterator
```

10.296.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::StrictScanner::MappingType
```

10.296.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::StrictScanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char $*$ and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) $<=$ sizeof(pointer)

10.296.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::StrictScanner::TagToValueValueType
```

10.296.2.5 ValuesType

```
typedef std::set< std::string > gdcm::StrictScanner::ValuesType
```

10.296.3 Constructor & Destructor Documentation

10.296.3.1 StrictScanner()

```
gdcm::StrictScanner::StrictScanner ( )  [inline]
```

10.296.3.2 ~StrictScanner()

```
gdcm::StrictScanner::~StrictScanner ( )  [override]
```

10.296.4 Member Function Documentation

10.296.4.1 AddPrivateTag()

```
void gdcm::StrictScanner::AddPrivateTag (
            PrivateTag const & t )
```

10.296.4.2 AddSkipTag()

```
void gdcm::StrictScanner::AddSkipTag (
            Tag const & t )
```

Add a tag that will need to be skipped. Those are root level skip tags.

10.296.4.3 AddTag()

```
void gdcm::StrictScanner::AddTag (
            Tag const & t )
```

Add a tag that will need to be read. Those are root level skip tags.

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.296.4.4 Begin()

```
ConstIterator gdcm::StrictScanner::Begin ( ) const  [inline]
```

10.296.4.5 ClearSkipTags()

```
void gdcm::StrictScanner::ClearSkipTags ( )
```

10.296.4.6 ClearTags()

```
void gdcm::StrictScanner::ClearTags ( )
```

10.296.4.7 End()

```
ConstIterator gdcm::StrictScanner::End ( ) const  [inline]
```

10.296.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

10.296.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::StrictScanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

10.296.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner::GetFilenames ( ) const  [inline]
```

10.296.4.11 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner::GetKeys ( ) const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

10.296.4.12 GetMapping()

```
TagToValue const & gdcm::StrictScanner::GetMapping (
            const char * filename ) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

SimpleScanner.cxx.

10.296.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::StrictScanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value ) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

10.296.4.14 GetMappings()

```
MappingType const & gdcm::StrictScanner::GetMappings ( ) const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.296.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner::GetOrderedValues (
            Tag const & t ) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.296.4.16 GetValue()

```
const char * gdcm::StrictScanner::GetValue (
            const char * filename,
            Tag const & t ) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

10.296.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::StrictScanner::GetValues ( ) const  [inline]
```

Get all the values found (in lexicographic order)

10.296.4.18 GetValues() [2/2]

```
ValuesType gdcm::StrictScanner::GetValues (
            Tag const & t ) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

10.296.4.19 IsKey()

```
bool gdcm::StrictScanner::IsKey (
            const char * filename ) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.296.4.20 New()

```
static SmartPointer< StrictScanner > gdcm::StrictScanner::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

ScanDirectory.cs.

10.296.4.21 Print()

```
void gdcm::StrictScanner::Print (
            std::ostream & os ) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

10.296.4.22 PrintTable()

```
void gdcm::StrictScanner::PrintTable (
            std::ostream & os ) const
```

10.296.4.23 ProcessPublicTag()

```
void gdcm::StrictScanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.296.4.24 Scan()

```
bool gdcm::StrictScanner::Scan (
            Directory::FilenamesType const & filenames )
```

Start the scan !

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

10.296.5 Friends And Related Symbol Documentation

10.296.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const StrictScanner & s )  [friend]
```

The documentation for this class was generated from the following file:

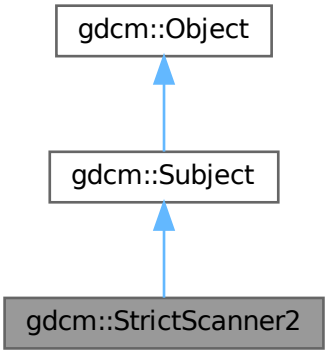
- gdcmStrictScanner.h

10.297 gdcm::StrictScanner2 Class Reference

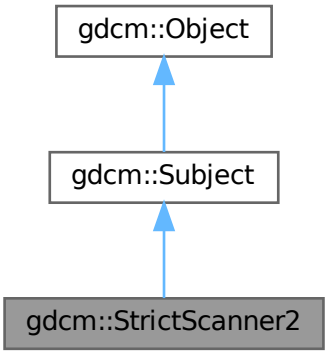
StrictScanner2.

```
#include <gdcmStrictScanner2.h>
```

Inheritance diagram for gdcm::StrictScanner2:



Collaboration diagram for gdcm::StrictScanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner2 ()
- ~StrictScanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()
- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

Get all the values found (in lexicographic order)

- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner2 &s)

10.297.1 Detailed Description

StrictScanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

10.297.2 Member Typedef Documentation

10.297.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::StrictScanner2::PrivateConstIterator
```

10.297.2.2 PrivateMappingType

```
typedef std::map<const char *, PrivateTagToValue, ltstr> gdcm::StrictScanner2::PrivateMappingType
```

10.297.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char *> gdcm::StrictScanner2::PrivateTagToValue
```

10.297.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::StrictScanner2::PrivateTagToValueValueType
```

10.297.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::StrictScanner2::PublicConstIterator
```

10.297.2.6 PublicMappingType

```
typedef std::map<const char *, PublicTagToValue, ltstr> gdcm::StrictScanner2::PublicMappingType
```

10.297.2.7 PublicTagToValue

```
typedef std::map<Tag, const char *> gdcm::StrictScanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

10.297.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::StrictScanner2::PublicTagToValueValueType
```

10.297.2.9 ValuesType

```
typedef std::set<std::string> gdcm::StrictScanner2::ValuesType
```

10.297.3 Constructor & Destructor Documentation

10.297.3.1 StrictScanner2()

```
gdcm::StrictScanner2::StrictScanner2 ( ) [inline]
```

10.297.3.2 ~StrictScanner2()

```
gdcm::StrictScanner2::~StrictScanner2 ( ) [override]
```

10.297.4 Member Function Documentation

10.297.4.1 AddPrivateTag()

```
bool gdcm::StrictScanner2::AddPrivateTag (
            PrivateTag const & pt )
```

10.297.4.2 AddPublicTag()

```
bool gdcm::StrictScanner2::AddPublicTag (
            Tag const & t )
```

Add a tag that will need to be read. Those are root level tags.

10.297.4.3 AddSkipTag()

```
bool gdcm::StrictScanner2::AddSkipTag (
            Tag const & t )
```

Add a tag that will need to be skipped. Those are root level skip tags.

10.297.4.4 Begin()

```
PublicConstIterator gdcm::StrictScanner2::Begin ( ) const  [inline]
```

10.297.4.5 ClearPrivateTags()

```
void gdcm::StrictScanner2::ClearPrivateTags ( )
```

10.297.4.6 ClearPublicTags()

```
void gdcm::StrictScanner2::ClearPublicTags ( )
```

10.297.4.7 ClearSkipTags()

```
void gdcm::StrictScanner2::ClearSkipTags ( )
```

10.297.4.8 End()

```
PublicConstIterator gdcm::StrictScanner2::End ( ) const  [inline]
```

10.297.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref ) const
```

10.297.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

10.297.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref ) const
```

10.297.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref ) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

10.297.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner2::GetFilenames ( ) const  [inline]
```

Return the list of filenames.

10.297.4.14 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner2::GetKeys ( ) const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

10.297.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value ) const
```

10.297.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::StrictScanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value ) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed

10.297.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetPrivateMapping (
            const char * filename ) const
```

10.297.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::StrictScanner2::GetPrivateMappings ( ) const  [inline]
```

10.297.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPrivateOrderedValues (
            PrivateTag const & pt ) const
```

10.297.4.20 GetPrivateValue()

```
const char * gdcm::StrictScanner2::GetPrivateValue (
            const char * filename,
            PrivateTag const & t ) const
```

10.297.4.21 GetPrivateValues()

```
ValuesType gdcm::StrictScanner2::GetPrivateValues (
            PrivateTag const & pt ) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'

10.297.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::StrictScanner2::GetPublicMapping (
            const char * filename ) const
```

Get the std::map mapping filenames to value for file 'filename'.

10.297.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::StrictScanner2::GetPublicMappings ( ) const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.297.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPublicOrderedValues (
            Tag const & t ) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.297.4.25 GetPublicValue()

```
const char * gdcm::StrictScanner2::GetPublicValue (
            const char * filename,
            Tag const & t ) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

10.297.4.26 GetPublicValues()

```
ValuesType gdcm::StrictScanner2::GetPublicValues (
            Tag const & t ) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

10.297.4.27 GetValues()

```
ValuesType const & gdcm::StrictScanner2::GetValues ( ) const  [inline]
```

Get all the values found (in lexicographic order)

10.297.4.28 IsKey()

```
bool gdcm::StrictScanner2::IsKey (
            const char * filename ) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

10.297.4.29 New()

```
static SmartPointer< StrictScanner2 > gdcm::StrictScanner2::New ( )  [inline], [static]
```

for wrapped language: instantiate a reference counted object

10.297.4.30 Print()

```
void gdcm::StrictScanner2::Print (
            std::ostream & os ) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

10.297.4.31 PrintTable()

```
void gdcm::StrictScanner2::PrintTable (
            std::ostream & os,
            bool header = false ) const
```

Print result as CSV table.

10.297.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateBegin ( ) const  [inline]
```

10.297.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateEnd ( ) const  [inline]
```

10.297.4.34 ProcessPrivateTag()

```
void gdcm::StrictScanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.297.4.35 ProcessPublicTag()

```
void gdcm::StrictScanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename )  [protected]
```

10.297.4.36 Scan()

```
bool gdcm::StrictScanner2::Scan (
            Directory::FilenamesType const & filenames )
```

Start the scan !

10.297.5 Friends And Related Symbol Documentation

10.297.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const StrictScanner2 & s )  [friend]
```

The documentation for this class was generated from the following file:

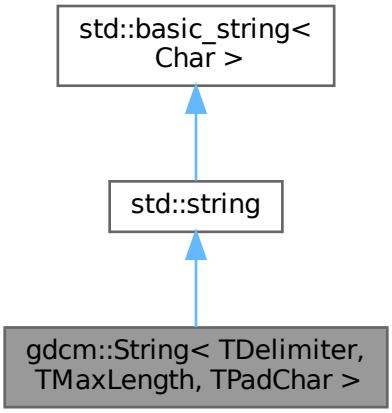
- gdcmStrictScanner2.h

10.298 gdcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference

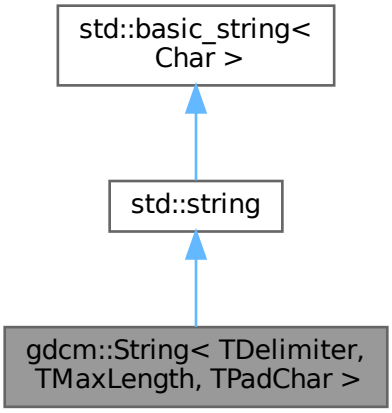
String.

```
#include <gdcmString.h>
```

Inheritance diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Collaboration diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Public Types

- typedef std::string::const_iterator const_iterator
- typedef std::string::const_reference const_reference
- typedef std::string::const_reverse_iterator const_reverse_iterator
- typedef std::string::difference_type difference_type
- typedef std::string::iterator iterator
- typedef std::string::pointer pointer
- typedef std::string::reference reference
- typedef std::string::reverse_iterator reverse_iterator
- typedef std::string::size_type size_type
- typedef std::string::value_type value_type

Public Member Functions

- String ()

  String constructors.
- String (const std::string &s, size_type pos=0, size_type n=npos)
- String (const value_type ∗s)
- String (const value_type ∗s, size_type n)
- bool IsValid () const

  return if string is valid
- operator const char ∗ () const

  WARNING: Trailing \0 might be lost in this operation:
- std::string Trim () const
- gdcm::String< TDelimiter, TMaxLength, TPadChar > Truncate () const

Static Public Member Functions

- static std::string Trim (const char *input)

10.298.1 Detailed Description

template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
class gdcm::String< TDelimiter, TMaxLength, TPadChar >

String.

Note

TDelimiter template parameter is used to separate multiple String (VM1 >) TMaxLength is only a hint. No one actually respect the max length TPadChar is the string padding (0 or space)

Examples

TemplateEmptyImage.cxx.

10.298.2 Member Typedef Documentation

10.298.2.1 const_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
iterator
```

10.298.2.2 const_reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
reference
```

10.298.2.3 const_reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >↩
::const_reverse_iterator
```

10.298.2.4 difference_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::difference_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::difference↩
_type
```

10.298.2.5 iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::iterator
```

10.298.2.6 pointer

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::pointer gdcm::String< TDelimiter, TMaxLength, TPadChar >::pointer
```

10.298.2.7 reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::reference
```

10.298.2.8 reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::reverse↩
_iterator
```

10.298.2.9 size_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::size_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::size_type
```

10.298.2.10 value_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::value_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::value_type
```

10.298.3 Constructor & Destructor Documentation

10.298.3.1 String() [1/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String ( ) [inline]
```

String constructors.

10.298.3.2 String() [2/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s )  [inline]
```

10.298.3.3 String() [3/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s,
            size_type n )  [inline]
```

10.298.3.4 String() [4/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const std::string & s,
            size_type pos = 0,
            size_type n = npos )  [inline]
```

10.298.4 Member Function Documentation

10.298.4.1 IsValid()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
bool gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid ( ) const  [inline]
```

return if string is valid

Referenced by gdcm::LO::IsValid(), and gdcm::String< TDelimiter, TMaxLength, TPadChar >::Truncate().

10.298.4.2 operator const char *()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::operator const char * ( ) const  [inline]
```

WARNING: Trailing \0 might be lost in this operation:

10.298.4.3 Trim() [1/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim ( ) const  [inline]
```

Trim function is required to return a std::string object, otherwise we could not create a gdcm::String object with an odd number of bytes...

Examples

DumpExamCard.cxx.

10.298.4.4 Trim() [2/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
static std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim (
            const char * input )  [inline], [static]
```

10.298.4.5 Truncate()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar > gdcm::String< TDelimiter, TMaxLength, TPadChar
>::Truncate ( ) const  [inline]
```

References gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid().

The documentation for this class was generated from the following file:

- gdcmString.h

10.299 gdcm::StringFilter Class Reference

StringFilter.

```
#include <gdcmStringFilter.h>
```

Public Member Functions

- StringFilter ()
- ~StringFilter ()
- bool ExecuteQuery (std::string const &query, std::string &value) const
- std::string FromString (const Tag &t, const char *value, size_t len)

  Convert to string the char array defined by the pair (value,len)
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)

  Allow user to pass in there own dicts.
- void SetFile (const File &f)

  Set/Get File.
- std::string ToString (const DataElement &de) const
- std::string ToString (const PrivateTag &t) const
- std::string ToString (const Tag &t) const

  Directly from a Tag:
- std::pair< std::string, std::string > ToStringPair (const DataElement &de) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t) const

  Directly from a Tag:
- void UseDictAlways (bool)

Protected Member Functions

- bool ExecuteQuery (std::string const &query, DataSet const &ds, std::string &value) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t, DataSet const &ds) const

10.299.1 Detailed Description

StringFilter.

StringFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

10.299.2 Constructor & Destructor Documentation

10.299.2.1 StringFilter()

```
gdcm::StringFilter::StringFilter ( )
```

10.299.2.2 ~StringFilter()

```
gdcm::StringFilter::~StringFilter ( )
```

10.299.3 Member Function Documentation

10.299.3.1 ExecuteQuery() [1/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            DataSet const & ds,
            std::string & value ) const  [protected]
```

10.299.3.2 ExecuteQuery() [2/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            std::string & value ) const
```

Execute the XPATH query to find a value (as string) return false when attribute is not found (or an error in the XPATH query) You need to make sure that your XPATH query is syntactically correct

10.299.3.3 FromString()

```
std::string gdcm::StringFilter::FromString (
            const Tag & t,
            const char * value,
            size_t len )
```

Convert to string the char array defined by the pair (value,len)

10.299.3.4 GetFile() [1/2]

```
File & gdcm::StringFilter::GetFile ( )  [inline]
```

10.299.3.5 GetFile() [2/2]

```
const File & gdcm::StringFilter::GetFile ( ) const  [inline]
```

10.299.3.6 SetDicts()

```
void gdcm::StringFilter::SetDicts (
            const Dicts & dicts )
```

Allow user to pass in there own dicts.

10.299.3.7 SetFile()

```
void gdcm::StringFilter::SetFile (
            const File & f )  [inline]
```

Set/Get File.

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

10.299.3.8 ToString() [1/3]

```
std::string gdcm::StringFilter::ToString (
            const DataElement & de ) const
```

Convert to string the ByteValue contained in a DataElement. The DataElement must be coming from the actual DataSet associated with File (see SetFile).

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

10.299.3.9 ToString() [2/3]

```
std::string gdcm::StringFilter::ToString (
            const PrivateTag & t ) const
```

10.299.3.10 ToString() [3/3]

```
std::string gdcm::StringFilter::ToString (
            const Tag & t ) const
```

Directly from a Tag:

10.299.3.11 ToStringPair() [1/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const DataElement & de ) const
```

Convert to string the ByteValue contained in a DataElement the returned elements are: pair.first : the name as found in the dictionary of DataElement pari.second : the value encoded into a string (US,UL...) are properly converted

Examples

ReadAndPrintAttributes.cxx.

10.299.3.12 ToStringPair() [2/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t ) const
```

Directly from a Tag:

10.299.3.13 ToStringPair() [3/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t,
            DataSet const & ds ) const  [protected]
```

10.299.3.14 UseDictAlways()

```
void gdcm::StringFilter::UseDictAlways (
            bool  )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmStringFilter.h

10.300 gdcm::Study Class Reference

Study.

```
#include <gdcmStudy.h>
```

Public Member Functions

- Study ()=default

10.300.1 Detailed Description

Study.

10.300.2 Constructor & Destructor Documentation

10.300.2.1 Study()

```
gdcm::Study::Study ( )  [default]
```

The documentation for this class was generated from the following file:

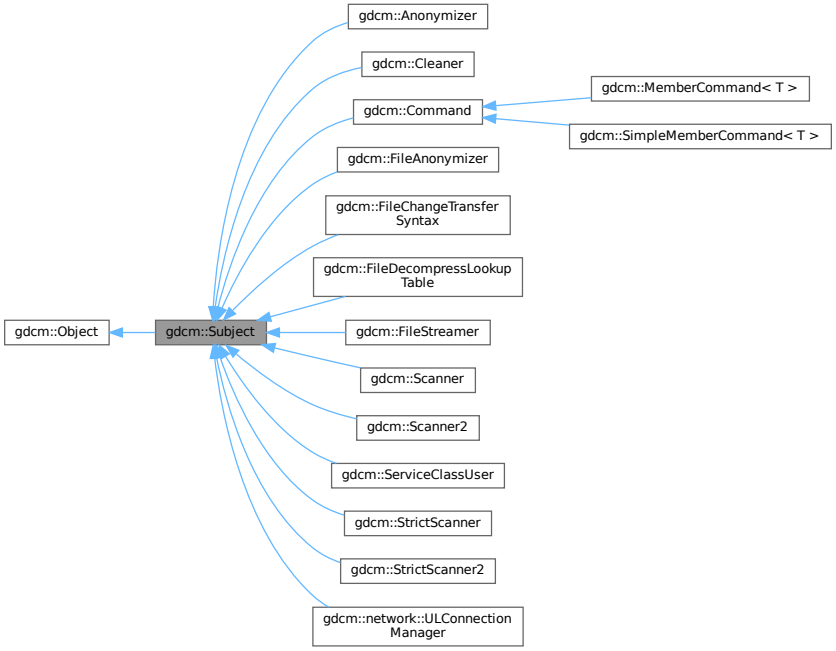
- gdcmStudy.h

10.301 gdcm::Subject Class Reference

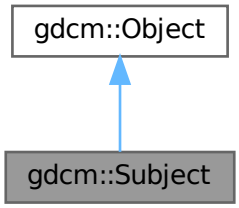
Subject.

```
#include <gdcmSubject.h>
```

Inheritance diagram for gdcm::Subject:



Collaboration diagram for gdcm::Subject:



Public Member Functions

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.301.1 Detailed Description

Subject.

See also

Command Event

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

10.301.2 Constructor & Destructor Documentation

10.301.2.1 Subject()

```
gdcm::Subject::Subject ( )
```

10.301.2.2 ~Subject()

```
gdcm::Subject::~Subject ( ) [override]
```

10.301.3 Member Function Documentation

10.301.3.1 AddObserver() [1/2]

```
unsigned long gdcm::Subject::AddObserver (
            const Event & event,
            Command * )
```

Allow people to add/remove/invoke observers (callbacks) to any GDCM object. This is an implementation of the subject/observer design pattern. An observer is added by specifying an event to respond to and an gdcm::Command to execute. It returns an unsigned long tag which can be used later to remove the event or retrieve the command. The memory for the Command becomes the responsibility of this object, so don't pass the same instance of a command to two different objects

10.301.3.2 AddObserver() [2/2]

```
unsigned long gdcm::Subject::AddObserver (
            const Event & event,
            Command * ) const
```

10.301.3.3 GetCommand()

```
Command * gdcm::Subject::GetCommand (
            unsigned long tag )
```

Get the command associated with the given tag. NOTE: This returns a pointer to a Command, but it is safe to assign this to a Command::Pointer. Since Command inherits from LightObject, at this point in the code, only a pointer or a reference to the Command can be used.

10.301.3.4 HasObserver()

```
bool gdcm::Subject::HasObserver (
            const Event & event ) const
```

Return true if an observer is registered for this event.

10.301.3.5 InvokeEvent() [1/2]

```
void gdcm::Subject::InvokeEvent (
            const Event &  )
```

Call Execute on all the Commands observing this event id.

10.301.3.6 InvokeEvent() [2/2]

```
void gdcm::Subject::InvokeEvent (
            const Event &  ) const
```

Call Execute on all the Commands observing this event id. The actions triggered by this call doesn't modify this object.

10.301.3.7 RemoveAllObservers()

```
void gdcm::Subject::RemoveAllObservers ( )
```

Remove all observers .

10.301.3.8 RemoveObserver()

```
void gdcm::Subject::RemoveObserver (
            unsigned long tag )
```

Remove the observer with this tag value.

The documentation for this class was generated from the following file:

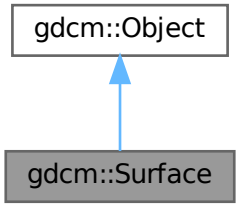
- gdcmSubject.h

10.302 gdcm::Surface Class Reference

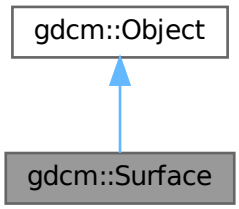
This class defines a SURFACE IE.

```
#include <gdcmSurface.h>
```

Inheritance diagram for gdcm::Surface:



Collaboration diagram for gdcm::Surface:



Public Types

- enum STATES {
  NO = 0 ,
  YES ,
  UNKNOWN ,
  STATES_END }
- enum VIEWType {
  SURFACE = 0 ,
  WIREFRAME ,
  POINTS ,
  VIEWType_END }

  Enumeration for Recommended Presentation Type.

Public Member Functions

- Surface ()
- ~Surface () override
- SegmentHelper::BasicCodedEntry & GetAlgorithmFamily ()
- SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily () const
- const char * GetAlgorithmName () const
- const char * GetAlgorithmVersion () const
- const float * GetAxisOfRotation () const
- const float * GetCenterOfRotation () const
- STATES GetFiniteVolume () const
- STATES GetManifold () const
- float GetMaximumPointDistance () const
- float GetMeanPointDistance () const
- MeshPrimitive & GetMeshPrimitive ()
- MeshPrimitive const & GetMeshPrimitive () const
- unsigned long GetNumberOfSurfacePoints () const
- unsigned long GetNumberOfVectors () const
- DataElement & GetPointCoordinatesData ()
- const DataElement & GetPointCoordinatesData () const
- const float * GetPointPositionAccuracy () const
- const float * GetPointsBoundingBoxCoordinates () const
- SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm ()
- SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm () const
- const unsigned short * GetRecommendedDisplayCIELabValue () const
- unsigned short GetRecommendedDisplayCIELabValue (const unsigned int idx) const
- unsigned short GetRecommendedDisplayGrayscaleValue () const
- float GetRecommendedPresentationOpacity () const
- VIEWType GetRecommendedPresentationType () const
- const char * GetSurfaceComments () const
- unsigned long GetSurfaceNumber () const
- bool GetSurfaceProcessing () const
- const char * GetSurfaceProcessingDescription () const
- float GetSurfaceProcessingRatio () const
- const float * GetVectorAccuracy () const
- DataElement & GetVectorCoordinateData ()
- const DataElement & GetVectorCoordinateData () const
- unsigned short GetVectorDimensionality () const
- void SetAlgorithmFamily (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAlgorithmName (const char *str)
- void SetAlgorithmVersion (const char *str)
- void SetAxisOfRotation (const float *axis)
- void SetCenterOfRotation (const float *center)
- void SetFiniteVolume (STATES state)
- void SetManifold (STATES state)
- void SetMaximumPointDistance (float maximum)
- void SetMeanPointDistance (float average)
- void SetMeshPrimitive (MeshPrimitive &mp)
- void SetNumberOfSurfacePoints (const unsigned long nb)
- void SetNumberOfVectors (const unsigned long nb)
- void SetPointCoordinatesData (DataElement const &de)

- void SetPointPositionAccuracy (const float ∗accuracies)
- void SetPointsBoundingBoxCoordinates (const float ∗coordinates)
- void SetProcessingAlgorithm (SegmentHelper::BasicCodedEntry const &BSE)
- void SetRecommendedDisplayCIELabValue (const std::vector< unsigned short > &vl)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl, const unsigned int idx=0)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl[3])
- void SetRecommendedDisplayGrayscaleValue (const unsigned short vl)
- void SetRecommendedPresentationOpacity (const float opacity)
- void SetRecommendedPresentationType (VIEWType type)
- void SetSurfaceComments (const char ∗comment)
- void SetSurfaceNumber (const unsigned long nb)
- void SetSurfaceProcessing (bool b)
- void SetSurfaceProcessingDescription (const char ∗description)
- void SetSurfaceProcessingRatio (const float ratio)
- void SetVectorAccuracy (const float ∗accuracy)
- void SetVectorCoordinateData (DataElement const &de)
- void SetVectorDimensionality (const unsigned short dim)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ∼Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static STATES GetSTATES (const char ∗state)
- static const char ∗ GetSTATESString (STATES state)
- static VIEWType GetVIEWType (const char ∗type)
- static const char ∗ GetVIEWTypeString (VIEWType type)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

10.302.1 Detailed Description

This class defines a SURFACE IE.

This members are taken from required surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

10.302.2 Member Enumeration Documentation

10.302.2.1 STATES

`enum gdcm::Surface::STATES`

Enumerator

NO	
YES	
UNKNOWN	
STATES_END	

10.302.2.2 VIEWType

`enum gdcm::Surface::VIEWType`

Enumeration for Recommended Presentation Type.

See also

Tag(0x0066, 0x000D) and PS 3.3 C.27.1.1.3

Enumerator

SURFACE	
WIREFRAME	
POINTS	
VIEWType_END	

10.302.3 Constructor & Destructor Documentation

10.302.3.1 Surface()

`gdcm::Surface::Surface ( )`

10.302.3.2 ~Surface()

`gdcm::Surface::~Surface ( ) [override]`

10.302.4 Member Function Documentation

10.302.4.1 GetAlgorithmFamily() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetAlgorithmFamily ( )
```

10.302.4.2 GetAlgorithmFamily() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetAlgorithmFamily ( ) const
```

10.302.4.3 GetAlgorithmName()

```
const char * gdcm::Surface::GetAlgorithmName ( ) const
```

10.302.4.4 GetAlgorithmVersion()

```
const char * gdcm::Surface::GetAlgorithmVersion ( ) const
```

10.302.4.5 GetAxisOfRotation()

```
const float * gdcm::Surface::GetAxisOfRotation ( ) const
```

Note

Pointer is null if undefined

10.302.4.6 GetCenterOfRotation()

```
const float * gdcm::Surface::GetCenterOfRotation ( ) const
```

Note

Pointer is null if undefined

10.302.4.7 GetFiniteVolume()

```
STATES gdcm::Surface::GetFiniteVolume ( ) const
```

10.302.4.8 GetManifold()

```
STATES gdcm::Surface::GetManifold ( ) const
```

10.302.4.9 GetMaximumPointDistance()

```
float gdcm::Surface::GetMaximumPointDistance ( ) const
```

10.302.4.10 GetMeanPointDistance()

```
float gdcm::Surface::GetMeanPointDistance ( ) const
```

10.302.4.11 GetMeshPrimitive() [1/2]

```
MeshPrimitive & gdcm::Surface::GetMeshPrimitive ( )
```

10.302.4.12 GetMeshPrimitive() [2/2]

```
MeshPrimitive const & gdcm::Surface::GetMeshPrimitive ( ) const
```

10.302.4.13 GetNumberOfSurfacePoints()

```
unsigned long gdcm::Surface::GetNumberOfSurfacePoints ( ) const
```

10.302.4.14 GetNumberOfVectors()

```
unsigned long gdcm::Surface::GetNumberOfVectors ( ) const
```

10.302.4.15 GetPointCoordinatesData() [1/2]

```
DataElement & gdcm::Surface::GetPointCoordinatesData ( )
```

10.302.4.16 GetPointCoordinatesData() [2/2]

```
const DataElement & gdcm::Surface::GetPointCoordinatesData ( ) const
```

10.302.4.17 GetPointPositionAccuracy()

```
const float * gdcm::Surface::GetPointPositionAccuracy ( ) const
```

Note

Pointer is null if undefined

10.302.4.18 GetPointsBoundingBoxCoordinates()

```
const float * gdcm::Surface::GetPointsBoundingBoxCoordinates ( ) const
```

Note

Pointer is null if undefined

10.302.4.19 GetProcessingAlgorithm() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetProcessingAlgorithm ( )
```

10.302.4.20 GetProcessingAlgorithm() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetProcessingAlgorithm ( ) const
```

10.302.4.21 GetRecommendedDisplayCIELabValue() [1/2]

```
const unsigned short * gdcm::Surface::GetRecommendedDisplayCIELabValue ( ) const
```

10.302.4.22 GetRecommendedDisplayCIELabValue() [2/2]

```
unsigned short gdcm::Surface::GetRecommendedDisplayCIELabValue (
            const unsigned int idx ) const
```

10.302.4.23 GetRecommendedDisplayGrayscaleValue()

```
unsigned short gdcm::Surface::GetRecommendedDisplayGrayscaleValue ( ) const
```

10.302.4.24 GetRecommendedPresentationOpacity()

```
float gdcm::Surface::GetRecommendedPresentationOpacity ( ) const
```

10.302.4.25 GetRecommendedPresentationType()

```
VIEWType gdcm::Surface::GetRecommendedPresentationType ( ) const
```

10.302.4.26 GetSTATES()

```
static STATES gdcm::Surface::GetSTATES (
            const char * state )  [static]
```

10.302.4.27 GetSTATESString()

```
static const char * gdcm::Surface::GetSTATESString (
            STATES state )  [static]
```

10.302.4.28 GetSurfaceComments()

```
const char * gdcm::Surface::GetSurfaceComments ( ) const
```

10.302.4.29 GetSurfaceNumber()

```
unsigned long gdcm::Surface::GetSurfaceNumber ( ) const
```

10.302.4.30 GetSurfaceProcessing()

```
bool gdcm::Surface::GetSurfaceProcessing ( ) const
```

10.302.4.31 GetSurfaceProcessingDescription()

```
const char * gdcm::Surface::GetSurfaceProcessingDescription ( ) const
```

10.302.4.32 GetSurfaceProcessingRatio()

```
float gdcm::Surface::GetSurfaceProcessingRatio ( ) const
```

10.302.4.33 GetVectorAccuracy()

```
const float * gdcm::Surface::GetVectorAccuracy ( ) const
```

10.302.4.34 GetVectorCoordinateData() [1/2]

```
DataElement & gdcm::Surface::GetVectorCoordinateData ( )
```

10.302.4.35 GetVectorCoordinateData() [2/2]

```
const DataElement & gdcm::Surface::GetVectorCoordinateData ( ) const
```

10.302.4.36 GetVectorDimensionality()

```
unsigned short gdcm::Surface::GetVectorDimensionality ( ) const
```

10.302.4.37 GetVIEWType()

```
static VIEWType gdcm::Surface::GetVIEWType (
            const char * type )  [static]
```

10.302.4.38 GetVIEWTypeString()

```
static const char * gdcm::Surface::GetVIEWTypeString (
            VIEWType type )  [static]
```

10.302.4.39 SetAlgorithmFamily()

```
void gdcm::Surface::SetAlgorithmFamily (
            SegmentHelper::BasicCodedEntry const & BSE )
```

10.302.4.40 SetAlgorithmName()

```
void gdcm::Surface::SetAlgorithmName (
            const char * str )
```

10.302.4.41 SetAlgorithmVersion()

```
void gdcm::Surface::SetAlgorithmVersion (
            const char * str )
```

10.302.4.42 SetAxisOfRotation()

```
void gdcm::Surface::SetAxisOfRotation (
            const float * axis )
```

10.302.4.43 SetCenterOfRotation()

```
void gdcm::Surface::SetCenterOfRotation (
            const float * center )
```

10.302.4.44 SetFiniteVolume()

```
void gdcm::Surface::SetFiniteVolume (
            STATES state )
```

10.302.4.45 SetManifold()

```
void gdcm::Surface::SetManifold (
            STATES state )
```

10.302.4.46 SetMaximumPointDistance()

```
void gdcm::Surface::SetMaximumPointDistance (
            float maximum )
```

10.302.4.47 SetMeanPointDistance()

```
void gdcm::Surface::SetMeanPointDistance (
            float average )
```

10.302.4.48 SetMeshPrimitive()

```
void gdcm::Surface::SetMeshPrimitive (
            MeshPrimitive & mp )
```

10.302.4.49 SetNumberOfSurfacePoints()

```
void gdcm::Surface::SetNumberOfSurfacePoints (
            const unsigned long nb )
```

10.302.4.50 SetNumberOfVectors()

```
void gdcm::Surface::SetNumberOfVectors (
            const unsigned long nb )
```

10.302.4.51 SetPointCoordinatesData()

```
void gdcm::Surface::SetPointCoordinatesData (
            DataElement const & de )
```

10.302.4.52 SetPointPositionAccuracy()

```
void gdcm::Surface::SetPointPositionAccuracy (
            const float * accuracies )
```

10.302.4.53 SetPointsBoundingBoxCoordinates()

```
void gdcm::Surface::SetPointsBoundingBoxCoordinates (
            const float * coordinates )
```

10.302.4.54 SetProcessingAlgorithm()

```
void gdcm::Surface::SetProcessingAlgorithm (
            SegmentHelper::BasicCodedEntry const & BSE )
```

10.302.4.55 SetRecommendedDisplayCIELabValue() [1/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const std::vector< unsigned short > & vl )
```

10.302.4.56 SetRecommendedDisplayCIELabValue() [2/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl,
            const unsigned int idx = 0 )
```

10.302.4.57 SetRecommendedDisplayCIELabValue() [3/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl[3] )
```

10.302.4.58 SetRecommendedDisplayGrayscaleValue()

```
void gdcm::Surface::SetRecommendedDisplayGrayscaleValue (
            const unsigned short vl )
```

10.302.4.59 SetRecommendedPresentationOpacity()

```
void gdcm::Surface::SetRecommendedPresentationOpacity (
            const float opacity )
```

10.302.4.60 SetRecommendedPresentationType()

```
void gdcm::Surface::SetRecommendedPresentationType (
            VIEWType type )
```

10.302.4.61 SetSurfaceComments()

```
void gdcm::Surface::SetSurfaceComments (
            const char * comment )
```

10.302.4.62 SetSurfaceNumber()

```
void gdcm::Surface::SetSurfaceNumber (
            const unsigned long nb )
```

10.302.4.63 SetSurfaceProcessing()

```
void gdcm::Surface::SetSurfaceProcessing (
            bool b )
```

10.302.4.64 SetSurfaceProcessingDescription()

```
void gdcm::Surface::SetSurfaceProcessingDescription (
            const char * description )
```

10.302.4.65 SetSurfaceProcessingRatio()

```
void gdcm::Surface::SetSurfaceProcessingRatio (
            const float ratio )
```

10.302.4.66 SetVectorAccuracy()

```
void gdcm::Surface::SetVectorAccuracy (
            const float * accuracy )
```

10.302.4.67 SetVectorCoordinateData()

```
void gdcm::Surface::SetVectorCoordinateData (
            DataElement const & de )
```

10.302.4.68 SetVectorDimensionality()

```
void gdcm::Surface::SetVectorDimensionality (
            const unsigned short dim )
```

The documentation for this class was generated from the following file:

- gdcmSurface.h

10.303 gdcm::SurfaceHelper Class Reference

SurfaceHelper.

```
#include <gdcmSurfaceHelper.h>
```

Public Types

- typedef std::vector< unsigned short > ColorArray

Static Public Member Functions

- template<typename T , typename U >
  static std::vector< T > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U range↩Max=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename U >
  static std::vector< float > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U range↩Max=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T , typename U >
  static ColorArray RGBToRecommendedDisplayCIELab (const std::vector< T > &RGB, const U rangeMax=255)

  Convert a RGB color into DICOM CIE-Lab (ready to write).
- template<typename T , typename U >
  static unsigned short RGBToRecommendedDisplayGrayscale (const std::vector< T > &RGB, const U range↩Max=255)

  Convert a RGB color into DICOM grayscale (ready to write).

10.303.1 Detailed Description

SurfaceHelper.

Helper class for Surface object

10.303.2 Member Typedef Documentation

10.303.2.1 ColorArray

```
typedef std::vector< unsigned short > gdcm::SurfaceHelper::ColorArray
```

10.303.3 Member Function Documentation

10.303.3.1 RecommendedDisplayCIELabToRGB() [1/2]

```
template<typename T , typename U >
std::vector< T > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
            const ColorArray & CIELab,
            const U rangeMax = 255 )  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of CIELab components.
U	Type of rangeMax value.

10.303.3.2 RecommendedDisplayCIELabToRGB() [2/2]

```
template<typename U >
std::vector< float > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
```

```
            const ColorArray & CIELab,
            const U rangeMax = 255 )  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

U	Type of rangeMax value.

10.303.3.3 RGBToRecommendedDisplayCIELab()

```
template<typename T , typename U >
SurfaceHelper::ColorArray gdcm::SurfaceHelper::RGBToRecommendedDisplayCIELab (
            const std::vector< T > & RGB,
            const U rangeMax = 255 )  [static]
```

Convert a RGB color into DICOM CIE-Lab (ready to write).

See also

PS 3.3 C.10.7.1.1

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

10.303.3.4 RGBToRecommendedDisplayGrayscale()

```
template<typename T , typename U >
```

```
unsigned short gdcm::SurfaceHelper::RGBToRecommendedDisplayGrayscale (
            const std::vector< T > & RGB,
            const U rangeMax = 255 )  [static]
```

Convert a RGB color into DICOM grayscale (ready to write).

See also

PS 3.3 C.27.1 tag(0062,000C)

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

The documentation for this class was generated from the following file:

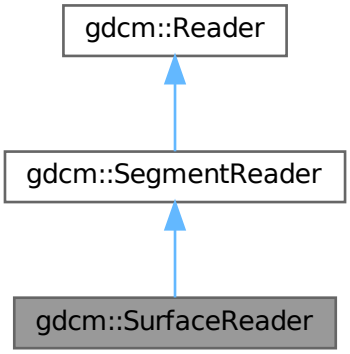
- gdcmSurfaceHelper.h

10.304 gdcm::SurfaceReader Class Reference

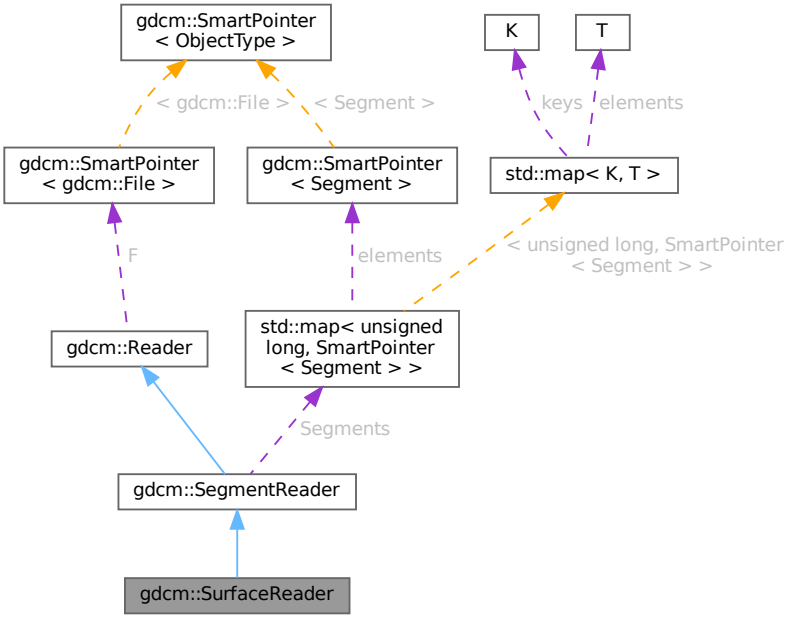
This class defines a SURFACE IE reader.

`#include <gdcmSurfaceReader.h>`

Inheritance diagram for gdcm::SurfaceReader:



Collaboration diagram for gdcm::SurfaceReader:



Public Member Functions

- SurfaceReader ()
- ~SurfaceReader () override
- unsigned long GetNumberOfSurfaces () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::SegmentReader

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

Set/Get File.

- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadPointMacro (SmartPointer< Surface > surface, const DataSet &surfaceDS)
- bool ReadSurface (const Item &surfaceItem, const unsigned long idx)
- bool ReadSurfaces ()

Protected Member Functions inherited from gdcm::SegmentReader

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Public Types inherited from gdcm::SegmentReader

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Protected Types inherited from gdcm::SegmentReader

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Attributes inherited from gdcm::SegmentReader

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

10.304.1 Detailed Description

This class defines a SURFACE IE reader.

It reads surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

10.304.2 Constructor & Destructor Documentation

10.304.2.1 SurfaceReader()

```
gdcm::SurfaceReader::SurfaceReader ( )
```

10.304.2.2 ~SurfaceReader()

```
gdcm::SurfaceReader::~SurfaceReader ( )  [override]
```

10.304.3 Member Function Documentation

10.304.3.1 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceReader::GetNumberOfSurfaces ( ) const
```

10.304.3.2 Read()

```
bool gdcm::SurfaceReader::Read ( )  [override], [virtual]
```

Read.

Reimplemented from gdcm::SegmentReader.

10.304.3.3 ReadPointMacro()

```
bool gdcm::SurfaceReader::ReadPointMacro (
            SmartPointer< Surface > surface,
            const DataSet & surfaceDS )  [protected]
```

10.304.3.4 ReadSurface()

```
bool gdcm::SurfaceReader::ReadSurface (
            const Item & surfaceItem,
            const unsigned long idx )  [protected]
```

10.304.3.5 ReadSurfaces()

```
bool gdcm::SurfaceReader::ReadSurfaces ( )  [protected]
```

The documentation for this class was generated from the following file:

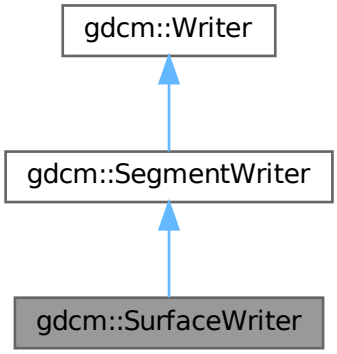
- gdcmSurfaceReader.h

10.305 gdcm::SurfaceWriter Class Reference

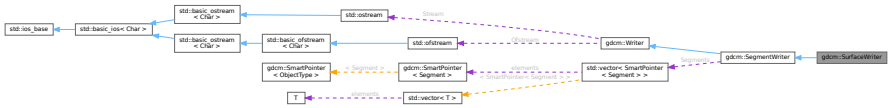
This class defines a SURFACE IE writer.

```
#include <gdcmSurfaceWriter.h>
```

Inheritance diagram for gdcm::SurfaceWriter:



Collaboration diagram for gdcm::SurfaceWriter:



Public Member Functions

- SurfaceWriter ()
- ~SurfaceWriter () override
- unsigned long GetNumberOfSurfaces ()
- void SetNumberOfSurfaces (const unsigned long nb)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::SegmentWriter

- SegmentWriter ()
- ~SegmentWriter () override
- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default)
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header)
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void ComputeNumberOfSurfaces ()
- bool PrepareWrite ()
- bool PrepareWritePointMacro (SmartPointer< Surface > surface, DataSet &surfaceDS, const TransferSyntax &ts)

Protected Member Functions inherited from gdcm::SegmentWriter

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- unsigned long NumberOfSurfaces

Protected Attributes inherited from gdcm::SegmentWriter

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

Additional Inherited Members

Public Types inherited from gdcm::SegmentWriter

- typedef std::vector< SmartPointer< Segment > > SegmentVector

10.305.1 Detailed Description

This class defines a SURFACE IE writer.

It writes surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

10.305.2 Constructor & Destructor Documentation

10.305.2.1 SurfaceWriter()

```
gdcm::SurfaceWriter::SurfaceWriter ( )
```

10.305.2.2 ~SurfaceWriter()

```
gdcm::SurfaceWriter::~SurfaceWriter ( )  [override]
```

10.305.3 Member Function Documentation

10.305.3.1 ComputeNumberOfSurfaces()

```
void gdcm::SurfaceWriter::ComputeNumberOfSurfaces ( )  [protected]
```

10.305.3.2 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceWriter::GetNumberOfSurfaces ( )
```

10.305.3.3 PrepareWrite()

```
bool gdcm::SurfaceWriter::PrepareWrite ( )  [protected]
```

10.305.3.4 PrepareWritePointMacro()

```
bool gdcm::SurfaceWriter::PrepareWritePointMacro (
            SmartPointer< Surface > surface,
            DataSet & surfaceDS,
            const TransferSyntax & ts )  [protected]
```

10.305.3.5 SetNumberOfSurfaces()

```
void gdcm::SurfaceWriter::SetNumberOfSurfaces (
            const unsigned long nb )
```

10.305.3.6 Write()

```
bool gdcm::SurfaceWriter::Write ( )  [override], [virtual]
```

Write.

Reimplemented from gdcm::SegmentWriter.

10.305.4 Member Data Documentation

10.305.4.1 NumberOfSurfaces

```
unsigned long gdcm::SurfaceWriter::NumberOfSurfaces  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSurfaceWriter.h

10.306 gdcm::SwapCode Class Reference

SwapCode representation.

```
#include <gdcmSwapCode.h>
```

Public Types

- enum SwapCodeType {
  Unknown = 0 ,
  LittleEndian = 1234 ,
  BigEndian = 4321 ,
  BadLittleEndian = 3412 ,
  BadBigEndian = 2143 }

Public Member Functions

- SwapCode (SwapCodeType sc=Unknown)
- operator SwapCode::SwapCodeType () const

Static Public Member Functions

- static const char * GetSwapCodeString (SwapCode const &sc)

Static Protected Member Functions

- static int GetIndex (SwapCode const &sc)

Friends

- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)

10.306.1 Detailed Description

SwapCode representation.

Examples

TestByteSwap.cxx.

10.306.2 Member Enumeration Documentation

10.306.2.1 SwapCodeType

```
enum gdcm::SwapCode::SwapCodeType
```

Enumerator

Unknown	
LittleEndian	
BigEndian	
BadLittleEndian	
BadBigEndian	

10.306.3 Constructor & Destructor Documentation

10.306.3.1 SwapCode()

```
gdcm::SwapCode::SwapCode (
            SwapCodeType sc = Unknown )  [inline]
```

10.306.4 Member Function Documentation

10.306.4.1 GetIndex()

```
static int gdcm::SwapCode::GetIndex (
            SwapCode const & sc )  [static], [protected]
```

10.306.4.2 GetSwapCodeString()

```
static const char * gdcm::SwapCode::GetSwapCodeString (
            SwapCode const & sc )  [static]
```

References gdcm::operator<<().

10.306.4.3 operator SwapCode::SwapCodeType()

```
gdcm::SwapCode::operator SwapCode::SwapCodeType ( ) const  [inline]
```

10.306.5 Friends And Related Symbol Documentation

10.306.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const SwapCode & sc )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmSwapCode.h

10.307 gdcm::SwapperDoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- template<typename T >
  static T Swap (T val)
- template<typename T >
  static void SwapArray (T *array, size_t n)

10.307.1 Member Function Documentation

10.307.1.1 Swap()

```
template<typename T >
static T gdcm::SwapperDoOp::Swap (
            T val )  [static]
```

10.307.1.2 SwapArray()

```
template<typename T >
static void gdcm::SwapperDoOp::SwapArray (
            T * array,
            size_t n )  [inline], [static]
```

The documentation for this class was generated from the following file:

- gdcmSwapper.h

10.308 gdcm::SwapperNoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- template<typename T >
  static T Swap (T val)
- template<typename T >
  static void SwapArray (T *, size_t)

10.308.1 Detailed Description

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadExplicitLengthSQIVR.cxx.

10.308.2 Member Function Documentation

10.308.2.1 Swap()

```
template<typename T >
static T gdcm::SwapperNoOp::Swap (
            T val )  [inline], [static]
```

10.308.2.2 SwapArray()

```
template<typename T >
static void gdcm::SwapperNoOp::SwapArray (
            T * ,
            size_t  )  [inline], [static]
```

The documentation for this class was generated from the following file:

- gdcmSwapper.h

10.309 gdcm::System Class Reference

Class to do system operation.

```
#include <gdcmSystem.h>
```

Static Public Member Functions

- static std::wstring ConvertToUNC (const char ∗utf8path)
- static bool DeleteDirectory (const char ∗source)

  remove a directory named source
- static size_t EncodeBytes (char ∗out, const unsigned char ∗data, int size)
- static bool FileExists (const char ∗filename)

  Check whether the specified file exist on the system.
- static bool FileIsDirectory (const char ∗name)

  Check whether the file specified is a directory:
- static bool FileIsSymlink (const char ∗name)

  Check whether name is a symlink.
- static size_t FileSize (const char ∗filename)
- static time_t FileTime (const char ∗filename)
- static bool FormatDateTime (char date[22], time_t t, long milliseconds=0)
- static bool GetCurrentDateTime (char date[22])
- static const char ∗ GetCurrentModuleFileName ()
- static const char ∗ GetCurrentProcessFileName ()
- static const char ∗ GetCurrentResourcesDirectory ()
- static const char ∗ GetCWD ()
- static bool GetHostName (char hostname[255])
- static const char ∗ GetLastSystemError ()

  Return the last error.
- static const char ∗ GetLocaleCharset ()

  return `locale charmap`
- static const char ∗ GetTimezoneOffsetFromUTC ()
- static bool MakeDirectory (const char ∗path)

  Create a directory name path.
- static bool ParseDateTime (time_t &timep, const char date[22])

  Parse a date stored as ASCII text into a time_t structured (discard millisecond if any)
- static bool ParseDateTime (time_t &timep, long &milliseconds, const char date[22])
- static bool RemoveFile (const char ∗source)

  remove a file named source
- static int StrCaseCmp (const char ∗s1, const char ∗s2)

  consistent func for C99 spec of strcasecmp/strncasecmp
- static int StrNCaseCmp (const char ∗s1, const char ∗s2, size_t n)
- static char ∗ StrSep (char ∗∗stringp, const char ∗delim)
- static char ∗ StrTokR (char ∗ptr, const char ∗sep, char ∗∗end)

  strtok_r

Static Protected Member Functions

- static bool GetPermissions (const char ∗file, unsigned short &mode)

  NOT THREAD SAFE.
- static bool SetPermissions (const char ∗file, unsigned short mode)

10.309.1 Detailed Description

Class to do system operation.

OS independent functionalities

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DumpCSA.cs, ExtractEncapsulatedFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FileStreaming.cs, GetArray.cs, MetaImageMD5Activiz.cs, MpegVideoInfo.cs, ReformatFile.cs, RescaleImage.cs, ScanDirectory.cs, SimplePrint.cs, and StandardizeFiles.cs.

10.309.2 Member Function Documentation

10.309.2.1 ConvertToUNC()

```
static std::wstring gdcm::System::ConvertToUNC (
            const char * utf8path )  [static]
```

When needed convert a PATH into a UNC equivalent. This allow transparent support for path longer that MAX_PATH. Only on _MSC_VER compiler, return empty string otherwise.

10.309.2.2 DeleteDirectory()

```
static bool gdcm::System::DeleteDirectory (
            const char * source )  [static]
```

remove a directory named source

10.309.2.3 EncodeBytes()

```
static size_t gdcm::System::EncodeBytes (
            char * out,
            const unsigned char * data,
            int size )  [static]
```

Used internally by the UIDGenerator class to convert a uuid tape to a DICOM VR:UI type

10.309.2.4 FileExists()

```
static bool gdcm::System::FileExists (
            const char * filename )  [static]
```

Check whether the specified file exist on the system.

Examples

DumpVisusChange.cxx, EncapsulateFileInRawData.cxx, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

10.309.2.5 FileIsDirectory()

```
static bool gdcm::System::FileIsDirectory (
            const char * name )  [static]
```

Check whether the file specified is a directory:

Examples

DumpVisusChange.cxx, gdcmorthoplanes.cxx, and threadgdcm.cxx.

10.309.2.6 FileIsSymlink()

```
static bool gdcm::System::FileIsSymlink (
            const char * name )  [static]
```

Check whether name is a symlink.

10.309.2.7 FileSize()

```
static size_t gdcm::System::FileSize (
            const char * filename )  [static]
```

Return the filesize. 0 if file does not exist.

Warning

you need to use FileExists to differentiate between empty file and missing file.

for very large size file and on system where size_t is not appropriate to store off_t value the function will return 0.

Examples

CheckBigEndianBug.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, EncapsulateFileInRawData.cxx, and SimpleScanner.cxx.

10.309.2.8 FileTime()

```
static time_t gdcm::System::FileTime (
            const char * filename )  [static]
```

Return the time of last modification of file 0 if the file does not exist

10.309.2.9 FormatDateTime()

```
static bool gdcm::System::FormatDateTime (
            char date[22],
            time_t t,
            long milliseconds = 0 )  [static]
```

format as ASCII text a time_t with milliseconds See VR::DT from DICOM PS 3.5 milliseconds is in the range [0, 999999]

10.309.2.10 GetCurrentDateTime()

```
static bool gdcm::System::GetCurrentDateTime (
            char date[22] )  [static]
```

Return the current data time, and format it as ASCII text. This is simply a call to gettimeofday + FormatDateTime, since WIN32 do not have an implementation for gettimeofday, this is more portable. The call time(0) is not precise for our resolution

Examples

TemplateEmptyImage.cxx.

10.309.2.11 GetCurrentModuleFileName()

```
static const char * gdcm::System::GetCurrentModuleFileName ( )  [static]
```

Return the directory the current module is located: NOT THREAD SAFE

10.309.2.12 GetCurrentProcessFileName()

```
static const char * gdcm::System::GetCurrentProcessFileName ( )  [static]
```

Return the directory the current process (executable) is located: NOT THREAD SAFE

10.309.2.13 GetCurrentResourcesDirectory()

```
static const char * gdcm::System::GetCurrentResourcesDirectory ( )  [static]
```

On some system (Apple) return the path to the current bundled 'Resources' directory NOT THREAD SAFE

10.309.2.14 GetCWD()

```
static const char * gdcm::System::GetCWD ( )  [static]
```

Return current working directory Warning: if current working path is too long (>2048 bytes) the call will fail and call will return NULL NOT THREAD SAFE

10.309.2.15 GetHostName()

```
static bool gdcm::System::GetHostName (
            char hostname[255] )  [static]
```

Retrieve the hostname, only the first 255 byte are copied. This may come handy to specify the Station Name

10.309.2.16 GetLastSystemError()

```
static const char * gdcm::System::GetLastSystemError ( )  [static]
```

Return the last error.

10.309.2.17 GetLocaleCharset()

```
static const char * gdcm::System::GetLocaleCharset ( )  [static]
```

return `locale charmap`

10.309.2.18 GetPermissions()

```
static bool gdcm::System::GetPermissions (
            const char * file,
            unsigned short & mode )  [static], [protected]
```

NOT THREAD SAFE.

10.309.2.19 GetTimezoneOffsetFromUTC()

```
static const char * gdcm::System::GetTimezoneOffsetFromUTC ( )  [static]
```

Return the value for Timezone Offset From UTC as string.

Warning

not thread safe

10.309.2.20 MakeDirectory()

```
static bool gdcm::System::MakeDirectory (
            const char * path )  [static]
```

Create a directory name path.

10.309.2.21 ParseDateTime() [1/2]

```
static bool gdcm::System::ParseDateTime (
            time_t & timep,
            const char date[22] )  [static]
```

Parse a date stored as ASCII text into a time_t structured (discard millisecond if any)

10.309.2.22 ParseDateTime() [2/2]

```
static bool gdcm::System::ParseDateTime (
            time_t & timep,
            long & milliseconds,
            const char date[22] )  [static]
```

Parse a date stored as ASCII text into a time_t structured and millisecond

See also

FormatDateTime

10.309.2.23 RemoveFile()

```
static bool gdcm::System::RemoveFile (
            const char * source )  [static]
```

remove a file named source

10.309.2.24 SetPermissions()

```
static bool gdcm::System::SetPermissions (
            const char * file,
            unsigned short mode )  [static], [protected]
```

10.309.2.25 StrCaseCmp()

```
static int gdcm::System::StrCaseCmp (
            const char * s1,
            const char * s2 )  [static]
```

consistent func for C99 spec of strcasecmp/strncasecmp

10.309.2.26 StrNCaseCmp()

```
static int gdcm::System::StrNCaseCmp (
            const char * s1,
            const char * s2,
            size_t n )  [static]
```

Precondition

n != 0

10.309.2.27 StrSep()

```
static char * gdcm::System::StrSep (
            char ** stringp,
            const char * delim )  [static]
```

strsep param stringp is passed by pointer, it may be modified, you'll need to make a copy, in case you want to free the memory pointed at

10.309.2.28 StrTokR()

```
static char * gdcm::System::StrTokR (
            char * ptr,
            const char * sep,
            char ** end )  [static]
```

strtok_r

The documentation for this class was generated from the following file:

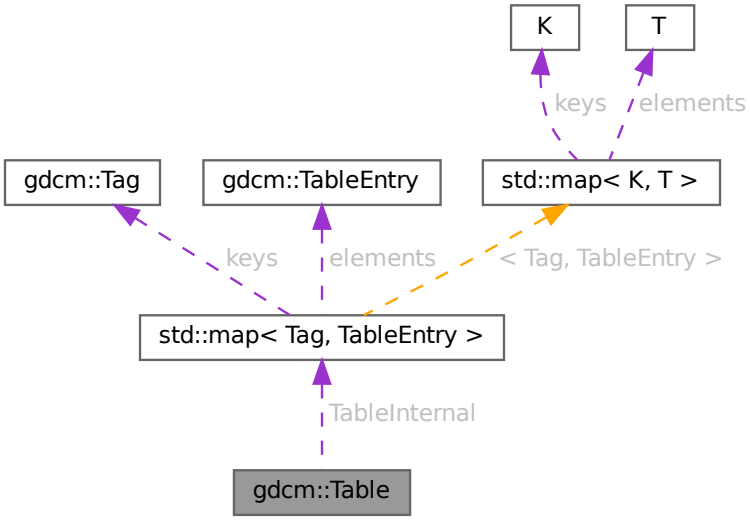
- gdcmSystem.h

10.310 gdcm::Table Class Reference

Table.

```
#include <gdcmTable.h>
```

Collaboration diagram for gdcm::Table:



Public Types

- typedef std::map< Tag, TableEntry > MapTableEntry

Public Member Functions

- Table ()=default
- Table (const Table &_val)=delete
- ~Table ()=default
- const TableEntry & GetTableEntry (const Tag &tag) const
- void InsertEntry (Tag const &tag, TableEntry const &te)
- Table & operator= (const Table &_val)=delete

Public Attributes

- MapTableEntry TableInternal

Friends

- std::ostream & operator<< (std::ostream &_os, const Table &_val)

10.310.1 Detailed Description

Table.

10.310.2 Member Typedef Documentation

10.310.2.1 MapTableEntry

```
typedef std::map<Tag, TableEntry> gdcm::Table::MapTableEntry
```

10.310.3 Constructor & Destructor Documentation

10.310.3.1 Table() [1/2]

```
gdcm::Table::Table ( ) [default]
```

10.310.3.2 ~Table()

```
gdcm::Table::~Table ( ) [default]
```

10.310.3.3 Table() [2/2]

```
gdcm::Table::Table (
            const Table & _val ) [delete]
```

10.310.4 Member Function Documentation

10.310.4.1 GetTableEntry()

```
const TableEntry & gdcm::Table::GetTableEntry (
            const Tag & tag ) const [inline]
```

References GetTableEntry(), and TableInternal.

Referenced by GetTableEntry().

10.310.4.2 InsertEntry()

```
void gdcm::Table::InsertEntry (
            Tag const & tag,
            TableEntry const & te ) [inline]
```

References TableInternal.

10.310.4.3 operator=()

```
Table & gdcm::Table::operator= (
            const Table & _val )  [delete]
```

10.310.5 Friends And Related Symbol Documentation

10.310.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Table & _val )  [friend]
```

10.310.6 Member Data Documentation

10.310.6.1 TableInternal

```
MapTableEntry gdcm::Table::TableInternal
```

Referenced by GetTableEntry(), and InsertEntry().

The documentation for this class was generated from the following file:

- gdcmTable.h

10.311 gdcm::TableEntry Class Reference

TableEntry.

```
#include <gdcmTableEntry.h>
```

Public Member Functions

- TableEntry (const char ∗attribute=nullptr, Type const &type=Type(), const char ∗des=nullptr)
- ∼TableEntry ()=default

10.311.1 Detailed Description

TableEntry.

10.311.2 Constructor & Destructor Documentation

10.311.2.1 TableEntry()

```
gdcm::TableEntry::TableEntry (
            const char * attribute = nullptr,
            Type const & type = Type(),
            const char * des = nullptr )  [inline]
```

10.311.2.2 ~TableEntry()

```
gdcm::TableEntry::~TableEntry ( )  [default]
```

The documentation for this class was generated from the following file:

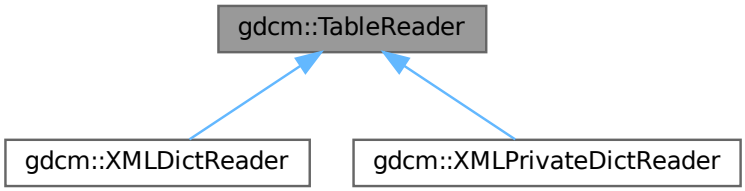
- gdcmTableEntry.h

10.312 gdcm::TableReader Class Reference

Class for representing a TableReader.

```
#include <gdcmTableReader.h>
```

Inheritance diagram for gdcm::TableReader:



Public Member Functions

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- virtual void CharacterDataHandler (const char *data, int length)
- virtual void EndElement (const char *name)
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)
- virtual void StartElement (const char *name, const char **atts)

10.312.1 Detailed Description

Class for representing a TableReader.

Note

This class is an empty shell meant to be derived

10.312.2 Constructor & Destructor Documentation

10.312.2.1 TableReader()

```
gdcm::TableReader::TableReader (
            Defs & defs )  [inline]
```

10.312.2.2 ~TableReader()

```
virtual gdcm::TableReader::~TableReader ( )  [virtual], [default]
```

10.312.3 Member Function Documentation

10.312.3.1 CharacterDataHandler()

```
virtual void gdcm::TableReader::CharacterDataHandler (
            const char * data,
            int length )  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

10.312.3.2 EndElement()

```
virtual void gdcm::TableReader::EndElement (
            const char * name )  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

10.312.3.3 GetDefs()

```
const Defs & gdcm::TableReader::GetDefs ( ) const  [inline]
```

10.312.3.4 GetFilename()

```
const char * gdcm::TableReader::GetFilename ( )  [inline]
```

10.312.3.5 HandleIOD()

```
void gdcm::TableReader::HandleIOD (
            const char ** atts )
```

10.312.3.6 HandleIODEntry()

```
void gdcm::TableReader::HandleIODEntry (
            const char ** atts )
```

10.312.3.7 HandleMacro()

```
void gdcm::TableReader::HandleMacro (
            const char ** atts )
```

10.312.3.8 HandleMacroEntry()

```
void gdcm::TableReader::HandleMacroEntry (
            const char ** atts )
```

10.312.3.9 HandleMacroEntryDescription()

```
void gdcm::TableReader::HandleMacroEntryDescription (
            const char ** atts )
```

10.312.3.10 HandleModule()

```
void gdcm::TableReader::HandleModule (
            const char ** atts )
```

10.312.3.11 HandleModuleEntry()

```
void gdcm::TableReader::HandleModuleEntry (
            const char ** atts )
```

10.312.3.12 HandleModuleEntryDescription()

```
void gdcm::TableReader::HandleModuleEntryDescription (
            const char ** atts )
```

10.312.3.13 HandleModuleInclude()

```
void gdcm::TableReader::HandleModuleInclude (
            const char ** atts )
```

10.312.3.14 Read()

```
int gdcm::TableReader::Read ( )
```

10.312.3.15 SetFilename()

```
void gdcm::TableReader::SetFilename (
            const char * filename )  [inline]
```

10.312.3.16 StartElement()

```
virtual void gdcm::TableReader::StartElement (
            const char * name,
            const char ** atts )  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

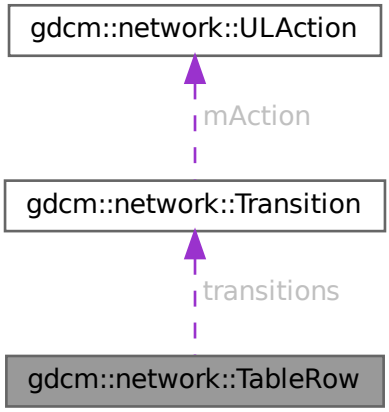
The documentation for this class was generated from the following file:

- gdcmTableReader.h

10.313 gdcm::network::TableRow Class Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::TableRow:



Public Member Functions

- TableRow ()
- ~TableRow ()

Public Attributes

- Transition * transitions [cMaxStateID]

10.313.1 Constructor & Destructor Documentation

10.313.1.1 TableRow()

```
gdcm::network::TableRow::TableRow ( ) [inline]
```

References gdcm::network::cMaxStateID, and transitions.

10.313.1.2 ~TableRow()

```
gdcm::network::TableRow::~TableRow ( ) [inline]
```

References gdcm::network::cMaxStateID, and transitions.

10.313.2 Member Data Documentation

10.313.2.1 transitions

```
Transition* gdcm::network::TableRow::transitions[cMaxStateID]
```

Referenced by TableRow(), and ~TableRow().

The documentation for this class was generated from the following file:

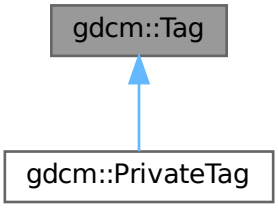
- gdcmULTransitionTable.h

10.314 gdcm::Tag Class Reference

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

```
#include <gdcmTag.h>
```

Inheritance diagram for gdcm::Tag:



Public Member Functions

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  Constructor with 2∗uint16_t.
- Tag (uint32_t tag=0)

  Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

Returns the 'Group number' of the given Tag.

- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const
- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1)
- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1)
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char *str)
- bool ReadFromContinuousString (const char *str)
- bool ReadFromPipeSeparatedString (const char *str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

  Sets the 'Group number' & 'Element number' of the given Tag.
- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.
- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.
- void SetPrivateCreator (Tag const &t)

  Set private creator:
- template<typename TSwap >
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::istream & operator>> (std::istream &_is, Tag &_val)

10.314.1 Detailed Description

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Basically an uint32_t which can also be expressed as two uint16_t (group and element)

Note

DATA ELEMENT TAG: A unique identifier for a Data Element composed of an ordered pair of numbers (a Group Number followed by an Element Number). GROUP NUMBER: The first number in the ordered pair of numbers that makes up a Data Element Tag. ELEMENT NUMBER: The second number in the ordered pair of numbers that makes up a Data Element Tag.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PublicDict.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ScanDirectory.cs, SimpleScanner.cxx, SortImage.cxx, StreamImageReaderTest.cxx, TraverseModules.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.314.2 Constructor & Destructor Documentation

10.314.2.1 Tag() [1/3]

```
gdcm::Tag::Tag (
            uint16_t group,
            uint16_t element )  [inline]
```

Constructor with 2∗uint16_t.

10.314.2.2 Tag() [2/3]

```
gdcm::Tag::Tag (
            uint32_t tag = 0 )  [inline]
```

Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.

10.314.2.3 Tag() [3/3]

```
gdcm::Tag::Tag (
            const Tag & _val )  [inline]
```

References tag.

10.314.3 Member Function Documentation

10.314.3.1 GetElement()

```
uint16_t gdcm::Tag::GetElement ( ) const  [inline]
```

Returns the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::DataSet::ComputeGroupLength(), IsGroupXX(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

10.314.3.2 GetElementTag()

```
uint32_t gdcm::Tag::GetElementTag ( ) const  [inline]
```

Returns the full tag value of the given Tag.

Referenced by gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator=(), gdcm::PrivateTag::operator==(), and gdcm::PrivateTag::operator==().

10.314.3.3 GetGroup()

```
uint16_t gdcm::Tag::GetGroup ( ) const  [inline]
```

Returns the 'Group number' of the given Tag.

Examples

DuplicatePCDE.cxx, and GenAllVR.cxx.

Referenced by gdcm::DataSet::ComputeGroupLength(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), gdcm::CommandDataSet::Insert(), IsGroupXX(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

10.314.3.4 GetLength()

```
uint32_t gdcm::Tag::GetLength ( ) const  [inline]
```

return the length of tag (read: size on disk)

10.314.3.5 GetPrivateCreator()

```
Tag gdcm::Tag::GetPrivateCreator ( ) const  [inline]
```

Return the Private Creator Data Element tag of a private data element.

References SetElement().

10.314.3.6 IsGroupLength()

```
bool gdcm::Tag::IsGroupLength ( ) const  [inline]
```

return whether the tag correspond to a group length tag:

10.314.3.7 IsGroupXX()

```
bool gdcm::Tag::IsGroupXX (
            const Tag & t ) const  [inline]
```

e.g 6002,3000 belong to groupXX: 6000,3000

References GetElement(), GetGroup(), and IsPrivate().

10.314.3.8 IsIllegal()

```
bool gdcm::Tag::IsIllegal ( ) const  [inline]
```

return if the tag is considered to be an illegal tag

10.314.3.9 IsPrivate()

```
bool gdcm::Tag::IsPrivate ( ) const  [inline]
```

PRIVATE DATA ELEMENT: Additional Data Element, defined by an implementor, to communicate information that is not contained in Standard Data Elements. Private Data elements have odd Group Numbers.

Examples

DuplicatePCDE.cxx.

Referenced by IsGroupXX(), and SetPrivateCreator().

10.314.3.10 IsPrivateCreator()

```
bool gdcm::Tag::IsPrivateCreator ( ) const  [inline]
```

Returns if tag is a Private Creator (xxxx,00yy), where xxxx is odd number and yy in [0x10,0xFF]

Examples

DuplicatePCDE.cxx.

10.314.3.11 IsPublic()

```
bool gdcm::Tag::IsPublic ( ) const  [inline]
```

STANDARD DATA ELEMENT: A Data Element defined in the DICOM Standard, and therefore listed in the DICOM Data Element Dictionary in PS 3.6. Is the Tag from the Public dict...well the implementation is buggy it does not prove the element is indeed in the dict...

10.314.3.12 operator"!=()

```
bool gdcm::Tag::operator!= (
            const Tag & _val ) const  [inline]
```

References tag.

10.314.3.13 operator<()

```
bool gdcm::Tag::operator< (
            const Tag & _val ) const  [inline]
```

DICOM Standard expects the Data Element to be sorted by Tags All other comparison can be constructed from this one and operator ==

References tag, and tags.

10.314.3.14 operator<=()

```
bool gdcm::Tag::operator<= (
            const Tag & t2 ) const  [inline]
```

10.314.3.15 operator=()

```
Tag & gdcm::Tag::operator= (
            const Tag & _val )  [inline]
```

References tag.

10.314.3.16 operator==()

```
bool gdcm::Tag::operator== (
            const Tag & _val ) const  [inline]
```

References tag.

10.314.3.17 operator[]() [1/2]

```
uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id )  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1)

10.314.3.18 operator[]() [2/2]

```
const uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id ) const  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1)

10.314.3.19 PrintAsContinuousString()

```
std::string gdcm::Tag::PrintAsContinuousString ( ) const
```

Print tag value with no separating comma: eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

10.314.3.20 PrintAsContinuousUpperCaseString()

```
std::string gdcm::Tag::PrintAsContinuousUpperCaseString ( ) const
```

Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.

10.314.3.21 PrintAsPipeSeparatedString()

```
std::string gdcm::Tag::PrintAsPipeSeparatedString ( ) const
```

Print as a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromPipeSeparatedString

10.314.3.22 Read()

```
template<typename TSwap >
std::istream & gdcm::Tag::Read (
            std::istream & is )  [inline]
```

Read a tag from binary representation.

10.314.3.23 ReadFromCommaSeparatedString()

```
bool gdcm::Tag::ReadFromCommaSeparatedString (
            const char * str )
```

Read from a comma separated string. This is a highly user oriented function, the string should be formatted as↩ : 1234,5678 to specify the tag (0x1234,0x5678) The notation comes from the DICOM standard, and is handy to use from a command line program

10.314.3.24 ReadFromContinuousString()

```
bool gdcm::Tag::ReadFromContinuousString (
            const char * str )
```

Read From XML formatted tag value eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

10.314.3.25 ReadFromPipeSeparatedString()

```
bool gdcm::Tag::ReadFromPipeSeparatedString (
            const char * str )
```

Read from a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromCommaSeparatedString

10.314.3.26 SetElement()

```
void gdcm::Tag::SetElement (
            uint16_t element )  [inline]
```

Sets the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by GetPrivateCreator().

10.314.3.27 SetElementTag() [1/2]

```
void gdcm::Tag::SetElementTag (
            uint16_t group,
            uint16_t element )  [inline]
```

Sets the 'Group number' & 'Element number' of the given Tag.

10.314.3.28 SetElementTag() [2/2]

```
void gdcm::Tag::SetElementTag (
            uint32_t tag )  [inline]
```

Sets the full tag value of the given Tag.

10.314.3.29 SetGroup()

```
void gdcm::Tag::SetGroup (
            uint16_t group )  [inline]
```

Sets the 'Group number' of the given Tag.

10.314.3.30 SetPrivateCreator()

```
void gdcm::Tag::SetPrivateCreator (
            Tag const & t )  [inline]
```

Set private creator:

Examples

DuplicatePCDE.cxx.

References GetElement(), GetGroup(), and IsPrivate().

10.314.3.31 Write()

```
template<typename TSwap >
const std::ostream & gdcm::Tag::Write (
            std::ostream & os ) const  [inline]
```

Write a tag in binary rep.

Referenced by gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write().

10.314.4 Friends And Related Symbol Documentation

10.314.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Tag & _val )  [friend]
```

10.314.4.2 operator>>

```
std::istream & operator>> (
            std::istream & _is,
            Tag & _val )  [friend]
```

10.314.5 Member Data Documentation

10.314.5.1 bytes

```
char gdcm::Tag::bytes[4]
```

10.314.5.2 tag

```
uint32_t gdcm::Tag::tag
```

Referenced by Tag(), operator!=(), operator<(), operator=(), and operator==().

10.314.5.3 tags

```
uint16_t gdcm::Tag::tags[2]
```

Referenced by operator<().

The documentation for this class was generated from the following file:

- gdcmTag.h

10.315 gdcm::TagPath Class Reference

class to handle a path of tag.

```
#include <gdcmTagPath.h>
```

Public Member Functions

- TagPath ()
- ~TagPath ()
- bool ConstructFromString (const char *path)
- bool ConstructFromTagList (Tag const *l, unsigned int n)

  Construct from a list of tags.
- void Print (std::ostream &) const
- bool Push (Tag const &t)
- bool Push (unsigned int itemnum)

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

10.315.1 Detailed Description

class to handle a path of tag.

Any Resemblance to Existing XPath is Purely Coincidental `ftp://medical.nema.org/medical/dicom/supps/sup118↩_pc.pdf`

10.315.2 Constructor & Destructor Documentation

10.315.2.1 TagPath()

```
gdcm::TagPath::TagPath ( )
```

10.315.2.2 ~TagPath()

```
gdcm::TagPath::~TagPath ( )
```

10.315.3 Member Function Documentation

10.315.3.1 ConstructFromString()

```
bool gdcm::TagPath::ConstructFromString (
            const char * path )
```

"/0018,0018/"... No space allowed, comma is use to separate tag group from tag element and slash is used to separate tag return false if invalid

10.315.3.2 ConstructFromTagList()

```
bool gdcm::TagPath::ConstructFromTagList (
            Tag const * l,
            unsigned int n )
```

Construct from a list of tags.

10.315.3.3 IsValid()

```
static bool gdcm::TagPath::IsValid (
            const char * path )  [static]
```

Return if path is valid or not.

10.315.3.4 Print()

```
void gdcm::TagPath::Print (
            std::ostream &  ) const
```

10.315.3.5 Push() [1/2]

```
bool gdcm::TagPath::Push (
            Tag const & t )
```

10.315.3.6 Push() [2/2]

```
bool gdcm::TagPath::Push (
            unsigned int itemnum )
```

The documentation for this class was generated from the following file:

- gdcmTagPath.h

10.316 gdcm::Testing Class Reference

class for testing

```
#include <gdcmTesting.h>
```

Public Types

- typedef const char ∗const (∗ MD5DataImagesType)[2]
- typedef const char ∗const (∗ MediaStorageDataFilesType)[2]

  return the table that map the media storage (as string) of a filename (gdcmData)

Public Member Functions

- Testing ()=default
- ∼Testing ()=default
- void Print (std::ostream &os=std::cout)

  Print.

Static Public Member Functions

- static bool ComputeFileMD5 (const char ∗filename, char digest_str[33])
- static bool ComputeMD5 (const char ∗buffer, size_t buf_len, char digest_str[33])
- static const char ∗ GetDataExtraRoot ()

  Return the GDCM DATA EXTRA ROOT.
- static const char ∗ GetDataRoot ()

  Return the GDCM DATA ROOT.
- static const char ∗ GetFileName (unsigned int file)
- static const char ∗const ∗ GetFileNames ()

  return the table of fullpath to gdcmData DICOM files:
- static int GetLossyFlagFromFile (const char ∗filepath)
- static const char ∗const ∗ GetMD5DataImage (unsigned int file)
- static MD5DataImagesType GetMD5DataImages ()
- static const char ∗ GetMD5FromBrokenFile (const char ∗filepath)
- static const char ∗ GetMD5FromFile (const char ∗filepath)
- static const char ∗const ∗ GetMediaStorageDataFile (unsigned int file)
- static MediaStorageDataFilesType GetMediaStorageDataFiles ()
- static const char ∗ GetMediaStorageFromFile (const char ∗filepath)
- static unsigned int GetNumberOfFileNames ()
- static unsigned int GetNumberOfMD5DataImages ()
- static unsigned int GetNumberOfMediaStorageDataFiles ()
- static const char ∗ GetPixelSpacingDataRoot ()

  Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset)
- static std::streamoff GetSelectedPrivateGroupOffsetFromFile (const char ∗filepath)
- static std::streamoff GetSelectedTagsOffsetFromFile (const char ∗filepath)
- static const char ∗ GetSourceDirectory ()
- static std::streamoff GetStreamOffsetFromFile (const char ∗filepath)
- static const char ∗ GetTempDirectory (const char ∗subdir=nullptr)
- static const wchar_t ∗ GetTempDirectoryW (const wchar_t ∗subdir=nullptr)

  NOT THREAD SAFE.
- static const char ∗ GetTempFilename (const char ∗filename, const char ∗subdir=nullptr)

  NOT THREAD SAFE.
- static const wchar_t ∗ GetTempFilenameW (const wchar_t ∗filename, const wchar_t ∗subdir=nullptr)

  NOT THREAD SAFE.

10.316.1 Detailed Description

class for testing

this class is used for the nightly regression system for GDCM It makes heavily use of md5 computation

See also

gdcm::MD5 class for md5 computation

10.316.2 Member Typedef Documentation

10.316.2.1 MD5DataImagesType

```
typedef const char* const(* gdcm::Testing::MD5DataImagesType)[2]
```

return the table that map the md5 (as in md5sum) of the Pixel Data associated to a filename

10.316.2.2 MediaStorageDataFilesType

```
typedef const char* const(* gdcm::Testing::MediaStorageDataFilesType)[2]
```

return the table that map the media storage (as string) of a filename (gdcmData)

10.316.3 Constructor & Destructor Documentation

10.316.3.1 Testing()

```
gdcm::Testing::Testing ( )  [default]
```

10.316.3.2 ~Testing()

```
gdcm::Testing::~Testing ( )  [default]
```

10.316.4 Member Function Documentation

10.316.4.1 ComputeFileMD5()

```
static bool gdcm::Testing::ComputeFileMD5 (
            const char * filename,
            char digest_str[33] )  [static]
```

Examples

MetaImageMD5Activiz.cs.

10.316.4.2 ComputeMD5()

```
static bool gdcm::Testing::ComputeMD5 (
            const char * buffer,
            size_t buf_len,
            char digest_str[33] )  [static]
```

MD5 stuff digest_str needs to be at least : strlen = [2∗16+1]; string will be \0 padded. (md5 are 32 bytes long) Testing is not meant to be shipped with an installed GDCM release, always prefer the gdcm::MD5 API when doing md5 computation.

10.316.4.3 GetDataExtraRoot()

```
static const char * gdcm::Testing::GetDataExtraRoot ( )  [static]
```

Return the GDCM DATA EXTRA ROOT.

Examples

DiscriminateVolume.cxx, VolumeSorter.cxx, and reslicesphere.cxx.

10.316.4.4 GetDataRoot()

```
static const char * gdcm::Testing::GetDataRoot ( )  [static]
```

Return the GDCM DATA ROOT.

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, and MagnifyFile.cxx.

10.316.4.5 GetFileName()

```
static const char * gdcm::Testing::GetFileName (
            unsigned int file )  [static]
```

Examples

MetaImageMD5Activiz.cs.

10.316.4.6 GetFileNames()

```
static const char *const * gdcm::Testing::GetFileNames ( )  [static]
```

return the table of fullpath to gdcmData DICOM files:

Examples

TestReader.cxx.

10.316.4.7 GetLossyFlagFromFile()

```
static int gdcm::Testing::GetLossyFlagFromFile (
            const char * filepath )  [static]
```

Return the lossy flag of the given filename -1 -> Error 0 -> Lossless 1 -> Lossy

10.316.4.8 GetMD5DataImage()

```
static const char *const * gdcm::Testing::GetMD5DataImage (
            unsigned int file )  [static]
```

10.316.4.9 GetMD5DataImages()

```
static MD5DataImagesType gdcm::Testing::GetMD5DataImages ( )  [static]
```

10.316.4.10 GetMD5FromBrokenFile()

```
static const char * gdcm::Testing::GetMD5FromBrokenFile (
            const char * filepath )  [static]
```

Return what should have been the md5 of file 'filepath' This is based on current GDCM implementation to decipher a broken DICOM file.

10.316.4.11 GetMD5FromFile()

```
static const char * gdcm::Testing::GetMD5FromFile (
            const char * filepath )  [static]
```

10.316.4.12 GetMediaStorageDataFile()

```
static const char *const * gdcm::Testing::GetMediaStorageDataFile (
            unsigned int file )  [static]
```

10.316.4.13 GetMediaStorageDataFiles()

```
static MediaStorageDataFilesType gdcm::Testing::GetMediaStorageDataFiles ( ) [static]
```

10.316.4.14 GetMediaStorageFromFile()

```
static const char * gdcm::Testing::GetMediaStorageFromFile (
            const char * filepath ) [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

10.316.4.15 GetNumberOfFileNames()

```
static unsigned int gdcm::Testing::GetNumberOfFileNames ( ) [static]
```

Examples

MetaImageMD5Activiz.cs.

10.316.4.16 GetNumberOfMD5DataImages()

```
static unsigned int gdcm::Testing::GetNumberOfMD5DataImages ( ) [static]
```

10.316.4.17 GetNumberOfMediaStorageDataFiles()

```
static unsigned int gdcm::Testing::GetNumberOfMediaStorageDataFiles ( ) [static]
```

10.316.4.18 GetPixelSpacingDataRoot()

```
static const char * gdcm::Testing::GetPixelSpacingDataRoot ( ) [static]
```

Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset)

10.316.4.19 GetSelectedPrivateGroupOffsetFromFile()

```
static std::streamoff gdcm::Testing::GetSelectedPrivateGroupOffsetFromFile (
            const char * filepath ) [static]
```

Return the offset just after private attribute (0009,0010,"GEMS_IDEN_01") if found. Otherwise the offset of the next attribute -1 if not found

10.316.4.20 GetSelectedTagsOffsetFromFile()

```
static std::streamoff gdcm::Testing::GetSelectedTagsOffsetFromFile (
            const char * filepath )  [static]
```

Return the offset just after Pixel Data Length (7fe0,0000) if found. Otherwise the offset of the very first pixel cell in Pixel Data -1 if not found

10.316.4.21 GetSourceDirectory()

```
static const char * gdcm::Testing::GetSourceDirectory ( )  [static]
```

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

10.316.4.22 GetStreamOffsetFromFile()

```
static std::streamoff gdcm::Testing::GetStreamOffsetFromFile (
            const char * filepath )  [static]
```

Return the offset of the very first pixel cell in the PixelData -1 if not found

10.316.4.23 GetTempDirectory()

```
static const char * gdcm::Testing::GetTempDirectory (
            const char * subdir = nullptr )  [static]
```

NOT THREAD SAFE Returns the temp directory as used in testing needing to output data:

Examples

MetaImageMD5Activiz.cs.

10.316.4.24 GetTempDirectoryW()

```
static const wchar_t * gdcm::Testing::GetTempDirectoryW (
            const wchar_t * subdir = nullptr )  [static]
```

NOT THREAD SAFE.

10.316.4.25 GetTempFilename()

```
static const char * gdcm::Testing::GetTempFilename (
            const char * filename,
            const char * subdir = nullptr )  [static]
```

NOT THREAD SAFE.

Examples

MetaImageMD5Activiz.cs.

10.316.4.26 GetTempFilenameW()

```
static const wchar_t * gdcm::Testing::GetTempFilenameW (
            const wchar_t * filename,
            const wchar_t * subdir = nullptr )  [static]
```

NOT THREAD SAFE.

10.316.4.27 Print()

```
void gdcm::Testing::Print (
            std::ostream & os = std::cout )
```

Print.

The documentation for this class was generated from the following file:

- gdcmTesting.h

10.317 gdcm::Trace Class Reference

Trace.

```
#include <gdcmTrace.h>
```

Public Member Functions

- Trace ()
- ~Trace ()

Static Public Member Functions

- static void DebugOff ()
- static void DebugOn ()
- static void ErrorOff ()
- static void ErrorOn ()
- static bool GetDebugFlag ()
- static std::ostream & GetDebugStream ()
- static bool GetErrorFlag ()
- static std::ostream & GetErrorStream ()
- static std::ostream & GetStream ()
- static bool GetWarningFlag ()
- static std::ostream & GetWarningStream ()
- static void SetDebug (bool debug)

  Turn debug messages on (default: false)
- static void SetDebugStream (std::ostream &os)

  Explicitly set the stream which receive Debug messages:
- static void SetError (bool debug)

  Turn error messages on (default: true)
- static void SetErrorStream (std::ostream &os)

  Explicitly set the stream which receive Error messages:
- static void SetStream (std::ostream &os)
- static void SetStreamToFile (const char *filename)
- static void SetWarning (bool debug)

  Turn warning messages on (default: true)
- static void SetWarningStream (std::ostream &os)

  Explicitly set the stream which receive Warning messages:
- static void WarningOff ()
- static void WarningOn ()

10.317.1 Detailed Description

Trace.

Debug / Warning and Error are encapsulated in this class by default the Trace class will redirect any debug/warning/error to std::cerr. Unless SetStream was specified with another (open) stream or SetStreamToFile was specified to a writable file on the system.

Warning

All string messages are removed during compilation time when compiled with CMAKE_BUILD_TYPE being set to either:

- Release
- MinSizeRel It is recommended to compile with RelWithDebInfo and/or Debug during prototyping of applications.

Examples

DecompressJPEGFile.cs.

10.317.2 Constructor & Destructor Documentation

10.317.2.1 Trace()

```
gdcm::Trace::Trace ( )
```

10.317.2.2 ~Trace()

```
gdcm::Trace::~Trace ( )
```

10.317.3 Member Function Documentation

10.317.3.1 DebugOff()

```
static void gdcm::Trace::DebugOff ( )  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

10.317.3.2 DebugOn()

```
static void gdcm::Trace::DebugOn ( )  [static]
```

Examples

CreateFakePET.cxx, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

10.317.3.3 ErrorOff()

```
static void gdcm::Trace::ErrorOff ( )  [static]
```

Examples

MetaImageMD5Activiz.cs.

10.317.3.4 ErrorOn()

```
static void gdcm::Trace::ErrorOn ( )  [static]
```

10.317.3.5 GetDebugFlag()

```
static bool gdcm::Trace::GetDebugFlag ( ) [static]
```

10.317.3.6 GetDebugStream()

```
static std::ostream & gdcm::Trace::GetDebugStream ( ) [static]
```

10.317.3.7 GetErrorFlag()

```
static bool gdcm::Trace::GetErrorFlag ( ) [static]
```

10.317.3.8 GetErrorStream()

```
static std::ostream & gdcm::Trace::GetErrorStream ( ) [static]
```

10.317.3.9 GetStream()

```
static std::ostream & gdcm::Trace::GetStream ( ) [static]
```

10.317.3.10 GetWarningFlag()

```
static bool gdcm::Trace::GetWarningFlag ( ) [static]
```

10.317.3.11 GetWarningStream()

```
static std::ostream & gdcm::Trace::GetWarningStream ( ) [static]
```

10.317.3.12 SetDebug()

```
static void gdcm::Trace::SetDebug (
            bool debug ) [static]
```

Turn debug messages on (default: false)

Examples

DumpToSQLITE3.cxx.

10.317.3.13 SetDebugStream()

```
static void gdcm::Trace::SetDebugStream (
            std::ostream & os )  [static]
```

Explicitly set the stream which receive Debug messages:

10.317.3.14 SetError()

```
static void gdcm::Trace::SetError (
            bool debug )  [static]
```

Turn error messages on (default: true)

10.317.3.15 SetErrorStream()

```
static void gdcm::Trace::SetErrorStream (
            std::ostream & os )  [static]
```

Explicitly set the stream which receive Error messages:

Examples

CStoreQtProgress.cxx.

10.317.3.16 SetStream()

```
static void gdcm::Trace::SetStream (
            std::ostream & os )  [static]
```

Explicitly set the ostream for gdcm::Trace to report to This will set the DebugStream, WarningStream and ErrorStream at once:

10.317.3.17 SetStreamToFile()

```
static void gdcm::Trace::SetStreamToFile (
            const char * filename )  [static]
```

Explicitly set the filename for gdcm::Trace to report to The file will be created (it will not append to existing file)

10.317.3.18 SetWarning()

```
static void gdcm::Trace::SetWarning (
            bool debug )  [static]
```

Turn warning messages on (default: true)

Examples

DumpToSQLITE3.cxx.

10.317.3.19 SetWarningStream()

```
static void gdcm::Trace::SetWarningStream (
            std::ostream & os )  [static]
```

Explicitly set the stream which receive Warning messages:

10.317.3.20 WarningOff()

```
static void gdcm::Trace::WarningOff ( )  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

10.317.3.21 WarningOn()

```
static void gdcm::Trace::WarningOn ( )  [static]
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

The documentation for this class was generated from the following file:

- gdcmTrace.h

10.318 gdcm::TransferSyntax Class Reference

Class to manipulate Transfer Syntax.

```
#include <gdcmTransferSyntax.h>
```

Public Types

- enum NegociatedType {
  Unknown = 0 ,
  Explicit ,
  Implicit }
- enum TSType {
  ImplicitVRLittleEndian = 0 ,
  ImplicitVRBigEndianPrivateGE ,
  ExplicitVRLittleEndian ,
  DeflatedExplicitVRLittleEndian ,
  ExplicitVRBigEndian ,
  JPEGBaselineProcess1 ,
  JPEGExtendedProcess2_4 ,
  JPEGExtendedProcess3_5 ,
  JPEGSpectralSelectionProcess6_8 ,
  JPEGFullProgressionProcess10_12 ,
  JPEGLosslessProcess14 ,
  JPEGLosslessProcess14_1 ,
  JPEGLSLossless ,
  JPEGLSNearLossless ,
  JPEG2000Lossless ,
  JPEG2000 ,
  JPEG2000Part2Lossless ,
  JPEG2000Part2 ,
  RLELossless ,
  MPEG2MainProfile ,
  ImplicitVRBigEndianACRNEMA ,
  WeirdPapryus ,
  CT_private_ELE ,
  JPIPReferenced ,
  MPEG2MainProfileHighLevel ,
  MPEG4AVCH264HighProfileLevel4_1 ,
  MPEG4AVCH264BDcompatibleHighProfileLevel4_1 ,
  TS_END }

Public Member Functions

- TransferSyntax (TSType type=ImplicitVRLittleEndian)
- bool CanStoreLossy () const
- NegociatedType GetNegociatedType () const
- const char * GetString () const
- SwapCode GetSwapCode () const
- bool IsEncapsulated () const
- bool IsEncoded () const
- bool IsExplicit () const
- bool IsImplicit () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsValid () const
- operator TSType () const

Static Public Member Functions

- static const char * GetTSString (TSType ts)
- static TSType GetTSType (const char *str)

Friends

- std::ostream & operator<< (std::ostream &os, const TransferSyntax &ts)

10.318.1 Detailed Description

Class to manipulate Transfer Syntax.

Note

TRANSFER SYNTAX (Standard and Private): A set of encoding rules that allow Application Entities to unambiguously negotiate the encoding techniques (e.g., Data Element structure, byte ordering, compression) they are able to support, thereby allowing these Application Entities to communicate.

Todo : The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Need a notion of Private Syntax. As defined in PS 3.5. Section 9.2

See also

UIDs

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, and StandardizeFiles.cs.

10.318.2 Member Enumeration Documentation

10.318.2.1 NegociatedType

`enum gdcm::TransferSyntax::NegociatedType`

Enumerator

Unknown	
Explicit	
Implicit	

10.318.2.2 TSType

```
enum gdcm::TransferSyntax::TSType
```

Enumerator

ImplicitVRLittleEndian	
ImplicitVRBigEndianPrivateGE	
ExplicitVRLittleEndian	
DeflatedExplicitVRLittleEndian	
ExplicitVRBigEndian	
JPEGBaselineProcess1	
JPEGExtendedProcess2_4	
JPEGExtendedProcess3_5	
JPEGSpectralSelectionProcess6_8	
JPEGFullProgressionProcess10_12	
JPEGLosslessProcess14	
JPEGLosslessProcess14_1	
JPEGLSLossless	
JPEGLSNearLossless	
JPEG2000Lossless	
JPEG2000	
JPEG2000Part2Lossless	
JPEG2000Part2	
RLELossless	
MPEG2MainProfile	
ImplicitVRBigEndianACRNEMA	
WeirdPapryus	
CT_private_ELE	
JPIPReferenced	
MPEG2MainProfileHighLevel	
MPEG4AVCH264HighProfileLevel4_1	
MPEG4AVCH264BDcompatibleHighProfileLevel4↩ _1	
TS_END	

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, and StandardizeFiles.cs.

10.318.3 Constructor & Destructor Documentation

10.318.3.1 TransferSyntax()

```
gdcm::TransferSyntax::TransferSyntax (
            TSType type = ImplicitVRLittleEndian )  [inline]
```

10.318.4 Member Function Documentation

10.318.4.1 CanStoreLossy()

```
bool gdcm::TransferSyntax::CanStoreLossy ( ) const
```

return true if TransFer Syntax Allow storing of Lossy Pixel Data

10.318.4.2 GetNegociatedType()

```
NegociatedType gdcm::TransferSyntax::GetNegociatedType ( ) const
```

10.318.4.3 GetString()

```
const char * gdcm::TransferSyntax::GetString ( ) const  [inline]
```

10.318.4.4 GetSwapCode()

```
SwapCode gdcm::TransferSyntax::GetSwapCode ( ) const
```

Deprecated Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

10.318.4.5 GetTSString()

```
static const char * gdcm::TransferSyntax::GetTSString (
            TSType ts )  [static]
```

Examples

LargeVRDSExplicit.cxx.

10.318.4.6 GetTSType()

```
static TSType gdcm::TransferSyntax::GetTSType (
            const char * str )  [static]
```

10.318.4.7 IsEncapsulated()

```
bool gdcm::TransferSyntax::IsEncapsulated ( ) const
```

Examples

ExtractIconFromFile.cxx.

10.318.4.8 IsEncoded()

```
bool gdcm::TransferSyntax::IsEncoded ( ) const
```

10.318.4.9 IsExplicit()

```
bool gdcm::TransferSyntax::IsExplicit ( ) const
```

10.318.4.10 IsImplicit()

```
bool gdcm::TransferSyntax::IsImplicit ( ) const
```

10.318.4.11 IsLossless()

```
bool gdcm::TransferSyntax::IsLossless ( ) const
```

Return true if the transfer syntax algorithm is a lossless algorithm

10.318.4.12 IsLossy()

```
bool gdcm::TransferSyntax::IsLossy ( ) const
```

Return true if the transfer syntax algorithm is a lossy algorithm

10.318.4.13 IsValid()

```
bool gdcm::TransferSyntax::IsValid ( ) const  [inline]
```

10.318.4.14 operator TSType()

```
gdcm::TransferSyntax::operator TSType ( ) const  [inline]
```

10.318.5 Friends And Related Symbol Documentation

10.318.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const TransferSyntax & ts )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmTransferSyntax.h

10.319 gdcm::network::TransferSyntaxSub Class Reference

TransferSyntaxSub.

```
#include <gdcmTransferSyntaxSub.h>
```

Public Member Functions

- TransferSyntaxSub ()
- const char * GetName () const
- bool operator== (const TransferSyntaxSub &ts) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.319.1 Detailed Description

TransferSyntaxSub.

Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS

TODO what is the goal of :

Table 9-19 TRANSFER SYNTAX SUB-ITEM FIELDS

10.319.2 Constructor & Destructor Documentation

10.319.2.1 TransferSyntaxSub()

```
gdcm::network::TransferSyntaxSub::TransferSyntaxSub ( )
```

10.319.3 Member Function Documentation

10.319.3.1 GetName()

```
const char * gdcm::network::TransferSyntaxSub::GetName ( ) const  [inline]
```

10.319.3.2 operator==()

```
bool gdcm::network::TransferSyntaxSub::operator== (
            const TransferSyntaxSub & ts ) const  [inline]
```

10.319.3.3 Print()

```
void gdcm::network::TransferSyntaxSub::Print (
            std::ostream & os ) const
```

10.319.3.4 Read()

```
std::istream & gdcm::network::TransferSyntaxSub::Read (
            std::istream & is )
```

10.319.3.5 SetName()

```
void gdcm::network::TransferSyntaxSub::SetName (
            const char * name )
```

10.319.3.6 SetNameFromUID()

```
void gdcm::network::TransferSyntaxSub::SetNameFromUID (
            UIDs::TSName tsname )
```

10.319.3.7 Size()

```
size_t gdcm::network::TransferSyntaxSub::Size ( ) const
```

10.319.3.8 Write()

```
const std::ostream & gdcm::network::TransferSyntaxSub::Write (
            std::ostream & os ) const
```

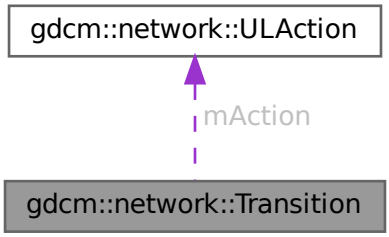
The documentation for this class was generated from the following file:

- gdcmTransferSyntaxSub.h

10.320 gdcm::network::Transition Struct Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::Transition:



Public Member Functions

- Transition ()
- Transition (int inEndState, ULAction ∗inAction)
- ∼Transition ()

Static Public Member Functions

- static Transition ∗ MakeNew (int inEndState, ULAction ∗inAction)

Public Attributes

- ULAction ∗ mAction
- int mEnd

10.320.1 Constructor & Destructor Documentation

10.320.1.1 Transition() [1/2]

```
gdcm::network::Transition::Transition ( ) [inline]
```

References gdcm::network::eStaDoesNotExist, mAction, and mEnd.

Referenced by MakeNew().

10.320.1.2 ~Transition()

```
gdcm::network::Transition::~Transition ( )  [inline]
```

References mAction.

10.320.1.3 Transition() [2/2]

```
gdcm::network::Transition::Transition (
            int inEndState,
            ULAction * inAction )  [inline]
```

References mAction, and mEnd.

10.320.2 Member Function Documentation

10.320.2.1 MakeNew()

```
static Transition * gdcm::network::Transition::MakeNew (
            int inEndState,
            ULAction * inAction )  [inline], [static]
```

References Transition().

10.320.3 Member Data Documentation

10.320.3.1 mAction

```
ULAction* gdcm::network::Transition::mAction
```

Referenced by Transition(), Transition(), and ~Transition().

10.320.3.2 mEnd

```
int gdcm::network::Transition::mEnd
```

Referenced by Transition(), and Transition().

The documentation for this struct was generated from the following file:

- gdcmULTransitionTable.h

10.321 gdcm::Type Class Reference

Type.

```
#include <gdcmType.h>
```

Public Types

- enum TypeType {
  T1 = 0 ,
  T1C ,
  T2 ,
  T2C ,
  T3 ,
  UNKNOWN }

Public Member Functions

- Type (TypeType type=UNKNOWN)
- operator TypeType () const

Static Public Member Functions

- static const char * GetTypeString (TypeType type)
- static TypeType GetTypeType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Type &vr)

10.321.1 Detailed Description

Type.

Note

PS 3.5 7.4 DATA ELEMENT TYPE 7.4.1 TYPE 1 REQUIRED DATA ELEMENTS 7.4.2 TYPE 1C CONDITIONAL DATA ELEMENTS 7.4.3 TYPE 2 REQUIRED DATA ELEMENTS 7.4.4 TYPE 2C CONDITIONAL DATA ELEMENTS 7.4.5 TYPE 3 OPTIONAL DATA ELEMENTS

The intent of Type 2 Data Elements is to allow a zero length to be conveyed when the operator or application does not know its value or has a specific reason for not specifying its value. It is the intent that the device should support these Data Elements.

Examples

TraverseModules.cxx.

10.321.2 Member Enumeration Documentation

10.321.2.1 TypeType

```
enum gdcm::Type::TypeType
```

Enumerator

T1	
T1C	
T2	
T2C	
T3	
UNKNOWN	

10.321.3 Constructor & Destructor Documentation

10.321.3.1 Type()

```
gdcm::Type::Type (
            TypeType type = UNKNOWN )  [inline]
```

10.321.4 Member Function Documentation

10.321.4.1 GetTypeString()

```
static const char * gdcm::Type::GetTypeString (
            TypeType type )  [static]
```

10.321.4.2 GetTypeType()

```
static TypeType gdcm::Type::GetTypeType (
            const char * type )  [static]
```

10.321.4.3 operator TypeType()

```
gdcm::Type::operator TypeType ( ) const  [inline]
```

10.321.5 Friends And Related Symbol Documentation

10.321.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Type & vr )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmType.h

10.322 gdcm::UI Struct Reference

```
#include <gdcmVR.h>
```

Public Attributes

- char Internal [64+1]

Friends

- std::ostream & operator<< (std::ostream &_os, const UI &_val)

10.322.1 Friends And Related Symbol Documentation

10.322.1.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const UI & _val )  [friend]
```

10.322.2 Member Data Documentation

10.322.2.1 Internal

```
char gdcm::UI::Internal[64+1]
```

The documentation for this struct was generated from the following file:

- gdcmVR.h

10.323 gdcm::UIDGenerator Class Reference

Class for generating unique UID.

```
#include <gdcmUIDGenerator.h>
```

Public Member Functions

- UIDGenerator ()

  By default the root of a UID is a GDCM Root...
- const char * Generate ()

Static Public Member Functions

- static const char * GetGDCMUID ()

  Return the default (GDCM) root UID:
- static const char * GetRoot ()
- static bool IsValid (const char *uid)
- static void SetRoot (const char *root)

Static Protected Member Functions

- static bool GenerateUUID (unsigned char *uuid_data)

10.323.1 Detailed Description

Class for generating unique UID.

When constructing a Series or Study UID, user *has* to keep around the UID, otherwise the UID Generator will simply forget the value and create a new UID.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, MpegVideoInfo.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

10.323.2 Constructor & Destructor Documentation

10.323.2.1 UIDGenerator()

```
gdcm::UIDGenerator::UIDGenerator ( ) [inline]
```

By default the root of a UID is a GDCM Root...

10.323.3 Member Function Documentation

10.323.3.1 Generate()

```
const char * gdcm::UIDGenerator::Generate ( )
```

Internally uses a std::string, so two calls have the same pointer ! save into a std::string In summary do not write code like that: const char *uid1 = uid.Generate(); const char *uid2 = uid.Generate(); since uid1 == uid2

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

10.323.3.2 GenerateUUID()

```
static bool gdcm::UIDGenerator::GenerateUUID (
            unsigned char * uuid_data )  [static], [protected]
```

10.323.3.3 GetGDCMUID()

```
static const char * gdcm::UIDGenerator::GetGDCMUID ( )  [static]
```

Return the default (GDCM) root UID:

10.323.3.4 GetRoot()

```
static const char * gdcm::UIDGenerator::GetRoot ( )  [static]
```

Examples

ClinicalTrialIdentificationWorkflow.cs, ReformatFile.cs, and StandardizeFiles.cs.

10.323.3.5 IsValid()

```
static bool gdcm::UIDGenerator::IsValid (
            const char * uid )  [static]
```

Find out if the string is a valid UID or not

Todo : Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

10.323.3.6 SetRoot()

```
static void gdcm::UIDGenerator::SetRoot (
            const char * root )  [static]
```

The current implementation in GDCM make use of the UUID implementation (RFC 4122) and has been successfully been tested for a root of size 26 bytes. Any longer root should work (the Generate() function will return a string), but will truncate the high bits of the 128bits UUID until the generated string fits on 64 bits. The authors disclaims any responsabitlity for guaranteeing uniqueness of UIDs when the root is longer than 26 bytes.

Examples

ClinicalTrialIdentificationWorkflow.cs, ReformatFile.cs, StandardizeFiles.cs, and uid_unique.cxx.

The documentation for this class was generated from the following file:

- gdcmUIDGenerator.h

10.324 gdcm::UIDs Class Reference

all known uids

```
#include <gdcmUIDs.h>
```

Public Types

- typedef const char *const (* TransferSyntaxStringsType)[2]
- enum TSName {
  VerificationSOPClass = 1 ,
  ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2 ,
  ExplicitVRLittleEndian = 3 ,
  DeflatedExplicitVRLittleEndian = 4 ,
  ExplicitVRBigEndian = 5 ,
  JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6 ,
  JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7 ,
  JPEGExtendedProcess35Retired = 8 ,
  JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9 ,
  JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10 ,
  JPEGFullProgressionNonHierarchicalProcess1012Retired = 11 ,
  JPEGFullProgressionNonHierarchicalProcess1113Retired = 12 ,
  JPEGLosslessNonHierarchicalProcess14 = 13 ,
  JPEGLosslessNonHierarchicalProcess15Retired = 14 ,
  JPEGExtendedHierarchicalProcess1618Retired = 15 ,
  JPEGExtendedHierarchicalProcess1719Retired = 16 ,
  JPEGSpectralSelectionHierarchicalProcess2022Retired = 17 ,
  JPEGSpectralSelectionHierarchicalProcess2123Retired = 18 ,
  JPEGFullProgressionHierarchicalProcess2426Retired = 19 ,
  JPEGFullProgressionHierarchicalProcess2527Retired = 20 ,
  JPEGLosslessHierarchicalProcess28Retired = 21 ,
  JPEGLosslessHierarchicalProcess29Retired = 22 ,
  JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompr
  = 23 ,
  JPEGLSLosslessImageCompression = 24 ,
  JPEGLSLossyNearLosslessImageCompression = 25 ,
  JPEG2000ImageCompressionLosslessOnly = 26 ,
  JPEG2000ImageCompression = 27 ,
  JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28 ,
  JPEG2000Part2MulticomponentImageCompression = 29 ,
  JPIPReferenced = 30 ,
  JPIPReferencedDeflate = 31 ,
  MPEG2MainProfileMainLevel = 32 ,
  RLELossless = 33 ,
  RFC2557MIMEencapsulation = 34 ,
  XMLEncoding = 35 ,
  MediaStorageDirectoryStorage = 36 ,
  TalairachBrainAtlasFrameofReference = 37 ,
  SPM2T1FrameofReference = 38 ,
  SPM2T2FrameofReference = 39 ,
  SPM2PDFrameofReference = 40 ,
  SPM2EPIFrameofReference = 41 ,

SPM2FILT1FrameofReference = 42 ,
SPM2PETFrameofReference = 43 ,
SPM2TRANSMFrameofReference = 44 ,
SPM2SPECTFrameofReference = 45 ,
SPM2GRAYFrameofReference = 46 ,
SPM2WHITEFrameofReference = 47 ,
SPM2CSFFrameofReference = 48 ,
SPM2BRAINMASKFrameofReference = 49 ,
SPM2AVG305T1FrameofReference = 50 ,
SPM2AVG152T1FrameofReference = 51 ,
SPM2AVG152T2FrameofReference = 52 ,
SPM2AVG152PDFrameofReference = 53 ,
SPM2SINGLESUBJT1FrameofReference = 54 ,
ICBM452T1FrameofReference = 55 ,
ICBMSingleSubjectMRIFrameofReference = 56 ,
BasicStudyContentNotificationSOPClassRetired = 57 ,
StorageCommitmentPushModelSOPClass = 58 ,
StorageCommitmentPushModelSOPInstance = 59 ,
StorageCommitmentPullModelSOPClassRetired = 60 ,
StorageCommitmentPullModelSOPInstanceRetired = 61 ,
ProceduralEventLoggingSOPClass = 62 ,
ProceduralEventLoggingSOPInstance = 63 ,
SubstanceAdministrationLoggingSOPClass = 64 ,
SubstanceAdministrationLoggingSOPInstance = 65 ,
DICOMUIDRegistry = 66 ,
DICOMControlledTerminology = 67 ,
DICOMApplicationContextName = 68 ,
DetachedPatientManagementSOPClassRetired = 69 ,
DetachedPatientManagementMetaSOPClassRetired = 70 ,
DetachedVisitManagementSOPClassRetired = 71 ,
DetachedStudyManagementSOPClassRetired = 72 ,
StudyComponentManagementSOPClassRetired = 73 ,
ModalityPerformedProcedureStepSOPClass = 74 ,
ModalityPerformedProcedureStepRetrieveSOPClass = 75 ,
ModalityPerformedProcedureStepNotificationSOPClass = 76 ,
DetachedResultsManagementSOPClassRetired = 77 ,
DetachedResultsManagementMetaSOPClassRetired = 78 ,
DetachedStudyManagementMetaSOPClassRetired = 79 ,
DetachedInterpretationManagementSOPClassRetired = 80 ,
StorageServiceClass = 81 ,
BasicFilmSessionSOPClass = 82 ,
BasicFilmBoxSOPClass = 83 ,
BasicGrayscaleImageBoxSOPClass = 84 ,
BasicColorImageBoxSOPClass = 85 ,
ReferencedImageBoxSOPClassRetired = 86 ,
BasicGrayscalePrintManagementMetaSOPClass = 87 ,
ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88 ,
PrintJobSOPClass = 89 ,
BasicAnnotationBoxSOPClass = 90 ,
PrinterSOPClass = 91 ,
PrinterConfigurationRetrievalSOPClass = 92 ,
PrinterSOPInstance = 93 ,
PrinterConfigurationRetrievalSOPInstance = 94 ,
BasicColorPrintManagementMetaSOPClass = 95 ,

ReferencedColorPrintManagementMetaSOPClassRetired = 96 ,
VOILUTBoxSOPClass = 97 ,
PresentationLUTSOPClass = 98 ,
ImageOverlayBoxSOPClassRetired = 99 ,
BasicPrintImageOverlayBoxSOPClassRetired = 100 ,
PrintQueueSOPInstanceRetired = 101 ,
PrintQueueManagementSOPClassRetired = 102 ,
StoredPrintStorageSOPClassRetired = 103 ,
HardcopyGrayscaleImageStorageSOPClassRetired = 104 ,
HardcopyColorImageStorageSOPClassRetired = 105 ,
PullPrintRequestSOPClassRetired = 106 ,
PullStoredPrintManagementMetaSOPClassRetired = 107 ,
MediaCreationManagementSOPClassUID = 108 ,
ComputedRadiographyImageStorage = 109 ,
DigitalXRayImageStorageForPresentation = 110 ,
DigitalXRayImageStorageForProcessing = 111 ,
DigitalMammographyXRayImageStorageForPresentation = 112 ,
DigitalMammographyXRayImageStorageForProcessing = 113 ,
DigitalIntraoralXRayImageStorageForPresentation = 114 ,
DigitalIntraoralXRayImageStorageForProcessing = 115 ,
CTImageStorage = 116 ,
EnhancedCTImageStorage = 117 ,
UltrasoundMultiframeImageStorageRetired = 118 ,
UltrasoundMultiframeImageStorage = 119 ,
MRImageStorage = 120 ,
EnhancedMRImageStorage = 121 ,
MRSpectroscopyStorage = 122 ,
NuclearMedicineImageStorageRetired = 123 ,
UltrasoundImageStorageRetired = 124 ,
UltrasoundImageStorage = 125 ,
SecondaryCaptureImageStorage = 126 ,
MultiframeSingleBitSecondaryCaptureImageStorage = 127 ,
MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128 ,
MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129 ,
MultiframeTrueColorSecondaryCaptureImageStorage = 130 ,
StandaloneOverlayStorageRetired = 131 ,
StandaloneCurveStorageRetired = 132 ,
WaveformStorageTrialRetired = 133 ,
ECG12leadWaveformStorage = 134 ,
GeneralECGWaveformStorage = 135 ,
AmbulatoryECGWaveformStorage = 136 ,
HemodynamicWaveformStorage = 137 ,
CardiacElectrophysiologyWaveformStorage = 138 ,
BasicVoiceAudioWaveformStorage = 139 ,
StandaloneModalityLUTStorageRetired = 140 ,
StandaloneVOILUTStorageRetired = 141 ,
GrayscaleSoftcopyPresentationStateStorageSOPClass = 142 ,
ColorSoftcopyPresentationStateStorageSOPClass = 143 ,
PseudoColorSoftcopyPresentationStateStorageSOPClass = 144 ,
BlendingSoftcopyPresentationStateStorageSOPClass = 145 ,
XRayAngiographicImageStorage = 146 ,
EnhancedXAImageStorage = 147 ,
XRayRadiofluoroscopicImageStorage = 148 ,
EnhancedXRFImageStorage = 149 ,

XRay3DAngiographicImageStorage = 150 ,
XRay3DCraniofacialImageStorage = 151 ,
XRayAngiographicBiPlaneImageStorageRetired = 152 ,
NuclearMedicineImageStorage = 153 ,
RawDataStorage = 154 ,
SpatialRegistrationStorage = 155 ,
SpatialFiducialsStorage = 156 ,
DeformableSpatialRegistrationStorage = 157 ,
SegmentationStorage = 158 ,
RealWorldValueMappingStorage = 159 ,
VLImageStorageTrialRetired = 160 ,
VLMultiframeImageStorageTrialRetired = 161 ,
VLEndoscopicImageStorage = 162 ,
VideoEndoscopicImageStorage = 163 ,
VLMicroscopicImageStorage = 164 ,
VideoMicroscopicImageStorage = 165 ,
VLSlideCoordinatesMicroscopicImageStorage = 166 ,
VLPhotographicImageStorage = 167 ,
VideoPhotographicImageStorage = 168 ,
OphthalmicPhotography8BitImageStorage = 169 ,
OphthalmicPhotography16BitImageStorage = 170 ,
StereometricRelationshipStorage = 171 ,
OphthalmicTomographyImageStorage = 172 ,
TextSRStorageTrialRetired = 173 ,
AudioSRStorageTrialRetired = 174 ,
DetailSRStorageTrialRetired = 175 ,
ComprehensiveSRStorageTrialRetired = 176 ,
BasicTextSRStorage = 177 ,
EnhancedSRStorage = 178 ,
ComprehensiveSRStorage = 179 ,
ProcedureLogStorage = 180 ,
MammographyCADSRStorage = 181 ,
KeyObjectSelectionDocumentStorage = 182 ,
ChestCADSRStorage = 183 ,
XRayRadiationDoseSRStorage = 184 ,
EncapsulatedPDFStorage = 185 ,
EncapsulatedCDAStorage = 186 ,
PositronEmissionTomographyImageStorage = 187 ,
StandalonePETCurveStorageRetired = 188 ,
RTImageStorage = 189 ,
RTDoseStorage = 190 ,
RTStructureSetStorage = 191 ,
RTBeamsTreatmentRecordStorage = 192 ,
RTPlanStorage = 193 ,
RTBrachyTreatmentRecordStorage = 194 ,
RTTreatmentSummaryRecordStorage = 195 ,
RTIonPlanStorage = 196 ,
RTIonBeamsTreatmentRecordStorage = 197 ,
PatientRootQueryRetrieveInformationModelFIND = 198 ,
PatientRootQueryRetrieveInformationModelMOVE = 199 ,
PatientRootQueryRetrieveInformationModelGET = 200 ,
StudyRootQueryRetrieveInformationModelFIND = 201 ,
StudyRootQueryRetrieveInformationModelMOVE = 202 ,
StudyRootQueryRetrieveInformationModelGET = 203 ,

PatientStudyOnlyQueryRetrieveInformationModelFINDRetired = 204 ,
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205 ,
PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206 ,
ModalityWorklistInformationModelFIND = 207 ,
GeneralPurposeWorklistInformationModelFIND = 208 ,
GeneralPurposeScheduledProcedureStepSOPClass = 209 ,
GeneralPurposePerformedProcedureStepSOPClass = 210 ,
GeneralPurposeWorklistManagementMetaSOPClass = 211 ,
InstanceAvailabilityNotificationSOPClass = 212 ,
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213 ,
RTConventionalMachineVerificationSupplement74FrozenDraft = 214 ,
RTIonMachineVerificationSupplement74FrozenDraft = 215 ,
UnifiedWorklistandProcedureStepServiceClass = 216 ,
UnifiedProcedureStepPushSOPClass = 217 ,
UnifiedProcedureStepWatchSOPClass = 218 ,
UnifiedProcedureStepPullSOPClass = 219 ,
UnifiedProcedureStepEventSOPClass = 220 ,
UnifiedWorklistandProcedureStepSOPInstance = 221 ,
GeneralRelevantPatientInformationQuery = 222 ,
BreastImagingRelevantPatientInformationQuery = 223 ,
CardiacRelevantPatientInformationQuery = 224 ,
HangingProtocolStorage = 225 ,
HangingProtocolInformationModelFIND = 226 ,
HangingProtocolInformationModelMOVE = 227 ,
ProductCharacteristicsQuerySOPClass = 228 ,
SubstanceApprovalQuerySOPClass = 229 ,
dicomDeviceName = 230 ,
dicomDescription = 231 ,
dicomManufacturer = 232 ,
dicomManufacturerModelName = 233 ,
dicomSoftwareVersion = 234 ,
dicomVendorData = 235 ,
dicomAETitle = 236 ,
dicomNetworkConnectionReference = 237 ,
dicomApplicationCluster = 238 ,
dicomAssociationInitiator = 239 ,
dicomAssociationAcceptor = 240 ,
dicomHostname = 241 ,
dicomPort = 242 ,
dicomSOPClass = 243 ,
dicomTransferRole = 244 ,
dicomTransferSyntax = 245 ,
dicomPrimaryDeviceType = 246 ,
dicomRelatedDeviceReference = 247 ,
dicomPreferredCalledAETitle = 248 ,
dicomTLSCyphersuite = 249 ,
dicomAuthorizedNodeCertificateReference = 250 ,
dicomThisNodeCertificateReference = 251 ,
dicomInstalled = 252 ,
dicomStationName = 253 ,
dicomDeviceSerialNumber = 254 ,
dicomInstitutionName = 255 ,
dicomInstitutionAddress = 256 ,
dicomInstitutionDepartmentName = 257 ,

dicomIssuerOfPatientID = 258 ,
dicomPreferredCallingAETitle = 259 ,
dicomSupportedCharacterSet = 260 ,
dicomConfigurationRoot = 261 ,
dicomDevicesRoot = 262 ,
dicomUniqueAETitlesRegistryRoot = 263 ,
dicomDevice = 264 ,
dicomNetworkAE = 265 ,
dicomNetworkConnection = 266 ,
dicomUniqueAETitle = 267 ,
dicomTransferCapability = 268 ,
VLWholeSlideMicroscopyImageStorage = 269 ,
EnhancedUSVolumeStorage = 270 ,
SurfaceSegmentationStorage = 271 ,
BreastTomosynthesisImageStorage = 272 ,
LegacyConvertedEnhancedCTImageStorage = 273 ,
LegacyConvertedEnhancedMRImageStorage = 274 ,
LegacyConvertedEnhancedPETImageStorage = 275 ,
MPEG2MainProfileHighLevel = 276 ,
MPEG4AVCH_264HighProfileLevel4_1 = 277 ,
MPEG4AVCH_264BDcompatibleHighProfileLevel4_1 = 278 ,
PETColorPaletteSOPInstance = 279 ,
HotMetalBlueColorPaletteSOPInstance = 280 ,
PET20StepColorPaletteSOPInstance = 281 ,
SpringColorPaletteSOPInstance = 282 ,
SummerColorPaletteSOPInstance = 283 ,
FallColorPaletteSOPInstance = 284 ,
WinterColorPaletteSOPInstance = 285 ,
Papyrus3ImplicitVRLittleEndian = 286 ,
AdultMouseAnatomyOntology = 287 ,
UberonOntology = 288 ,
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN = 289 ,
MouseGenomeInitiativeMGI = 290 ,
PubChemCompoundCID = 291 ,
ICD11 = 292 ,
NewYorkUniversityMelanomaClinicalCooperativeGroup = 293 ,
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide = 294 ,
ImageBiomarkerStandardisationInitiative = 295 ,
RadiomicsOntology = 296 ,
DisplaySystemSOPClass = 297 ,
DisplaySystemSOPInstance = 298 ,
GeneralAudioWaveformStorage = 299 ,
ArterialPulseWaveformStorage = 300 ,
RespiratoryWaveformStorage = 301 ,
XAXRFGrayscaleSoftcopyPresentationStateStorage = 302 ,
GrayscalePlanarMPRVolumetricPresentationStateStorage = 303 ,
MPEG4AVCH_264HighProfileLevel4_2For2DVideo = 304 ,
MPEG4AVCH_264HighProfileLevel4_2For3DVideo = 305 ,
MPEG4AVCH_264StereoHighProfileLevel4_2 = 306 ,
HEVCH_265MainProfileLevel5_1 = 307 ,
HEVCH_265Main10ProfileLevel5_1 = 308 ,
HotIronColorPaletteSOPInstance = 309 ,
CompositingPlanarMPRVolumetricPresentationStateStorage = 310 ,
AdvancedBlendingPresentationStateStorage = 311 ,

VolumeRenderingVolumetricPresentationStateStorage = 312 ,
SegmentedVolumeRenderingVolumetricPresentationStateStorage = 313 ,
MultipleVolumeRenderingVolumetricPresentationStateStorage = 314 ,
Null0 = 315 ,
BreastProjectionXRayImageStorageForPresentation = 316 ,
BreastProjectionXRayImageStorageForProcessing = 317 ,
IntravascularOpticalCoherenceTomographyImageStorageForPresentation = 318 ,
IntravascularOpticalCoherenceTomographyImageStorageForProcessing = 319 ,
ParametricMapStorage = 320 ,
Null1 = 321 ,
TractographyResultsStorage = 322 ,
SurfaceScanMeshStorage = 323 ,
SurfaceScanPointCloudStorage = 324 ,
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage = 325 ,
WideFieldOphthalmicPhotography3DCoordinatesImageStorage = 326 ,
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage = 327 ,
OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage = 328 ,
LensometryMeasurementsStorage = 329 ,
AutorefractionMeasurementsStorage = 330 ,
KeratometryMeasurementsStorage = 331 ,
SubjectiveRefractionMeasurementsStorage = 332 ,
VisualAcuityMeasurementsStorage = 333 ,
SpectaclePrescriptionReportStorage = 334 ,
OphthalmicAxialMeasurementsStorage = 335 ,
IntraocularLensCalculationsStorage = 336 ,
MacularGridThicknessandVolumeReportStorage = 337 ,
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage = 338 ,
OphthalmicThicknessMapStorage = 339 ,
CornealTopographyMapStorage = 340 ,
Comprehensive3DSRStorage = 341 ,
ExtensibleSRStorage = 342 ,
RadiopharmaceuticalRadiationDoseSRStorage = 343 ,
ColonCADSRStorage = 344 ,
ImplantationPlanSRStorage = 345 ,
AcquisitionContextSRStorage = 346 ,
SimplifiedAdultEchoSRStorage = 347 ,
PatientRadiationDoseSRStorage = 348 ,
PlannedImagingAgentAdministrationSRStorage = 349 ,
PerformedImagingAgentAdministrationSRStorage = 350 ,
ContentAssessmentResultsStorage = 351 ,
EncapsulatedSTLStorage = 352 ,
EnhancedPETImageStorage = 353 ,
BasicStructuredDisplayStorage = 354 ,
CTDefinedProcedureProtocolStorage = 355 ,
CTPerformedProcedureProtocolStorage = 356 ,
ProtocolApprovalStorage = 357 ,
ProtocolApprovalInformationModelFIND = 358 ,
ProtocolApprovalInformationModelMOVE = 359 ,
ProtocolApprovalInformationModelGET = 360 ,
RTPhysicianIntentStorage = 361 ,
RTSegmentAnnotationStorage = 362 ,
DICOSCTImageStorage = 363 ,
DICOSDigitalXRayImageStorageForPresentation = 364 ,
DICOSDigitalXRayImageStorageForProcessing = 365 ,

DICOSThreatDetectionReportStorage = 366 ,
DICOS2DAITStorage = 367 ,
DICOS3DAITStorage = 368 ,
DICOSQuadrupoleResonanceQRStorage = 369 ,
EddyCurrentImageStorage = 370 ,
EddyCurrentMultiframeImageStorage = 371 ,
CompositeInstanceRootRetrieveMOVE = 372 ,
CompositeInstanceRootRetrieveGET = 373 ,
CompositeInstanceRetrieveWithoutBulkDataGET = 374 ,
DefinedProcedureProtocolInformationModelFIND = 375 ,
DefinedProcedureProtocolInformationModelMOVE = 376 ,
DefinedProcedureProtocolInformationModelGET = 377 ,
UPSFilteredGlobalSubscriptionSOPInstance = 378 ,
UnifiedWorklistandProcedureStepServiceClass1 = 379 ,
UnifiedProcedureStepPushSOPClass1 = 380 ,
UnifiedProcedureStepWatchSOPClass1 = 381 ,
UnifiedProcedureStepPullSOPClass1 = 382 ,
UnifiedProcedureStepEventSOPClass1 = 383 ,
RTBeamsDeliveryInstructionStorage = 384 ,
RTConventionalMachineVerification = 385 ,
RTIonMachineVerification = 386 ,
RTBrachyApplicationSetupDeliveryInstructionStorage = 387 ,
HangingProtocolInformationModelGET = 388 ,
ColorPaletteStorage = 389 ,
ColorPaletteQueryRetrieveInformationModelFIND = 390 ,
ColorPaletteQueryRetrieveInformationModelMOVE = 391 ,
ColorPaletteQueryRetrieveInformationModelGET = 392 ,
GenericImplantTemplateStorage = 393 ,
GenericImplantTemplateInformationModelFIND = 394 ,
GenericImplantTemplateInformationModelMOVE = 395 ,
GenericImplantTemplateInformationModelGET = 396 ,
ImplantAssemblyTemplateStorage = 397 ,
ImplantAssemblyTemplateInformationModelFIND = 398 ,
ImplantAssemblyTemplateInformationModelMOVE = 399 ,
ImplantAssemblyTemplateInformationModelGET = 400 ,
ImplantTemplateGroupStorage = 401 ,
ImplantTemplateGroupInformationModelFIND = 402 ,
ImplantTemplateGroupInformationModelMOVE = 403 ,
ImplantTemplateGroupInformationModelGET = 404 ,
NativeDICOMModel = 405 ,
AbstractMultiDimensionalImageModel = 406 ,
DICOMContentMappingResource = 407 ,
EnhancedMRColorImageStorage = 408 ,
UniversalCoordinatedTime = 409 }

- enum TSType {
  uid_1_2_840_10008_1_1 = 1 ,
  uid_1_2_840_10008_1_2 = 2 ,
  uid_1_2_840_10008_1_2_1 = 3 ,
  uid_1_2_840_10008_1_2_1_99 = 4 ,
  uid_1_2_840_10008_1_2_2 = 5 ,
  uid_1_2_840_10008_1_2_4_50 = 6 ,
  uid_1_2_840_10008_1_2_4_51 = 7 ,
  uid_1_2_840_10008_1_2_4_52 = 8 ,
  uid_1_2_840_10008_1_2_4_53 = 9 ,

uid_1_2_840_10008_1_2_4_54 = 10 ,
uid_1_2_840_10008_1_2_4_55 = 11 ,
uid_1_2_840_10008_1_2_4_56 = 12 ,
uid_1_2_840_10008_1_2_4_57 = 13 ,
uid_1_2_840_10008_1_2_4_58 = 14 ,
uid_1_2_840_10008_1_2_4_59 = 15 ,
uid_1_2_840_10008_1_2_4_60 = 16 ,
uid_1_2_840_10008_1_2_4_61 = 17 ,
uid_1_2_840_10008_1_2_4_62 = 18 ,
uid_1_2_840_10008_1_2_4_63 = 19 ,
uid_1_2_840_10008_1_2_4_64 = 20 ,
uid_1_2_840_10008_1_2_4_65 = 21 ,
uid_1_2_840_10008_1_2_4_66 = 22 ,
uid_1_2_840_10008_1_2_4_70 = 23 ,
uid_1_2_840_10008_1_2_4_80 = 24 ,
uid_1_2_840_10008_1_2_4_81 = 25 ,
uid_1_2_840_10008_1_2_4_90 = 26 ,
uid_1_2_840_10008_1_2_4_91 = 27 ,
uid_1_2_840_10008_1_2_4_92 = 28 ,
uid_1_2_840_10008_1_2_4_93 = 29 ,
uid_1_2_840_10008_1_2_4_94 = 30 ,
uid_1_2_840_10008_1_2_4_95 = 31 ,
uid_1_2_840_10008_1_2_4_100 = 32 ,
uid_1_2_840_10008_1_2_5 = 33 ,
uid_1_2_840_10008_1_2_6_1 = 34 ,
uid_1_2_840_10008_1_2_6_2 = 35 ,
uid_1_2_840_10008_1_3_10 = 36 ,
uid_1_2_840_10008_1_4_1_1 = 37 ,
uid_1_2_840_10008_1_4_1_2 = 38 ,
uid_1_2_840_10008_1_4_1_3 = 39 ,
uid_1_2_840_10008_1_4_1_4 = 40 ,
uid_1_2_840_10008_1_4_1_5 = 41 ,
uid_1_2_840_10008_1_4_1_6 = 42 ,
uid_1_2_840_10008_1_4_1_7 = 43 ,
uid_1_2_840_10008_1_4_1_8 = 44 ,
uid_1_2_840_10008_1_4_1_9 = 45 ,
uid_1_2_840_10008_1_4_1_10 = 46 ,
uid_1_2_840_10008_1_4_1_11 = 47 ,
uid_1_2_840_10008_1_4_1_12 = 48 ,
uid_1_2_840_10008_1_4_1_13 = 49 ,
uid_1_2_840_10008_1_4_1_14 = 50 ,
uid_1_2_840_10008_1_4_1_15 = 51 ,
uid_1_2_840_10008_1_4_1_16 = 52 ,
uid_1_2_840_10008_1_4_1_17 = 53 ,
uid_1_2_840_10008_1_4_1_18 = 54 ,
uid_1_2_840_10008_1_4_2_1 = 55 ,
uid_1_2_840_10008_1_4_2_2 = 56 ,
uid_1_2_840_10008_1_9 = 57 ,
uid_1_2_840_10008_1_20_1 = 58 ,
uid_1_2_840_10008_1_20_1_1 = 59 ,
uid_1_2_840_10008_1_20_2 = 60 ,
uid_1_2_840_10008_1_20_2_1 = 61 ,
uid_1_2_840_10008_1_40 = 62 ,
uid_1_2_840_10008_1_40_1 = 63 ,

uid_1_2_840_10008_1_42 = 64 ,
uid_1_2_840_10008_1_42_1 = 65 ,
uid_1_2_840_10008_2_6_1 = 66 ,
uid_1_2_840_10008_2_16_4 = 67 ,
uid_1_2_840_10008_3_1_1_1 = 68 ,
uid_1_2_840_10008_3_1_2_1_1 = 69 ,
uid_1_2_840_10008_3_1_2_1_4 = 70 ,
uid_1_2_840_10008_3_1_2_2_1 = 71 ,
uid_1_2_840_10008_3_1_2_3_1 = 72 ,
uid_1_2_840_10008_3_1_2_3_2 = 73 ,
uid_1_2_840_10008_3_1_2_3_3 = 74 ,
uid_1_2_840_10008_3_1_2_3_4 = 75 ,
uid_1_2_840_10008_3_1_2_3_5 = 76 ,
uid_1_2_840_10008_3_1_2_5_1 = 77 ,
uid_1_2_840_10008_3_1_2_5_4 = 78 ,
uid_1_2_840_10008_3_1_2_5_5 = 79 ,
uid_1_2_840_10008_3_1_2_6_1 = 80 ,
uid_1_2_840_10008_4_2 = 81 ,
uid_1_2_840_10008_5_1_1_1 = 82 ,
uid_1_2_840_10008_5_1_1_2 = 83 ,
uid_1_2_840_10008_5_1_1_4 = 84 ,
uid_1_2_840_10008_5_1_1_4_1 = 85 ,
uid_1_2_840_10008_5_1_1_4_2 = 86 ,
uid_1_2_840_10008_5_1_1_9 = 87 ,
uid_1_2_840_10008_5_1_1_9_1 = 88 ,
uid_1_2_840_10008_5_1_1_14 = 89 ,
uid_1_2_840_10008_5_1_1_15 = 90 ,
uid_1_2_840_10008_5_1_1_16 = 91 ,
uid_1_2_840_10008_5_1_1_16_376 = 92 ,
uid_1_2_840_10008_5_1_1_17 = 93 ,
uid_1_2_840_10008_5_1_1_17_376 = 94 ,
uid_1_2_840_10008_5_1_1_18 = 95 ,
uid_1_2_840_10008_5_1_1_18_1 = 96 ,
uid_1_2_840_10008_5_1_1_22 = 97 ,
uid_1_2_840_10008_5_1_1_23 = 98 ,
uid_1_2_840_10008_5_1_1_24 = 99 ,
uid_1_2_840_10008_5_1_1_24_1 = 100 ,
uid_1_2_840_10008_5_1_1_25 = 101 ,
uid_1_2_840_10008_5_1_1_26 = 102 ,
uid_1_2_840_10008_5_1_1_27 = 103 ,
uid_1_2_840_10008_5_1_1_29 = 104 ,
uid_1_2_840_10008_5_1_1_30 = 105 ,
uid_1_2_840_10008_5_1_1_31 = 106 ,
uid_1_2_840_10008_5_1_1_32 = 107 ,
uid_1_2_840_10008_5_1_1_33 = 108 ,
uid_1_2_840_10008_5_1_4_1_1_1 = 109 ,
uid_1_2_840_10008_5_1_4_1_1_1_1 = 110 ,
uid_1_2_840_10008_5_1_4_1_1_1_1_1 = 111 ,
uid_1_2_840_10008_5_1_4_1_1_1_2 = 112 ,
uid_1_2_840_10008_5_1_4_1_1_1_2_1 = 113 ,
uid_1_2_840_10008_5_1_4_1_1_1_3 = 114 ,
uid_1_2_840_10008_5_1_4_1_1_1_3_1 = 115 ,
uid_1_2_840_10008_5_1_4_1_1_2 = 116 ,
uid_1_2_840_10008_5_1_4_1_1_2_1 = 117 ,

uid_1_2_840_10008_5_1_4_1_1_3 = 118 ,
uid_1_2_840_10008_5_1_4_1_1_3_1 = 119 ,
uid_1_2_840_10008_5_1_4_1_1_4 = 120 ,
uid_1_2_840_10008_5_1_4_1_1_4_1 = 121 ,
uid_1_2_840_10008_5_1_4_1_1_4_2 = 122 ,
uid_1_2_840_10008_5_1_4_1_1_5 = 123 ,
uid_1_2_840_10008_5_1_4_1_1_6 = 124 ,
uid_1_2_840_10008_5_1_4_1_1_6_1 = 125 ,
uid_1_2_840_10008_5_1_4_1_1_7 = 126 ,
uid_1_2_840_10008_5_1_4_1_1_7_1 = 127 ,
uid_1_2_840_10008_5_1_4_1_1_7_2 = 128 ,
uid_1_2_840_10008_5_1_4_1_1_7_3 = 129 ,
uid_1_2_840_10008_5_1_4_1_1_7_4 = 130 ,
uid_1_2_840_10008_5_1_4_1_1_8 = 131 ,
uid_1_2_840_10008_5_1_4_1_1_9 = 132 ,
uid_1_2_840_10008_5_1_4_1_1_9_1 = 133 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_1 = 134 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_2 = 135 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_3 = 136 ,
uid_1_2_840_10008_5_1_4_1_1_9_2_1 = 137 ,
uid_1_2_840_10008_5_1_4_1_1_9_3_1 = 138 ,
uid_1_2_840_10008_5_1_4_1_1_9_4_1 = 139 ,
uid_1_2_840_10008_5_1_4_1_1_10 = 140 ,
uid_1_2_840_10008_5_1_4_1_1_11 = 141 ,
uid_1_2_840_10008_5_1_4_1_1_11_1 = 142 ,
uid_1_2_840_10008_5_1_4_1_1_11_2 = 143 ,
uid_1_2_840_10008_5_1_4_1_1_11_3 = 144 ,
uid_1_2_840_10008_5_1_4_1_1_11_4 = 145 ,
uid_1_2_840_10008_5_1_4_1_1_12_1 = 146 ,
uid_1_2_840_10008_5_1_4_1_1_12_1_1 = 147 ,
uid_1_2_840_10008_5_1_4_1_1_12_2 = 148 ,
uid_1_2_840_10008_5_1_4_1_1_12_2_1 = 149 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_1 = 150 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_2 = 151 ,
uid_1_2_840_10008_5_1_4_1_1_12_3 = 152 ,
uid_1_2_840_10008_5_1_4_1_1_20 = 153 ,
uid_1_2_840_10008_5_1_4_1_1_66 = 154 ,
uid_1_2_840_10008_5_1_4_1_1_66_1 = 155 ,
uid_1_2_840_10008_5_1_4_1_1_66_2 = 156 ,
uid_1_2_840_10008_5_1_4_1_1_66_3 = 157 ,
uid_1_2_840_10008_5_1_4_1_1_66_4 = 158 ,
uid_1_2_840_10008_5_1_4_1_1_67 = 159 ,
uid_1_2_840_10008_5_1_4_1_1_77_1 = 160 ,
uid_1_2_840_10008_5_1_4_1_1_77_2 = 161 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_1 = 162 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1 = 163 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_2 = 164 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1 = 165 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_3 = 166 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_4 = 167 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1 = 168 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1 = 169 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2 = 170 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3 = 171 ,

uid_1_2_840_10008_5_1_4_1_1_77_1_5_4 = 172 ,
uid_1_2_840_10008_5_1_4_1_1_88_1 = 173 ,
uid_1_2_840_10008_5_1_4_1_1_88_2 = 174 ,
uid_1_2_840_10008_5_1_4_1_1_88_3 = 175 ,
uid_1_2_840_10008_5_1_4_1_1_88_4 = 176 ,
uid_1_2_840_10008_5_1_4_1_1_88_11 = 177 ,
uid_1_2_840_10008_5_1_4_1_1_88_22 = 178 ,
uid_1_2_840_10008_5_1_4_1_1_88_33 = 179 ,
uid_1_2_840_10008_5_1_4_1_1_88_40 = 180 ,
uid_1_2_840_10008_5_1_4_1_1_88_50 = 181 ,
uid_1_2_840_10008_5_1_4_1_1_88_59 = 182 ,
uid_1_2_840_10008_5_1_4_1_1_88_65 = 183 ,
uid_1_2_840_10008_5_1_4_1_1_88_67 = 184 ,
uid_1_2_840_10008_5_1_4_1_1_104_1 = 185 ,
uid_1_2_840_10008_5_1_4_1_1_104_2 = 186 ,
uid_1_2_840_10008_5_1_4_1_1_128 = 187 ,
uid_1_2_840_10008_5_1_4_1_1_129 = 188 ,
uid_1_2_840_10008_5_1_4_1_1_481_1 = 189 ,
uid_1_2_840_10008_5_1_4_1_1_481_2 = 190 ,
uid_1_2_840_10008_5_1_4_1_1_481_3 = 191 ,
uid_1_2_840_10008_5_1_4_1_1_481_4 = 192 ,
uid_1_2_840_10008_5_1_4_1_1_481_5 = 193 ,
uid_1_2_840_10008_5_1_4_1_1_481_6 = 194 ,
uid_1_2_840_10008_5_1_4_1_1_481_7 = 195 ,
uid_1_2_840_10008_5_1_4_1_1_481_8 = 196 ,
uid_1_2_840_10008_5_1_4_1_1_481_9 = 197 ,
uid_1_2_840_10008_5_1_4_1_2_1_1 = 198 ,
uid_1_2_840_10008_5_1_4_1_2_1_2 = 199 ,
uid_1_2_840_10008_5_1_4_1_2_1_3 = 200 ,
uid_1_2_840_10008_5_1_4_1_2_2_1 = 201 ,
uid_1_2_840_10008_5_1_4_1_2_2_2 = 202 ,
uid_1_2_840_10008_5_1_4_1_2_2_3 = 203 ,
uid_1_2_840_10008_5_1_4_1_2_3_1 = 204 ,
uid_1_2_840_10008_5_1_4_1_2_3_2 = 205 ,
uid_1_2_840_10008_5_1_4_1_2_3_3 = 206 ,
uid_1_2_840_10008_5_1_4_31 = 207 ,
uid_1_2_840_10008_5_1_4_32_1 = 208 ,
uid_1_2_840_10008_5_1_4_32_2 = 209 ,
uid_1_2_840_10008_5_1_4_32_3 = 210 ,
uid_1_2_840_10008_5_1_4_32 = 211 ,
uid_1_2_840_10008_5_1_4_33 = 212 ,
uid_1_2_840_10008_5_1_4_34_1 = 213 ,
uid_1_2_840_10008_5_1_4_34_2 = 214 ,
uid_1_2_840_10008_5_1_4_34_3 = 215 ,
uid_1_2_840_10008_5_1_4_34_4 = 216 ,
uid_1_2_840_10008_5_1_4_34_4_1 = 217 ,
uid_1_2_840_10008_5_1_4_34_4_2 = 218 ,
uid_1_2_840_10008_5_1_4_34_4_3 = 219 ,
uid_1_2_840_10008_5_1_4_34_4_4 = 220 ,
uid_1_2_840_10008_5_1_4_34_5 = 221 ,
uid_1_2_840_10008_5_1_4_37_1 = 222 ,
uid_1_2_840_10008_5_1_4_37_2 = 223 ,
uid_1_2_840_10008_5_1_4_37_3 = 224 ,
uid_1_2_840_10008_5_1_4_38_1 = 225 ,

uid_1_2_840_10008_5_1_4_38_2 = 226 ,
uid_1_2_840_10008_5_1_4_38_3 = 227 ,
uid_1_2_840_10008_5_1_4_41 = 228 ,
uid_1_2_840_10008_5_1_4_42 = 229 ,
uid_1_2_840_10008_15_0_3_1 = 230 ,
uid_1_2_840_10008_15_0_3_2 = 231 ,
uid_1_2_840_10008_15_0_3_3 = 232 ,
uid_1_2_840_10008_15_0_3_4 = 233 ,
uid_1_2_840_10008_15_0_3_5 = 234 ,
uid_1_2_840_10008_15_0_3_6 = 235 ,
uid_1_2_840_10008_15_0_3_7 = 236 ,
uid_1_2_840_10008_15_0_3_8 = 237 ,
uid_1_2_840_10008_15_0_3_9 = 238 ,
uid_1_2_840_10008_15_0_3_10 = 239 ,
uid_1_2_840_10008_15_0_3_11 = 240 ,
uid_1_2_840_10008_15_0_3_12 = 241 ,
uid_1_2_840_10008_15_0_3_13 = 242 ,
uid_1_2_840_10008_15_0_3_14 = 243 ,
uid_1_2_840_10008_15_0_3_15 = 244 ,
uid_1_2_840_10008_15_0_3_16 = 245 ,
uid_1_2_840_10008_15_0_3_17 = 246 ,
uid_1_2_840_10008_15_0_3_18 = 247 ,
uid_1_2_840_10008_15_0_3_19 = 248 ,
uid_1_2_840_10008_15_0_3_20 = 249 ,
uid_1_2_840_10008_15_0_3_21 = 250 ,
uid_1_2_840_10008_15_0_3_22 = 251 ,
uid_1_2_840_10008_15_0_3_23 = 252 ,
uid_1_2_840_10008_15_0_3_24 = 253 ,
uid_1_2_840_10008_15_0_3_25 = 254 ,
uid_1_2_840_10008_15_0_3_26 = 255 ,
uid_1_2_840_10008_15_0_3_27 = 256 ,
uid_1_2_840_10008_15_0_3_28 = 257 ,
uid_1_2_840_10008_15_0_3_29 = 258 ,
uid_1_2_840_10008_15_0_3_30 = 259 ,
uid_1_2_840_10008_15_0_3_31 = 260 ,
uid_1_2_840_10008_15_0_4_1 = 261 ,
uid_1_2_840_10008_15_0_4_2 = 262 ,
uid_1_2_840_10008_15_0_4_3 = 263 ,
uid_1_2_840_10008_15_0_4_4 = 264 ,
uid_1_2_840_10008_15_0_4_5 = 265 ,
uid_1_2_840_10008_15_0_4_6 = 266 ,
uid_1_2_840_10008_15_0_4_7 = 267 ,
uid_1_2_840_10008_15_0_4_8 = 268 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269 ,
uid_1_2_840_10008_5_1_4_1_1_6_2 = 270 ,
uid_1_2_840_10008_5_1_4_1_1_66_5 = 271 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272 ,
uid_1_2_840_10008_5_1_4_1_1_2_2 = 273 ,
uid_1_2_840_10008_5_1_4_1_1_4_4 = 274 ,
uid_1_2_840_10008_5_1_4_1_1_128_1 = 275 ,
uid_1_2_840_10008_1_2_4_101 = 276 ,
uid_1_2_840_10008_1_2_4_102 = 277 ,
uid_1_2_840_10008_1_2_4_103 = 278 ,
uid_1_2_840_10008_1_5_2 = 279 ,

uid_1_2_840_10008_1_5_3 = 280 ,
uid_1_2_840_10008_1_5_4 = 281 ,
uid_1_2_840_10008_1_5_5 = 282 ,
uid_1_2_840_10008_1_5_6 = 283 ,
uid_1_2_840_10008_1_5_7 = 284 ,
uid_1_2_840_10008_1_5_8 = 285 ,
uid_1_2_840_10008_1_20 = 286 ,
uid_1_2_840_10008_2_16_5 = 287 ,
uid_1_2_840_10008_2_16_6 = 288 ,
uid_1_2_840_10008_2_16_7 = 289 ,
uid_1_2_840_10008_2_16_8 = 290 ,
uid_1_2_840_10008_2_16_9 = 291 ,
uid_1_2_840_10008_2_16_10 = 292 ,
uid_1_2_840_10008_2_16_11 = 293 ,
uid_1_2_840_10008_2_16_12 = 294 ,
uid_1_2_840_10008_2_16_13 = 295 ,
uid_1_2_840_10008_2_16_14 = 296 ,
uid_1_2_840_10008_5_1_1_40 = 297 ,
uid_1_2_840_10008_5_1_1_40_1 = 298 ,
uid_1_2_840_10008_5_1_4_1_1_9_4_2 = 299 ,
uid_1_2_840_10008_5_1_4_1_1_9_5_1 = 300 ,
uid_1_2_840_10008_5_1_4_1_1_9_6_1 = 301 ,
uid_1_2_840_10008_5_1_4_1_1_11_5 = 302 ,
uid_1_2_840_10008_5_1_4_1_1_11_6 = 303 ,
uid_1_2_840_10008_1_2_4_104 = 304 ,
uid_1_2_840_10008_1_2_4_105 = 305 ,
uid_1_2_840_10008_1_2_4_106 = 306 ,
uid_1_2_840_10008_1_2_4_107 = 307 ,
uid_1_2_840_10008_1_2_4_108 = 308 ,
uid_1_2_840_10008_1_5_1 = 309 ,
uid_1_2_840_10008_5_1_4_1_1_11_7 = 310 ,
uid_1_2_840_10008_5_1_4_1_1_11_8 = 311 ,
uid_1_2_840_10008_5_1_4_1_1_11_9 = 312 ,
uid_1_2_840_10008_5_1_4_1_1_11_10 = 313 ,
uid_1_2_840_10008_5_1_4_1_1_11_11 = 314 ,
uid_1_2_840_10008_5_1_4_1_1_12_77 = 315 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_4 = 316 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_5 = 317 ,
uid_1_2_840_10008_5_1_4_1_1_14_1 = 318 ,
uid_1_2_840_10008_5_1_4_1_1_14_2 = 319 ,
uid_1_2_840_10008_5_1_4_1_1_30 = 320 ,
uid_1_2_840_10008_5_1_4_1_1_40 = 321 ,
uid_1_2_840_10008_5_1_4_1_1_66_6 = 322 ,
uid_1_2_840_10008_5_1_4_1_1_68_1 = 323 ,
uid_1_2_840_10008_5_1_4_1_1_68_2 = 324 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328 ,
uid_1_2_840_10008_5_1_4_1_1_78_1 = 329 ,
uid_1_2_840_10008_5_1_4_1_1_78_2 = 330 ,
uid_1_2_840_10008_5_1_4_1_1_78_3 = 331 ,
uid_1_2_840_10008_5_1_4_1_1_78_4 = 332 ,
uid_1_2_840_10008_5_1_4_1_1_78_5 = 333 ,

uid_1_2_840_10008_5_1_4_1_1_78_6 = 334 ,
uid_1_2_840_10008_5_1_4_1_1_78_7 = 335 ,
uid_1_2_840_10008_5_1_4_1_1_78_8 = 336 ,
uid_1_2_840_10008_5_1_4_1_1_79_1 = 337 ,
uid_1_2_840_10008_5_1_4_1_1_80_1 = 338 ,
uid_1_2_840_10008_5_1_4_1_1_81_1 = 339 ,
uid_1_2_840_10008_5_1_4_1_1_82_1 = 340 ,
uid_1_2_840_10008_5_1_4_1_1_88_34 = 341 ,
uid_1_2_840_10008_5_1_4_1_1_88_35 = 342 ,
uid_1_2_840_10008_5_1_4_1_1_88_68 = 343 ,
uid_1_2_840_10008_5_1_4_1_1_88_69 = 344 ,
uid_1_2_840_10008_5_1_4_1_1_88_70 = 345 ,
uid_1_2_840_10008_5_1_4_1_1_88_71 = 346 ,
uid_1_2_840_10008_5_1_4_1_1_88_72 = 347 ,
uid_1_2_840_10008_5_1_4_1_1_88_73 = 348 ,
uid_1_2_840_10008_5_1_4_1_1_88_74 = 349 ,
uid_1_2_840_10008_5_1_4_1_1_88_75 = 350 ,
uid_1_2_840_10008_5_1_4_1_1_90_1 = 351 ,
uid_1_2_840_10008_5_1_4_1_1_104_3 = 352 ,
uid_1_2_840_10008_5_1_4_1_1_130 = 353 ,
uid_1_2_840_10008_5_1_4_1_1_131 = 354 ,
uid_1_2_840_10008_5_1_4_1_1_200_1 = 355 ,
uid_1_2_840_10008_5_1_4_1_1_200_2 = 356 ,
uid_1_2_840_10008_5_1_4_1_1_200_3 = 357 ,
uid_1_2_840_10008_5_1_4_1_1_200_4 = 358 ,
uid_1_2_840_10008_5_1_4_1_1_200_5 = 359 ,
uid_1_2_840_10008_5_1_4_1_1_200_6 = 360 ,
uid_1_2_840_10008_5_1_4_1_1_481_10 = 361 ,
uid_1_2_840_10008_5_1_4_1_1_481_11 = 362 ,
uid_1_2_840_10008_5_1_4_1_1_501_1 = 363 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_1 = 364 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_2 = 365 ,
uid_1_2_840_10008_5_1_4_1_1_501_3 = 366 ,
uid_1_2_840_10008_5_1_4_1_1_501_4 = 367 ,
uid_1_2_840_10008_5_1_4_1_1_501_5 = 368 ,
uid_1_2_840_10008_5_1_4_1_1_501_6 = 369 ,
uid_1_2_840_10008_5_1_4_1_1_601_1 = 370 ,
uid_1_2_840_10008_5_1_4_1_1_601_2 = 371 ,
uid_1_2_840_10008_5_1_4_1_2_4_2 = 372 ,
uid_1_2_840_10008_5_1_4_1_2_4_3 = 373 ,
uid_1_2_840_10008_5_1_4_1_2_5_3 = 374 ,
uid_1_2_840_10008_5_1_4_20_1 = 375 ,
uid_1_2_840_10008_5_1_4_20_2 = 376 ,
uid_1_2_840_10008_5_1_4_20_3 = 377 ,
uid_1_2_840_10008_5_1_4_34_5_1 = 378 ,
uid_1_2_840_10008_5_1_4_34_6 = 379 ,
uid_1_2_840_10008_5_1_4_34_6_1 = 380 ,
uid_1_2_840_10008_5_1_4_34_6_2 = 381 ,
uid_1_2_840_10008_5_1_4_34_6_3 = 382 ,
uid_1_2_840_10008_5_1_4_34_6_4 = 383 ,
uid_1_2_840_10008_5_1_4_34_7 = 384 ,
uid_1_2_840_10008_5_1_4_34_8 = 385 ,
uid_1_2_840_10008_5_1_4_34_9 = 386 ,
uid_1_2_840_10008_5_1_4_34_10 = 387 ,

uid_1_2_840_10008_5_1_4_38_4 = 388 ,
uid_1_2_840_10008_5_1_4_39_1 = 389 ,
uid_1_2_840_10008_5_1_4_39_2 = 390 ,
uid_1_2_840_10008_5_1_4_39_3 = 391 ,
uid_1_2_840_10008_5_1_4_39_4 = 392 ,
uid_1_2_840_10008_5_1_4_43_1 = 393 ,
uid_1_2_840_10008_5_1_4_43_2 = 394 ,
uid_1_2_840_10008_5_1_4_43_3 = 395 ,
uid_1_2_840_10008_5_1_4_43_4 = 396 ,
uid_1_2_840_10008_5_1_4_44_1 = 397 ,
uid_1_2_840_10008_5_1_4_44_2 = 398 ,
uid_1_2_840_10008_5_1_4_44_3 = 399 ,
uid_1_2_840_10008_5_1_4_44_4 = 400 ,
uid_1_2_840_10008_5_1_4_45_1 = 401 ,
uid_1_2_840_10008_5_1_4_45_2 = 402 ,
uid_1_2_840_10008_5_1_4_45_3 = 403 ,
uid_1_2_840_10008_5_1_4_45_4 = 404 ,
uid_1_2_840_10008_7_1_1 = 405 ,
uid_1_2_840_10008_7_1_2 = 406 ,
uid_1_2_840_10008_8_1_1 = 407 ,
uid_1_2_840_10008_5_1_4_1_1_4_3 = 408 ,
uid_1_2_840_10008_15_1_1 = 409 }

Public Member Functions

- const char ∗ GetName () const
- const char ∗ GetString () const
- operator TSType () const
- bool SetFromUID (const char ∗str)

Static Public Member Functions

- static unsigned int GetNumberOfTransferSyntaxStrings ()
- static const char ∗const ∗ GetTransferSyntaxString (unsigned int ts)
- static TransferSyntaxStringsType GetTransferSyntaxStrings ()
- static const char ∗ GetUIDName (unsigned int ts)
- static const char ∗ GetUIDString (unsigned int ts)

10.324.1 Detailed Description

all known uids

Examples

GenerateStandardSOPClasses.cxx.

10.324.2 Member Typedef Documentation

10.324.2.1 TransferSyntaxStringsType

```
typedef const char* const(* gdcm::UIDs::TransferSyntaxStringsType)[2]
```

10.324.3 Member Enumeration Documentation

10.324.3.1 TSName

```
enum gdcm::UIDs::TSName
```

Enumerator

VerificationSOPClass	
ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM	
ExplicitVRLittleEndian	
DeflatedExplicitVRLittleEndian	
ExplicitVRBigEndian	
JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression	
JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only	
JPEGExtendedProcess35Retired	
JPEGSpectralSelectionNonHierarchicalProcess68Retired	
JPEGSpectralSelectionNonHierarchicalProcess79Retired	
JPEGFullProgressionNonHierarchicalProcess1012Retired	
JPEGFullProgressionNonHierarchicalProcess1113Retired	
JPEGLosslessNonHierarchicalProcess14	
JPEGLosslessNonHierarchicalProcess15Retired	
JPEGExtendedHierarchicalProcess1618Retired	
JPEGExtendedHierarchicalProcess1719Retired	
JPEGSpectralSelectionHierarchicalProcess2022Retired	
JPEGSpectralSelectionHierarchicalProcess2123Retired	
JPEGFullProgressionHierarchicalProcess2426Retired	
JPEGFullProgressionHierarchicalProcess2527Retired	
JPEGLosslessHierarchicalProcess28Retired	
JPEGLosslessHierarchicalProcess29Retired	
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLossless↩ JPEGImageCompression	
JPEGLSLosslessImageCompression	
JPEGLSLossyNearLosslessImageCompression	
JPEG2000ImageCompressionLosslessOnly	
JPEG2000ImageCompression	
JPEG2000Part2MulticomponentImageCompressionLosslessOnly	
JPEG2000Part2MulticomponentImageCompression	
JPIPReferenced	

Enumerator

JPIPReferencedDeflate	
MPEG2MainProfileMainLevel	
RLELossless	
RFC2557MIMEencapsulation	
XMLEncoding	
MediaStorageDirectoryStorage	
TalairachBrainAtlasFrameofReference	
SPM2T1FrameofReference	
SPM2T2FrameofReference	
SPM2PDFrameofReference	
SPM2EPIFrameofReference	
SPM2FILT1FrameofReference	
SPM2PETFrameofReference	
SPM2TRANSMFrameofReference	
SPM2SPECTFrameofReference	
SPM2GRAYFrameofReference	
SPM2WHITEFrameofReference	
SPM2CSFFrameofReference	
SPM2BRAINMASKFrameofReference	
SPM2AVG305T1FrameofReference	
SPM2AVG152T1FrameofReference	
SPM2AVG152T2FrameofReference	
SPM2AVG152PDFrameofReference	
SPM2SINGLESUBJT1FrameofReference	
ICBM452T1FrameofReference	
ICBMSingleSubjectMRIFrameofReference	
BasicStudyContentNotificationSOPClassRetired	
StorageCommitmentPushModelSOPClass	
StorageCommitmentPushModelSOPInstance	
StorageCommitmentPullModelSOPClassRetired	
StorageCommitmentPullModelSOPInstanceRetired	
ProceduralEventLoggingSOPClass	
ProceduralEventLoggingSOPInstance	
SubstanceAdministrationLoggingSOPClass	
SubstanceAdministrationLoggingSOPInstance	
DICOMUIDRegistry	
DICOMControlledTerminology	
DICOMApplicationContextName	
DetachedPatientManagementSOPClassRetired	
DetachedPatientManagementMetaSOPClassRetired	
DetachedVisitManagementSOPClassRetired	
DetachedStudyManagementSOPClassRetired	
StudyComponentManagementSOPClassRetired	
ModalityPerformedProcedureStepSOPClass	
ModalityPerformedProcedureStepRetrieveSOPClass	

Enumerator

ModalityPerformedProcedureStepNotificationSOPClass	
DetachedResultsManagementSOPClassRetired	
DetachedResultsManagementMetaSOPClassRetired	
DetachedStudyManagementMetaSOPClassRetired	
DetachedInterpretationManagementSOPClassRetired	
StorageServiceClass	
BasicFilmSessionSOPClass	
BasicFilmBoxSOPClass	
BasicGrayscaleImageBoxSOPClass	
BasicColorImageBoxSOPClass	
ReferencedImageBoxSOPClassRetired	
BasicGrayscalePrintManagementMetaSOPClass	
ReferencedGrayscalePrintManagementMetaSOPClassRetired	
PrintJobSOPClass	
BasicAnnotationBoxSOPClass	
PrinterSOPClass	
PrinterConfigurationRetrievalSOPClass	
PrinterSOPInstance	
PrinterConfigurationRetrievalSOPInstance	
BasicColorPrintManagementMetaSOPClass	
ReferencedColorPrintManagementMetaSOPClassRetired	
VOILUTBoxSOPClass	
PresentationLUTSOPClass	
ImageOverlayBoxSOPClassRetired	
BasicPrintImageOverlayBoxSOPClassRetired	
PrintQueueSOPInstanceRetired	
PrintQueueManagementSOPClassRetired	
StoredPrintStorageSOPClassRetired	
HardcopyGrayscaleImageStorageSOPClassRetired	
HardcopyColorImageStorageSOPClassRetired	
PullPrintRequestSOPClassRetired	
PullStoredPrintManagementMetaSOPClassRetired	
MediaCreationManagementSOPClassUID	
ComputedRadiographyImageStorage	
DigitalXRayImageStorageForPresentation	
DigitalXRayImageStorageForProcessing	
DigitalMammographyXRayImageStorageForPresentation	
DigitalMammographyXRayImageStorageForProcessing	
DigitalIntraoralXRayImageStorageForPresentation	
DigitalIntraoralXRayImageStorageForProcessing	
CTImageStorage	
EnhancedCTImageStorage	
UltrasoundMultiframeImageStorageRetired	

Enumerator

UltrasoundMultiframeImageStorage	
MRImageStorage	
EnhancedMRImageStorage	
MRSpectroscopyStorage	
NuclearMedicineImageStorageRetired	
UltrasoundImageStorageRetired	
UltrasoundImageStorage	
SecondaryCaptureImageStorage	
MultiframeSingleBitSecondaryCaptureImageStorage	
MultiframeGrayscaleByteSecondaryCaptureImageStorage	
MultiframeGrayscaleWordSecondaryCaptureImageStorage	
MultiframeTrueColorSecondaryCaptureImageStorage	
StandaloneOverlayStorageRetired	
StandaloneCurveStorageRetired	
WaveformStorageTrialRetired	
ECG12leadWaveformStorage	
GeneralECGWaveformStorage	
AmbulatoryECGWaveformStorage	
HemodynamicWaveformStorage	
CardiacElectrophysiologyWaveformStorage	
BasicVoiceAudioWaveformStorage	
StandaloneModalityLUTStorageRetired	
StandaloneVOILUTStorageRetired	
GrayscaleSoftcopyPresentationStateStorageSOPClass	
ColorSoftcopyPresentationStateStorageSOPClass	
PseudoColorSoftcopyPresentationStateStorageSOPClass	
BlendingSoftcopyPresentationStateStorageSOPClass	
XRayAngiographicImageStorage	
EnhancedXAImageStorage	
XRayRadiofluoroscopicImageStorage	
EnhancedXRFImageStorage	
XRay3DAngiographicImageStorage	
XRay3DCraniofacialImageStorage	
XRayAngiographicBiPlaneImageStorageRetired	
NuclearMedicineImageStorage	
RawDataStorage	
SpatialRegistrationStorage	
SpatialFiducialsStorage	
DeformableSpatialRegistrationStorage	
SegmentationStorage	
RealWorldValueMappingStorage	
VLImageStorageTrialRetired	
VLMultiframeImageStorageTrialRetired	

Enumerator

VLEndoscopicImageStorage	
VideoEndoscopicImageStorage	
VLMicroscopicImageStorage	
VideoMicroscopicImageStorage	
VLSlideCoordinatesMicroscopicImageStorage	
VLPhotographicImageStorage	
VideoPhotographicImageStorage	
OphthalmicPhotography8BitImageStorage	
OphthalmicPhotography16BitImageStorage	
StereometricRelationshipStorage	
OphthalmicTomographyImageStorage	
TextSRStorageTrialRetired	
AudioSRStorageTrialRetired	
DetailSRStorageTrialRetired	
ComprehensiveSRStorageTrialRetired	
BasicTextSRStorage	
EnhancedSRStorage	
ComprehensiveSRStorage	
ProcedureLogStorage	
MammographyCADSRStorage	
KeyObjectSelectionDocumentStorage	
ChestCADSRStorage	
XRayRadiationDoseSRStorage	
EncapsulatedPDFStorage	
EncapsulatedCDAStorage	
PositronEmissionTomographyImageStorage	
StandalonePETCurveStorageRetired	
RTImageStorage	
RTDoseStorage	
RTStructureSetStorage	
RTBeamsTreatmentRecordStorage	
RTPlanStorage	
RTBrachyTreatmentRecordStorage	
RTTreatmentSummaryRecordStorage	
RTIonPlanStorage	
RTIonBeamsTreatmentRecordStorage	
PatientRootQueryRetrieveInformationModelFIND	
PatientRootQueryRetrieveInformationModelMOVE	
PatientRootQueryRetrieveInformationModelGET	
StudyRootQueryRetrieveInformationModelFIND	
StudyRootQueryRetrieveInformationModelMOVE	
StudyRootQueryRetrieveInformationModelGET	
PatientStudyOnlyQueryRetrieveInformationModelFINDRetired	

Enumerator

PatientStudyOnlyQueryRetrieveInformationModelMOVERetired	
PatientStudyOnlyQueryRetrieveInformationModelGETRetired	
ModalityWorklistInformationModelFIND	
GeneralPurposeWorklistInformationModelFIND	
GeneralPurposeScheduledProcedureStepSOPClass	
GeneralPurposePerformedProcedureStepSOPClass	
GeneralPurposeWorklistManagementMetaSOPClass	
InstanceAvailabilityNotificationSOPClass	
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft	
RTConventionalMachineVerificationSupplement74FrozenDraft	
RTIonMachineVerificationSupplement74FrozenDraft	
UnifiedWorklistandProcedureStepServiceClass	
UnifiedProcedureStepPushSOPClass	
UnifiedProcedureStepWatchSOPClass	
UnifiedProcedureStepPullSOPClass	
UnifiedProcedureStepEventSOPClass	
UnifiedWorklistandProcedureStepSOPInstance	
GeneralRelevantPatientInformationQuery	
BreastImagingRelevantPatientInformationQuery	
CardiacRelevantPatientInformationQuery	
HangingProtocolStorage	
HangingProtocolInformationModelFIND	
HangingProtocolInformationModelMOVE	
ProductCharacteristicsQuerySOPClass	
SubstanceApprovalQuerySOPClass	
dicomDeviceName	
dicomDescription	
dicomManufacturer	
dicomManufacturerModelName	
dicomSoftwareVersion	
dicomVendorData	
dicomAETitle	
dicomNetworkConnectionReference	
dicomApplicationCluster	
dicomAssociationInitiator	
dicomAssociationAcceptor	
dicomHostname	
dicomPort	
dicomSOPClass	
dicomTransferRole	
dicomTransferSyntax	
dicomPrimaryDeviceType	
dicomRelatedDeviceReference	
dicomPreferredCalledAETitle	

Enumerator

dicomTLSCyphersuite	
dicomAuthorizedNodeCertificateReference	
dicomThisNodeCertificateReference	
dicomInstalled	
dicomStationName	
dicomDeviceSerialNumber	
dicomInstitutionName	
dicomInstitutionAddress	
dicomInstitutionDepartmentName	
dicomIssuerOfPatientID	
dicomPreferredCallingAETitle	
dicomSupportedCharacterSet	
dicomConfigurationRoot	
dicomDevicesRoot	
dicomUniqueAETitlesRegistryRoot	
dicomDevice	
dicomNetworkAE	
dicomNetworkConnection	
dicomUniqueAETitle	
dicomTransferCapability	
VLWholeSlideMicroscopyImageStorage	
EnhancedUSVolumeStorage	
SurfaceSegmentationStorage	
BreastTomosynthesisImageStorage	
LegacyConvertedEnhancedCTImageStorage	
LegacyConvertedEnhancedMRImageStorage	
LegacyConvertedEnhancedPETImageStorage	
MPEG2MainProfileHighLevel	
MPEG4AVCH_264HighProfileLevel4_1	
MPEG4AVCH_264BDcompatibleHighProfileLevel4_1	
PETColorPaletteSOPInstance	
HotMetalBlueColorPaletteSOPInstance	
PET20StepColorPaletteSOPInstance	
SpringColorPaletteSOPInstance	
SummerColorPaletteSOPInstance	
FallColorPaletteSOPInstance	
WinterColorPaletteSOPInstance	
Papyrus3ImplicitVRLittleEndian	
AdultMouseAnatomyOntology	
UberonOntology	
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN	
MouseGenomeInitiativeMGI	
PubChemCompoundCID	
ICD11	

Enumerator

NewYorkUniversityMelanomaClinicalCooperativeGroup	
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide	
ImageBiomarkerStandardisationInitiative	
RadiomicsOntology	
DisplaySystemSOPClass	
DisplaySystemSOPInstance	
GeneralAudioWaveformStorage	
ArterialPulseWaveformStorage	
RespiratoryWaveformStorage	
XAXRFGrayscaleSoftcopyPresentationStateStorage	
GrayscalePlanarMPRVolumetricPresentationStateStorage	
MPEG4AVCH_264HighProfileLevel4_2For2DVideo	
MPEG4AVCH_264HighProfileLevel4_2For3DVideo	
MPEG4AVCH_264StereoHighProfileLevel4_2	
HEVCH_265MainProfileLevel5_1	
HEVCH_265Main10ProfileLevel5_1	
HotIronColorPaletteSOPInstance	
CompositingPlanarMPRVolumetricPresentationStateStorage	
AdvancedBlendingPresentationStateStorage	
VolumeRenderingVolumetricPresentationStateStorage	
SegmentedVolumeRenderingVolumetricPresentationStateStorage	
MultipleVolumeRenderingVolumetricPresentationStateStorage	
Null0	
BreastProjectionXRayImageStorageForPresentation	
BreastProjectionXRayImageStorageForProcessing	
IntravascularOpticalCoherenceTomographyImageStorageForPresentation	
IntravascularOpticalCoherenceTomographyImageStorageForProcessing	
ParametricMapStorage	
Null1	
TractographyResultsStorage	
SurfaceScanMeshStorage	
SurfaceScanPointCloudStorage	
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage	
WideFieldOphthalmicPhotography3DCoordinatesImageStorage	
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage	
OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage	
LensometryMeasurementsStorage	
AutorefractionMeasurementsStorage	
KeratometryMeasurementsStorage	
SubjectiveRefractionMeasurementsStorage	
VisualAcuityMeasurementsStorage	
SpectaclePrescriptionReportStorage	
OphthalmicAxialMeasurementsStorage	

Enumerator

IntraocularLensCalculationsStorage	
MacularGridThicknessandVolumeReportStorage	
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage	
OphthalmicThicknessMapStorage	
CornealTopographyMapStorage	
Comprehensive3DSRStorage	
ExtensibleSRStorage	
RadiopharmaceuticalRadiationDoseSRStorage	
ColonCADSRStorage	
ImplantationPlanSRStorage	
AcquisitionContextSRStorage	
SimplifiedAdultEchoSRStorage	
PatientRadiationDoseSRStorage	
PlannedImagingAgentAdministrationSRStorage	
PerformedImagingAgentAdministrationSRStorage	
ContentAssessmentResultsStorage	
EncapsulatedSTLStorage	
EnhancedPETImageStorage	
BasicStructuredDisplayStorage	
CTDefinedProcedureProtocolStorage	
CTPerformedProcedureProtocolStorage	
ProtocolApprovalStorage	
ProtocolApprovalInformationModelFIND	
ProtocolApprovalInformationModelMOVE	
ProtocolApprovalInformationModelGET	
RTPhysicianIntentStorage	
RTSegmentAnnotationStorage	
DICOSCTImageStorage	
DICOSDigitalXRayImageStorageForPresentation	
DICOSDigitalXRayImageStorageForProcessing	
DICOSThreatDetectionReportStorage	
DICOS2DAITStorage	
DICOS3DAITStorage	
DICOSQuadrupoleResonanceQRStorage	
EddyCurrentImageStorage	
EddyCurrentMultiframeImageStorage	
CompositeInstanceRootRetrieveMOVE	
CompositeInstanceRootRetrieveGET	
CompositeInstanceRetrieveWithoutBulkDataGET	
DefinedProcedureProtocolInformationModelFIND	
DefinedProcedureProtocolInformationModelMOVE	
DefinedProcedureProtocolInformationModelGET	
UPSFilteredGlobalSubscriptionSOPInstance	

Enumerator

UnifiedWorklistandProcedureStepServiceClass1	
UnifiedProcedureStepPushSOPClass1	
UnifiedProcedureStepWatchSOPClass1	
UnifiedProcedureStepPullSOPClass1	
UnifiedProcedureStepEventSOPClass1	
RTBeamsDeliveryInstructionStorage	
RTConventionalMachineVerification	
RTIonMachineVerification	
RTBrachyApplicationSetupDeliveryInstructionStorage	
HangingProtocolInformationModelGET	
ColorPaletteStorage	
ColorPaletteQueryRetrieveInformationModelFIND	
ColorPaletteQueryRetrieveInformationModelMOVE	
ColorPaletteQueryRetrieveInformationModelGET	
GenericImplantTemplateStorage	
GenericImplantTemplateInformationModelFIND	
GenericImplantTemplateInformationModelMOVE	
GenericImplantTemplateInformationModelGET	
ImplantAssemblyTemplateStorage	
ImplantAssemblyTemplateInformationModelFIND	
ImplantAssemblyTemplateInformationModelMOVE	
ImplantAssemblyTemplateInformationModelGET	
ImplantTemplateGroupStorage	
ImplantTemplateGroupInformationModelFIND	
ImplantTemplateGroupInformationModelMOVE	
ImplantTemplateGroupInformationModelGET	
NativeDICOMModel	
AbstractMultiDimensionalImageModel	
DICOMContentMappingResource	
EnhancedMRColorImageStorage	
UniversalCoordinatedTime	

10.324.3.2 TSType

`enum gdcm::UIDs::TSType`

Enumerator

uid_1_2_840_10008_1_1	
uid_1_2_840_10008_1_2	
uid_1_2_840_10008_1_2_1	
uid_1_2_840_10008_1_2_1_99	
uid_1_2_840_10008_1_2_2	

Enumerator

uid_1_2_840_10008_1_2_4_50	
uid_1_2_840_10008_1_2_4_51	
uid_1_2_840_10008_1_2_4_52	
uid_1_2_840_10008_1_2_4_53	
uid_1_2_840_10008_1_2_4_54	
uid_1_2_840_10008_1_2_4_55	
uid_1_2_840_10008_1_2_4_56	
uid_1_2_840_10008_1_2_4_57	
uid_1_2_840_10008_1_2_4_58	
uid_1_2_840_10008_1_2_4_59	
uid_1_2_840_10008_1_2_4_60	
uid_1_2_840_10008_1_2_4_61	
uid_1_2_840_10008_1_2_4_62	
uid_1_2_840_10008_1_2_4_63	
uid_1_2_840_10008_1_2_4_64	
uid_1_2_840_10008_1_2_4_65	
uid_1_2_840_10008_1_2_4_66	
uid_1_2_840_10008_1_2_4_70	
uid_1_2_840_10008_1_2_4_80	
uid_1_2_840_10008_1_2_4_81	
uid_1_2_840_10008_1_2_4_90	
uid_1_2_840_10008_1_2_4_91	
uid_1_2_840_10008_1_2_4_92	
uid_1_2_840_10008_1_2_4_93	
uid_1_2_840_10008_1_2_4_94	
uid_1_2_840_10008_1_2_4_95	
uid_1_2_840_10008_1_2_4_100	
uid_1_2_840_10008_1_2_5	
uid_1_2_840_10008_1_2_6_1	
uid_1_2_840_10008_1_2_6_2	
uid_1_2_840_10008_1_3_10	
uid_1_2_840_10008_1_4_1_1	
uid_1_2_840_10008_1_4_1_2	
uid_1_2_840_10008_1_4_1_3	
uid_1_2_840_10008_1_4_1_4	
uid_1_2_840_10008_1_4_1_5	
uid_1_2_840_10008_1_4_1_6	
uid_1_2_840_10008_1_4_1_7	
uid_1_2_840_10008_1_4_1_8	
uid_1_2_840_10008_1_4_1_9	
uid_1_2_840_10008_1_4_1_10	
uid_1_2_840_10008_1_4_1_11	
uid_1_2_840_10008_1_4_1_12	
uid_1_2_840_10008_1_4_1_13	
uid_1_2_840_10008_1_4_1_14	
uid_1_2_840_10008_1_4_1_15	

Enumerator

uid_1_2_840_10008_1_4_1_16	
uid_1_2_840_10008_1_4_1_17	
uid_1_2_840_10008_1_4_1_18	
uid_1_2_840_10008_1_4_2_1	
uid_1_2_840_10008_1_4_2_2	
uid_1_2_840_10008_1_9	
uid_1_2_840_10008_1_20_1	
uid_1_2_840_10008_1_20_1_1	
uid_1_2_840_10008_1_20_2	
uid_1_2_840_10008_1_20_2_1	
uid_1_2_840_10008_1_40	
uid_1_2_840_10008_1_40_1	
uid_1_2_840_10008_1_42	
uid_1_2_840_10008_1_42_1	
uid_1_2_840_10008_2_6_1	
uid_1_2_840_10008_2_16_4	
uid_1_2_840_10008_3_1_1_1	
uid_1_2_840_10008_3_1_2_1_1	
uid_1_2_840_10008_3_1_2_1_4	
uid_1_2_840_10008_3_1_2_2_1	
uid_1_2_840_10008_3_1_2_3_1	
uid_1_2_840_10008_3_1_2_3_2	
uid_1_2_840_10008_3_1_2_3_3	
uid_1_2_840_10008_3_1_2_3_4	
uid_1_2_840_10008_3_1_2_3_5	
uid_1_2_840_10008_3_1_2_5_1	
uid_1_2_840_10008_3_1_2_5_4	
uid_1_2_840_10008_3_1_2_5_5	
uid_1_2_840_10008_3_1_2_6_1	
uid_1_2_840_10008_4_2	
uid_1_2_840_10008_5_1_1_1	
uid_1_2_840_10008_5_1_1_2	
uid_1_2_840_10008_5_1_1_4	
uid_1_2_840_10008_5_1_1_4_1	
uid_1_2_840_10008_5_1_1_4_2	
uid_1_2_840_10008_5_1_1_9	
uid_1_2_840_10008_5_1_1_9_1	
uid_1_2_840_10008_5_1_1_14	
uid_1_2_840_10008_5_1_1_15	
uid_1_2_840_10008_5_1_1_16	
uid_1_2_840_10008_5_1_1_16_376	
uid_1_2_840_10008_5_1_1_17	
uid_1_2_840_10008_5_1_1_17_376	
uid_1_2_840_10008_5_1_1_18	
uid_1_2_840_10008_5_1_1_18_1	
uid_1_2_840_10008_5_1_1_22	

Enumerator

uid_1_2_840_10008_5_1_1_23	
uid_1_2_840_10008_5_1_1_24	
uid_1_2_840_10008_5_1_1_24_1	
uid_1_2_840_10008_5_1_1_25	
uid_1_2_840_10008_5_1_1_26	
uid_1_2_840_10008_5_1_1_27	
uid_1_2_840_10008_5_1_1_29	
uid_1_2_840_10008_5_1_1_30	
uid_1_2_840_10008_5_1_1_31	
uid_1_2_840_10008_5_1_1_32	
uid_1_2_840_10008_5_1_1_33	
uid_1_2_840_10008_5_1_4_1_1_1	
uid_1_2_840_10008_5_1_4_1_1_1_1	
uid_1_2_840_10008_5_1_4_1_1_1_1_1	
uid_1_2_840_10008_5_1_4_1_1_1_2	
uid_1_2_840_10008_5_1_4_1_1_1_2_1	
uid_1_2_840_10008_5_1_4_1_1_1_3	
uid_1_2_840_10008_5_1_4_1_1_1_3_1	
uid_1_2_840_10008_5_1_4_1_1_2	
uid_1_2_840_10008_5_1_4_1_1_2_1	
uid_1_2_840_10008_5_1_4_1_1_3	
uid_1_2_840_10008_5_1_4_1_1_3_1	
uid_1_2_840_10008_5_1_4_1_1_4	
uid_1_2_840_10008_5_1_4_1_1_4_1	
uid_1_2_840_10008_5_1_4_1_1_4_2	
uid_1_2_840_10008_5_1_4_1_1_5	
uid_1_2_840_10008_5_1_4_1_1_6	
uid_1_2_840_10008_5_1_4_1_1_6_1	
uid_1_2_840_10008_5_1_4_1_1_7	
uid_1_2_840_10008_5_1_4_1_1_7_1	
uid_1_2_840_10008_5_1_4_1_1_7_2	
uid_1_2_840_10008_5_1_4_1_1_7_3	
uid_1_2_840_10008_5_1_4_1_1_7_4	
uid_1_2_840_10008_5_1_4_1_1_8	
uid_1_2_840_10008_5_1_4_1_1_9	
uid_1_2_840_10008_5_1_4_1_1_9_1	
uid_1_2_840_10008_5_1_4_1_1_9_1_1	
uid_1_2_840_10008_5_1_4_1_1_9_1_2	
uid_1_2_840_10008_5_1_4_1_1_9_1_3	
uid_1_2_840_10008_5_1_4_1_1_9_2_1	
uid_1_2_840_10008_5_1_4_1_1_9_3_1	
uid_1_2_840_10008_5_1_4_1_1_9_4_1	
uid_1_2_840_10008_5_1_4_1_1_10	
uid_1_2_840_10008_5_1_4_1_1_11	
uid_1_2_840_10008_5_1_4_1_1_11_1	
uid_1_2_840_10008_5_1_4_1_1_11_2	

Enumerator

uid_1_2_840_10008_5_1_4_1_1_11_3	
uid_1_2_840_10008_5_1_4_1_1_11_4	
uid_1_2_840_10008_5_1_4_1_1_12_1	
uid_1_2_840_10008_5_1_4_1_1_12_1_1	
uid_1_2_840_10008_5_1_4_1_1_12_2	
uid_1_2_840_10008_5_1_4_1_1_12_2_1	
uid_1_2_840_10008_5_1_4_1_1_13_1_1	
uid_1_2_840_10008_5_1_4_1_1_13_1_2	
uid_1_2_840_10008_5_1_4_1_1_12_3	
uid_1_2_840_10008_5_1_4_1_1_20	
uid_1_2_840_10008_5_1_4_1_1_66	
uid_1_2_840_10008_5_1_4_1_1_66_1	
uid_1_2_840_10008_5_1_4_1_1_66_2	
uid_1_2_840_10008_5_1_4_1_1_66_3	
uid_1_2_840_10008_5_1_4_1_1_66_4	
uid_1_2_840_10008_5_1_4_1_1_67	
uid_1_2_840_10008_5_1_4_1_1_77_1	
uid_1_2_840_10008_5_1_4_1_1_77_2	
uid_1_2_840_10008_5_1_4_1_1_77_1_1	
uid_1_2_840_10008_5_1_4_1_1_77_1_1↩_1	
uid_1_2_840_10008_5_1_4_1_1_77_1_2	
uid_1_2_840_10008_5_1_4_1_1_77_1_2↩_1	
uid_1_2_840_10008_5_1_4_1_1_77_1_3	
uid_1_2_840_10008_5_1_4_1_1_77_1_4	
uid_1_2_840_10008_5_1_4_1_1_77_1_4↩_1	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_1	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_2	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_3	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_4	
uid_1_2_840_10008_5_1_4_1_1_88_1	
uid_1_2_840_10008_5_1_4_1_1_88_2	
uid_1_2_840_10008_5_1_4_1_1_88_3	
uid_1_2_840_10008_5_1_4_1_1_88_4	
uid_1_2_840_10008_5_1_4_1_1_88_11	
uid_1_2_840_10008_5_1_4_1_1_88_22	
uid_1_2_840_10008_5_1_4_1_1_88_33	
uid_1_2_840_10008_5_1_4_1_1_88_40	
uid_1_2_840_10008_5_1_4_1_1_88_50	
uid_1_2_840_10008_5_1_4_1_1_88_59	
uid_1_2_840_10008_5_1_4_1_1_88_65	

Enumerator

uid_1_2_840_10008_5_1_4_1_1_88_67	
uid_1_2_840_10008_5_1_4_1_1_104_1	
uid_1_2_840_10008_5_1_4_1_1_104_2	
uid_1_2_840_10008_5_1_4_1_1_128	
uid_1_2_840_10008_5_1_4_1_1_129	
uid_1_2_840_10008_5_1_4_1_1_481_1	
uid_1_2_840_10008_5_1_4_1_1_481_2	
uid_1_2_840_10008_5_1_4_1_1_481_3	
uid_1_2_840_10008_5_1_4_1_1_481_4	
uid_1_2_840_10008_5_1_4_1_1_481_5	
uid_1_2_840_10008_5_1_4_1_1_481_6	
uid_1_2_840_10008_5_1_4_1_1_481_7	
uid_1_2_840_10008_5_1_4_1_1_481_8	
uid_1_2_840_10008_5_1_4_1_1_481_9	
uid_1_2_840_10008_5_1_4_1_2_1_1	
uid_1_2_840_10008_5_1_4_1_2_1_2	
uid_1_2_840_10008_5_1_4_1_2_1_3	
uid_1_2_840_10008_5_1_4_1_2_2_1	
uid_1_2_840_10008_5_1_4_1_2_2_2	
uid_1_2_840_10008_5_1_4_1_2_2_3	
uid_1_2_840_10008_5_1_4_1_2_3_1	
uid_1_2_840_10008_5_1_4_1_2_3_2	
uid_1_2_840_10008_5_1_4_1_2_3_3	
uid_1_2_840_10008_5_1_4_31	
uid_1_2_840_10008_5_1_4_32_1	
uid_1_2_840_10008_5_1_4_32_2	
uid_1_2_840_10008_5_1_4_32_3	
uid_1_2_840_10008_5_1_4_32	
uid_1_2_840_10008_5_1_4_33	
uid_1_2_840_10008_5_1_4_34_1	
uid_1_2_840_10008_5_1_4_34_2	
uid_1_2_840_10008_5_1_4_34_3	
uid_1_2_840_10008_5_1_4_34_4	
uid_1_2_840_10008_5_1_4_34_4_1	
uid_1_2_840_10008_5_1_4_34_4_2	
uid_1_2_840_10008_5_1_4_34_4_3	
uid_1_2_840_10008_5_1_4_34_4_4	
uid_1_2_840_10008_5_1_4_34_5	
uid_1_2_840_10008_5_1_4_37_1	
uid_1_2_840_10008_5_1_4_37_2	
uid_1_2_840_10008_5_1_4_37_3	
uid_1_2_840_10008_5_1_4_38_1	
uid_1_2_840_10008_5_1_4_38_2	
uid_1_2_840_10008_5_1_4_38_3	
uid_1_2_840_10008_5_1_4_41	
uid_1_2_840_10008_5_1_4_42	

Enumerator

uid_1_2_840_10008_15_0_3_1	
uid_1_2_840_10008_15_0_3_2	
uid_1_2_840_10008_15_0_3_3	
uid_1_2_840_10008_15_0_3_4	
uid_1_2_840_10008_15_0_3_5	
uid_1_2_840_10008_15_0_3_6	
uid_1_2_840_10008_15_0_3_7	
uid_1_2_840_10008_15_0_3_8	
uid_1_2_840_10008_15_0_3_9	
uid_1_2_840_10008_15_0_3_10	
uid_1_2_840_10008_15_0_3_11	
uid_1_2_840_10008_15_0_3_12	
uid_1_2_840_10008_15_0_3_13	
uid_1_2_840_10008_15_0_3_14	
uid_1_2_840_10008_15_0_3_15	
uid_1_2_840_10008_15_0_3_16	
uid_1_2_840_10008_15_0_3_17	
uid_1_2_840_10008_15_0_3_18	
uid_1_2_840_10008_15_0_3_19	
uid_1_2_840_10008_15_0_3_20	
uid_1_2_840_10008_15_0_3_21	
uid_1_2_840_10008_15_0_3_22	
uid_1_2_840_10008_15_0_3_23	
uid_1_2_840_10008_15_0_3_24	
uid_1_2_840_10008_15_0_3_25	
uid_1_2_840_10008_15_0_3_26	
uid_1_2_840_10008_15_0_3_27	
uid_1_2_840_10008_15_0_3_28	
uid_1_2_840_10008_15_0_3_29	
uid_1_2_840_10008_15_0_3_30	
uid_1_2_840_10008_15_0_3_31	
uid_1_2_840_10008_15_0_4_1	
uid_1_2_840_10008_15_0_4_2	
uid_1_2_840_10008_15_0_4_3	
uid_1_2_840_10008_15_0_4_4	
uid_1_2_840_10008_15_0_4_5	
uid_1_2_840_10008_15_0_4_6	
uid_1_2_840_10008_15_0_4_7	
uid_1_2_840_10008_15_0_4_8	
uid_1_2_840_10008_5_1_4_1_1_77_1_6	
uid_1_2_840_10008_5_1_4_1_1_6_2	
uid_1_2_840_10008_5_1_4_1_1_66_5	
uid_1_2_840_10008_5_1_4_1_1_13_1_3	
uid_1_2_840_10008_5_1_4_1_1_2_2	
uid_1_2_840_10008_5_1_4_1_1_4_4	
uid_1_2_840_10008_5_1_4_1_1_128_1	

Enumerator

uid_1_2_840_10008_1_2_4_101	
uid_1_2_840_10008_1_2_4_102	
uid_1_2_840_10008_1_2_4_103	
uid_1_2_840_10008_1_5_2	
uid_1_2_840_10008_1_5_3	
uid_1_2_840_10008_1_5_4	
uid_1_2_840_10008_1_5_5	
uid_1_2_840_10008_1_5_6	
uid_1_2_840_10008_1_5_7	
uid_1_2_840_10008_1_5_8	
uid_1_2_840_10008_1_20	
uid_1_2_840_10008_2_16_5	
uid_1_2_840_10008_2_16_6	
uid_1_2_840_10008_2_16_7	
uid_1_2_840_10008_2_16_8	
uid_1_2_840_10008_2_16_9	
uid_1_2_840_10008_2_16_10	
uid_1_2_840_10008_2_16_11	
uid_1_2_840_10008_2_16_12	
uid_1_2_840_10008_2_16_13	
uid_1_2_840_10008_2_16_14	
uid_1_2_840_10008_5_1_1_40	
uid_1_2_840_10008_5_1_1_40_1	
uid_1_2_840_10008_5_1_4_1_1_9_4_2	
uid_1_2_840_10008_5_1_4_1_1_9_5_1	
uid_1_2_840_10008_5_1_4_1_1_9_6_1	
uid_1_2_840_10008_5_1_4_1_1_11_5	
uid_1_2_840_10008_5_1_4_1_1_11_6	
uid_1_2_840_10008_1_2_4_104	
uid_1_2_840_10008_1_2_4_105	
uid_1_2_840_10008_1_2_4_106	
uid_1_2_840_10008_1_2_4_107	
uid_1_2_840_10008_1_2_4_108	
uid_1_2_840_10008_1_5_1	
uid_1_2_840_10008_5_1_4_1_1_11_7	
uid_1_2_840_10008_5_1_4_1_1_11_8	
uid_1_2_840_10008_5_1_4_1_1_11_9	
uid_1_2_840_10008_5_1_4_1_1_11_10	
uid_1_2_840_10008_5_1_4_1_1_11_11	
uid_1_2_840_10008_5_1_4_1_1_12_77	
uid_1_2_840_10008_5_1_4_1_1_13_1_4	
uid_1_2_840_10008_5_1_4_1_1_13_1_5	
uid_1_2_840_10008_5_1_4_1_1_14_1	
uid_1_2_840_10008_5_1_4_1_1_14_2	
uid_1_2_840_10008_5_1_4_1_1_30	
uid_1_2_840_10008_5_1_4_1_1_40	

Enumerator

uid_1_2_840_10008_5_1_4_1_1_66_6	
uid_1_2_840_10008_5_1_4_1_1_68_1	
uid_1_2_840_10008_5_1_4_1_1_68_2	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_5	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_6	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_7	
uid_1_2_840_10008_5_1_4_1_1_77_1_5↩_8	
uid_1_2_840_10008_5_1_4_1_1_78_1	
uid_1_2_840_10008_5_1_4_1_1_78_2	
uid_1_2_840_10008_5_1_4_1_1_78_3	
uid_1_2_840_10008_5_1_4_1_1_78_4	
uid_1_2_840_10008_5_1_4_1_1_78_5	
uid_1_2_840_10008_5_1_4_1_1_78_6	
uid_1_2_840_10008_5_1_4_1_1_78_7	
uid_1_2_840_10008_5_1_4_1_1_78_8	
uid_1_2_840_10008_5_1_4_1_1_79_1	
uid_1_2_840_10008_5_1_4_1_1_80_1	
uid_1_2_840_10008_5_1_4_1_1_81_1	
uid_1_2_840_10008_5_1_4_1_1_82_1	
uid_1_2_840_10008_5_1_4_1_1_88_34	
uid_1_2_840_10008_5_1_4_1_1_88_35	
uid_1_2_840_10008_5_1_4_1_1_88_68	
uid_1_2_840_10008_5_1_4_1_1_88_69	
uid_1_2_840_10008_5_1_4_1_1_88_70	
uid_1_2_840_10008_5_1_4_1_1_88_71	
uid_1_2_840_10008_5_1_4_1_1_88_72	
uid_1_2_840_10008_5_1_4_1_1_88_73	
uid_1_2_840_10008_5_1_4_1_1_88_74	
uid_1_2_840_10008_5_1_4_1_1_88_75	
uid_1_2_840_10008_5_1_4_1_1_90_1	
uid_1_2_840_10008_5_1_4_1_1_104_3	
uid_1_2_840_10008_5_1_4_1_1_130	
uid_1_2_840_10008_5_1_4_1_1_131	
uid_1_2_840_10008_5_1_4_1_1_200_1	
uid_1_2_840_10008_5_1_4_1_1_200_2	
uid_1_2_840_10008_5_1_4_1_1_200_3	
uid_1_2_840_10008_5_1_4_1_1_200_4	
uid_1_2_840_10008_5_1_4_1_1_200_5	
uid_1_2_840_10008_5_1_4_1_1_200_6	
uid_1_2_840_10008_5_1_4_1_1_481_10	
uid_1_2_840_10008_5_1_4_1_1_481_11	
uid_1_2_840_10008_5_1_4_1_1_501_1	
uid_1_2_840_10008_5_1_4_1_1_501_2_1	

Enumerator

uid_1_2_840_10008_5_1_4_1_1_501_2_2	
uid_1_2_840_10008_5_1_4_1_1_501_3	
uid_1_2_840_10008_5_1_4_1_1_501_4	
uid_1_2_840_10008_5_1_4_1_1_501_5	
uid_1_2_840_10008_5_1_4_1_1_501_6	
uid_1_2_840_10008_5_1_4_1_1_601_1	
uid_1_2_840_10008_5_1_4_1_1_601_2	
uid_1_2_840_10008_5_1_4_1_2_4_2	
uid_1_2_840_10008_5_1_4_1_2_4_3	
uid_1_2_840_10008_5_1_4_1_2_5_3	
uid_1_2_840_10008_5_1_4_20_1	
uid_1_2_840_10008_5_1_4_20_2	
uid_1_2_840_10008_5_1_4_20_3	
uid_1_2_840_10008_5_1_4_34_5_1	
uid_1_2_840_10008_5_1_4_34_6	
uid_1_2_840_10008_5_1_4_34_6_1	
uid_1_2_840_10008_5_1_4_34_6_2	
uid_1_2_840_10008_5_1_4_34_6_3	
uid_1_2_840_10008_5_1_4_34_6_4	
uid_1_2_840_10008_5_1_4_34_7	
uid_1_2_840_10008_5_1_4_34_8	
uid_1_2_840_10008_5_1_4_34_9	
uid_1_2_840_10008_5_1_4_34_10	
uid_1_2_840_10008_5_1_4_38_4	
uid_1_2_840_10008_5_1_4_39_1	
uid_1_2_840_10008_5_1_4_39_2	
uid_1_2_840_10008_5_1_4_39_3	
uid_1_2_840_10008_5_1_4_39_4	
uid_1_2_840_10008_5_1_4_43_1	
uid_1_2_840_10008_5_1_4_43_2	
uid_1_2_840_10008_5_1_4_43_3	
uid_1_2_840_10008_5_1_4_43_4	
uid_1_2_840_10008_5_1_4_44_1	
uid_1_2_840_10008_5_1_4_44_2	
uid_1_2_840_10008_5_1_4_44_3	
uid_1_2_840_10008_5_1_4_44_4	
uid_1_2_840_10008_5_1_4_45_1	
uid_1_2_840_10008_5_1_4_45_2	
uid_1_2_840_10008_5_1_4_45_3	
uid_1_2_840_10008_5_1_4_45_4	
uid_1_2_840_10008_7_1_1	
uid_1_2_840_10008_7_1_2	
uid_1_2_840_10008_8_1_1	
uid_1_2_840_10008_5_1_4_1_1_4_3	
uid_1_2_840_10008_15_1_1	

10.324.4 Member Function Documentation

10.324.4.1 GetName()

```
const char * gdcm::UIDs::GetName ( ) const
```

When object is Initialize function return the well known name associated with uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

10.324.4.2 GetNumberOfTransferSyntaxStrings()

```
static unsigned int gdcm::UIDs::GetNumberOfTransferSyntaxStrings ( )  [static]
```

10.324.4.3 GetString()

```
const char * gdcm::UIDs::GetString ( ) const
```

When object is Initialize function return the uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

10.324.4.4 GetTransferSyntaxString()

```
static const char *const * gdcm::UIDs::GetTransferSyntaxString (
            unsigned int ts )  [static]
```

10.324.4.5 GetTransferSyntaxStrings()

```
static TransferSyntaxStringsType gdcm::UIDs::GetTransferSyntaxStrings ( )  [static]
```

10.324.4.6 GetUIDName()

```
static const char * gdcm::UIDs::GetUIDName (
            unsigned int ts )  [static]
```

10.324.4.7 GetUIDString()

```
static const char * gdcm::UIDs::GetUIDString (
            unsigned int ts )  [static]
```

10.324.4.8 operator TSType()

```
gdcm::UIDs::operator TSType ( ) const  [inline]
```

10.324.4.9 SetFromUID()

```
bool gdcm::UIDs::SetFromUID (
            const char * str )
```

Initialize object from a string (a uid number) return false on error, and internal state is set to 0

Examples

GenerateStandardSOPClasses.cxx.

The documentation for this class was generated from the following file:

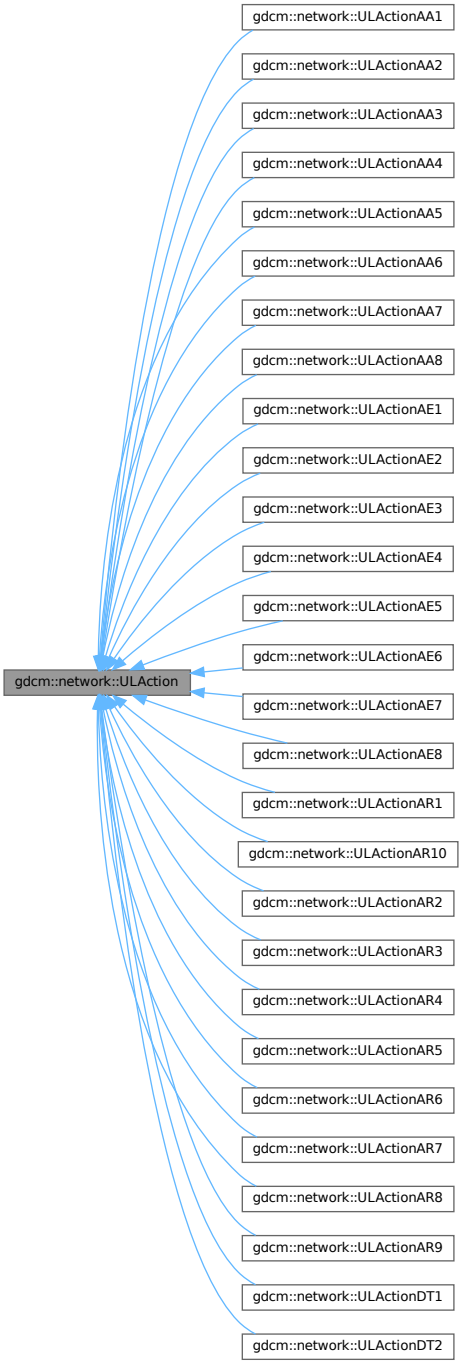
- gdcmUIDs.h

10.325 gdcm::network::ULAction Class Reference

ULAction.

```
#include <gdcmULAction.h>
```

Inheritance diagram for gdcm::network::ULAction:



Public Member Functions

- ULAction ()=default

- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete
- virtual EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaiting↩ ForEvent, EEventID &outRaisedEvent)=0

10.325.1 Detailed Description

ULAction.

A ULConnection in a given ULState can perform certain ULActions. This base class provides the interface for running those ULActions on a given ULConnection.

Essentially, the ULConnectionManager will take this object, determined from the current ULState of the ULConnection, and pass the ULConnection object to the ULAction. The ULAction will then invoke whatever necessary commands are required by a given action.

The result of a ULAction is a ULEvent (ie, what happened as a result of the action).

This ULEvent is passed to the ULState, so that the transition to the next state can occur.

Actions are associated with Payloads – be those filestreams, AETitles to establish connections, whatever. The actual parameters that the user will pass via an action will come through a Payload object, which should, in itself, be some gdcm-based object (but not all objects can be payloads; sending a single dataelement as a payload isn't meaningful). As such, each action has its own particular payload.

For the sake of keeping files together, both the particular payload class and the action class will be defined in the same header file. Payloads should JUST be data (or streams), NO METHODS.

Some actions perform changes that should raise events on the local system, and some actions perform changes that will require waiting for events from the remote system.

Therefore, this base action has been modified so that those events are set by each action. When the event loop runs an action, it will then test to see if a local event was raised by the action, and if so, perform the appropriate subsequent action. If the action requires waiting for a response from the remote system, then the event loop will sit there (presumably with the ARTIM timer running) and wait for a response from the remote system. Once a response is obtained, then the the rest of the state transitions can happen.

10.325.2 Constructor & Destructor Documentation

10.325.2.1 ULAction() [1/2]

```
gdcm::network::ULAction::ULAction ( ) [default]
```

10.325.2.2 ~ULAction()

```
virtual gdcm::network::ULAction::~ULAction ( ) [virtual], [default]
```

10.325.2.3 ULAction() [2/2]

```
gdcm::network::ULAction::ULAction (
            const ULAction & inAction )  [delete]
```

10.325.3 Member Function Documentation

10.325.3.1 operator=()

```
void gdcm::network::ULAction::operator= (
            const ULAction &  )  [delete]
```

10.325.3.2 PerformAction()

```
virtual EStateID gdcm::network::ULAction::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [pure virtual]
```

Implemented in gdcm::network::ULActionAA1, gdcm::network::ULActionAA2, gdcm::network::ULActionAA3, gdcm::network::ULActionAA4 gdcm::network::ULActionAA5, gdcm::network::ULActionAA6, gdcm::network::ULActionAA7, gdcm::network::ULActionAA8, gdcm::network::ULActionAE1, gdcm::network::ULActionAE2, gdcm::network::ULActionAE3, gdcm::network::ULActionAE4, gdcm::network::ULActionAE5, gdcm::network::ULActionAE6, gdcm::network::ULActionAE7, gdcm::network::ULActionAE8, gdcm::network::ULActionAR1, gdcm::network::ULActionAR2, gdcm::network::ULActionAR3, gdcm::network::ULActionAR4, gdcm::network::ULActionAR5, gdcm::network::ULActionAR6, gdcm::network::ULActionAR7, gdcm::network::ULActionAR8, gdcm::network::ULActionAR9, gdcm::network::ULActionAR10, gdcm::network::ULActionDT1, and gdcm::network::ULActionDT2.

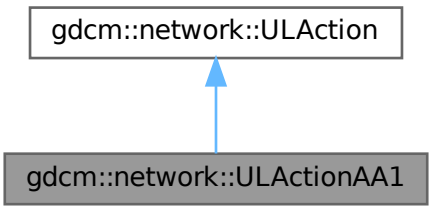
The documentation for this class was generated from the following file:

- gdcmULAction.h

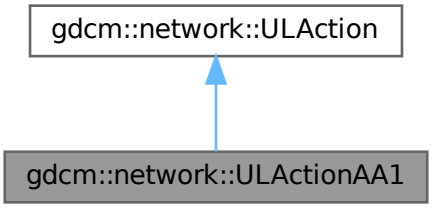
10.326 gdcm::network::ULActionAA1 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA1:



Collaboration diagram for gdcm::network::ULActionAA1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.326.1 Member Function Documentation

10.326.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

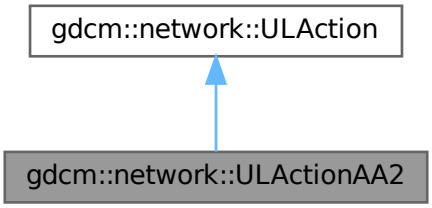
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

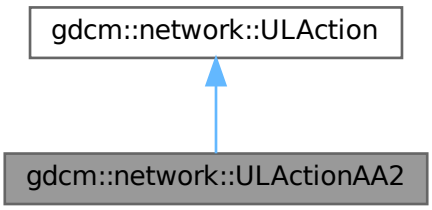
10.327 gdcm::network::ULActionAA2 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA2:



Collaboration diagram for gdcm::network::ULActionAA2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.327.1 Member Function Documentation

10.327.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

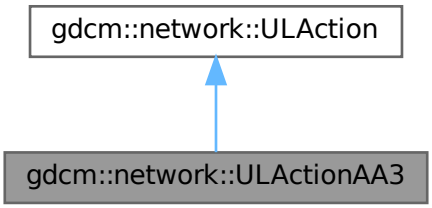
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

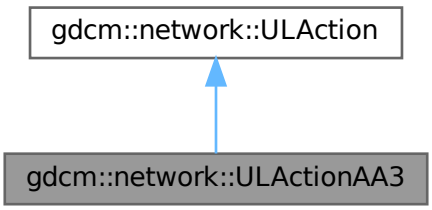
10.328 gdcm::network::ULActionAA3 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA3:



Collaboration diagram for gdcm::network::ULActionAA3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.328.1 Member Function Documentation

10.328.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

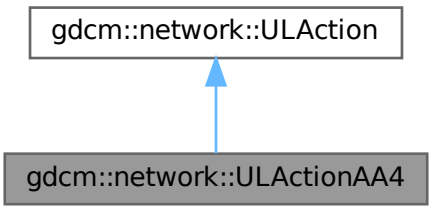
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

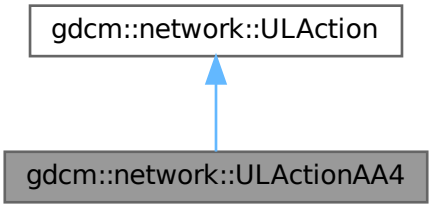
10.329 gdcm::network::ULActionAA4 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA4:



Collaboration diagram for gdcm::network::ULActionAA4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.329.1 Member Function Documentation

10.329.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

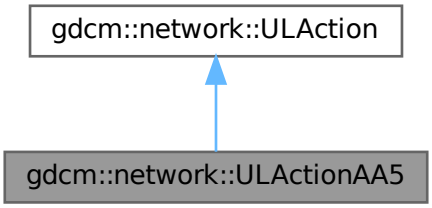
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

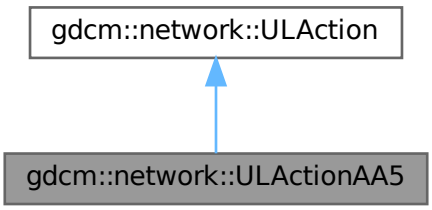
10.330 gdcm::network::ULActionAA5 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA5:



Collaboration diagram for gdcm::network::ULActionAA5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.330.1 Member Function Documentation

10.330.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

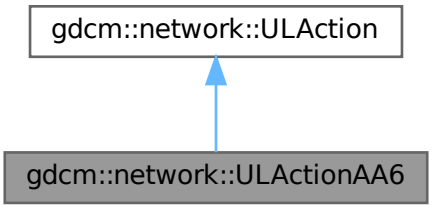
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

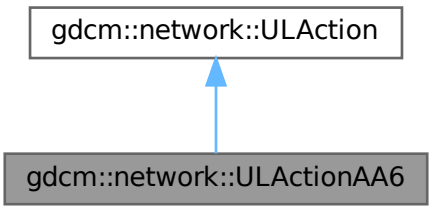
10.331 gdcm::network::ULActionAA6 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA6:



Collaboration diagram for gdcm::network::ULActionAA6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.331.1 Member Function Documentation

10.331.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

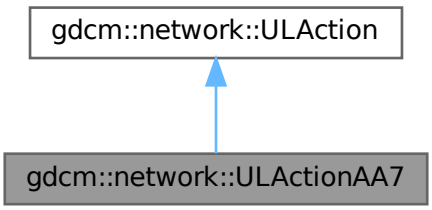
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

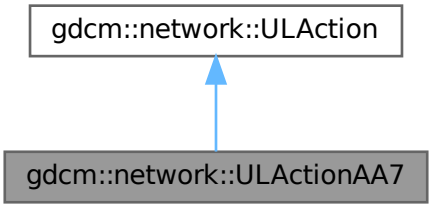
10.332 gdcm::network::ULActionAA7 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA7:



Collaboration diagram for gdcm::network::ULActionAA7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.332.1 Member Function Documentation

10.332.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

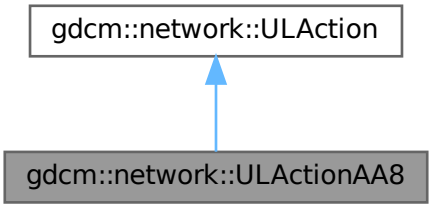
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

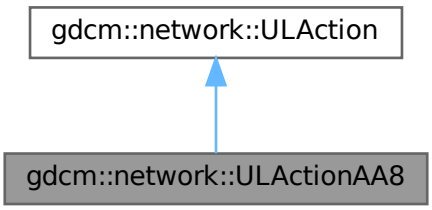
10.333 gdcm::network::ULActionAA8 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA8:



Collaboration diagram for gdcm::network::ULActionAA8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.333.1 Member Function Documentation

10.333.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

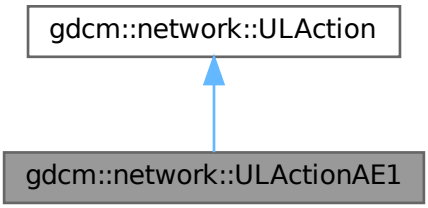
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

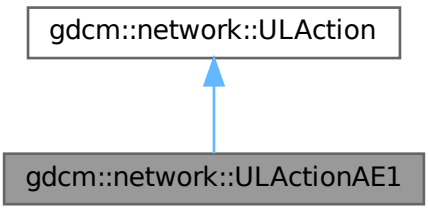
10.334 gdcm::network::ULActionAE1 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE1:



Collaboration diagram for gdcm::network::ULActionAE1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.334.1 Member Function Documentation

10.334.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

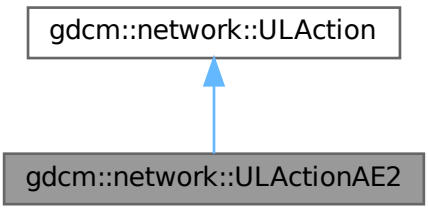
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

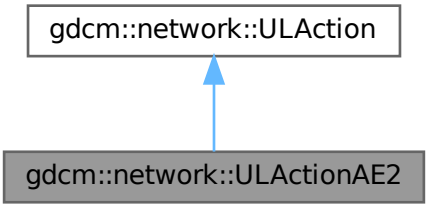
10.335 gdcm::network::ULActionAE2 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE2:



Collaboration diagram for gdcm::network::ULActionAE2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.335.1 Member Function Documentation

10.335.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

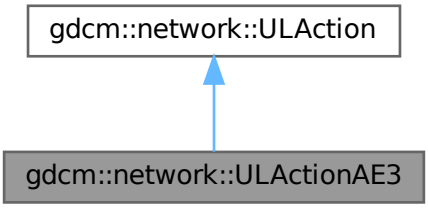
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

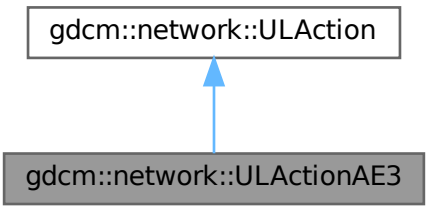
10.336 gdcm::network::ULActionAE3 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE3:



Collaboration diagram for gdcm::network::ULActionAE3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.336.1 Member Function Documentation

10.336.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

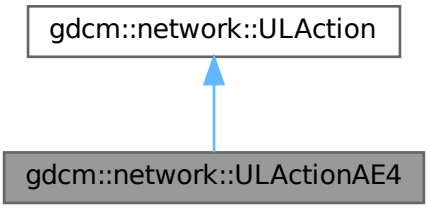
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

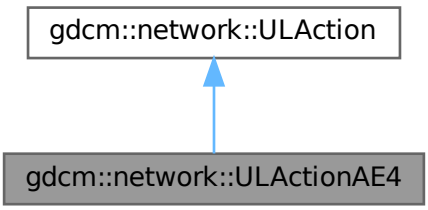
10.337 gdcm::network::ULActionAE4 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE4:



Collaboration diagram for gdcm::network::ULActionAE4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.337.1 Member Function Documentation

10.337.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

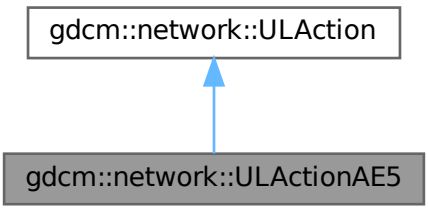
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

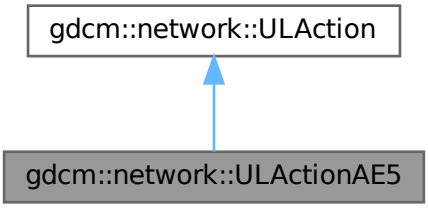
10.338 gdcm::network::ULActionAE5 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE5:



Collaboration diagram for gdcm::network::ULActionAE5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.338.1 Member Function Documentation

10.338.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

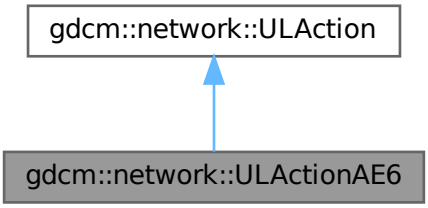
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

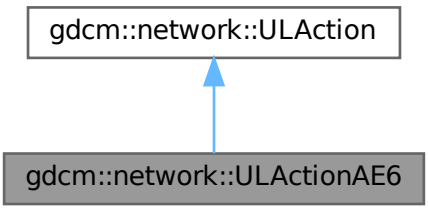
10.339 gdcm::network::ULActionAE6 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE6:



Collaboration diagram for gdcm::network::ULActionAE6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.339.1 Member Function Documentation

10.339.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

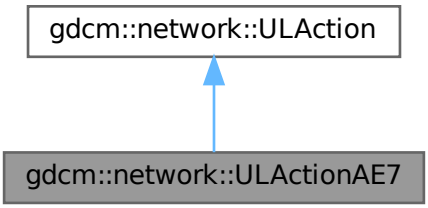
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

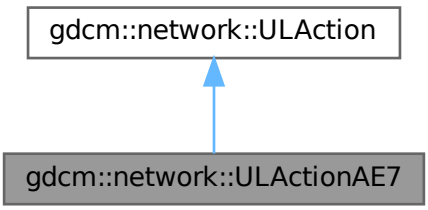
10.340 gdcm::network::ULActionAE7 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE7:



Collaboration diagram for gdcm::network::ULActionAE7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.340.1 Member Function Documentation

10.340.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

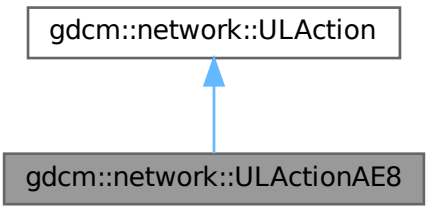
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

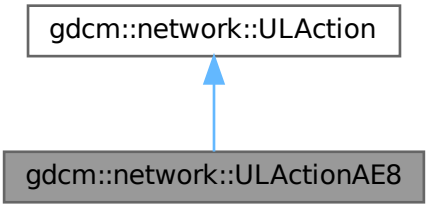
10.341 gdcm::network::ULActionAE8 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE8:



Collaboration diagram for gdcm::network::ULActionAE8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.341.1 Member Function Documentation

10.341.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

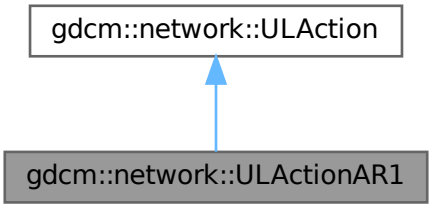
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

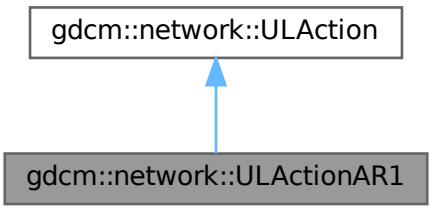
10.342 gdcm::network::ULActionAR1 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR1:



Collaboration diagram for gdcm::network::ULActionAR1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.342.1 Member Function Documentation

10.342.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

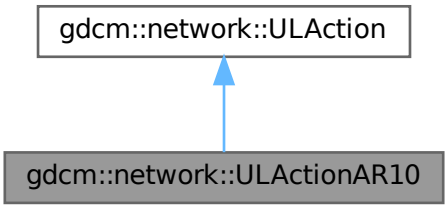
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

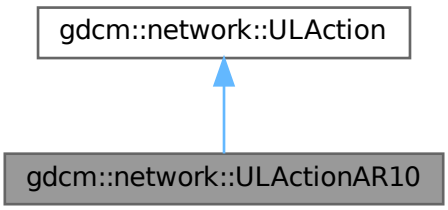
10.343 gdcm::network::ULActionAR10 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR10:



Collaboration diagram for gdcm::network::ULActionAR10:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.343.1 Member Function Documentation

10.343.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR10::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

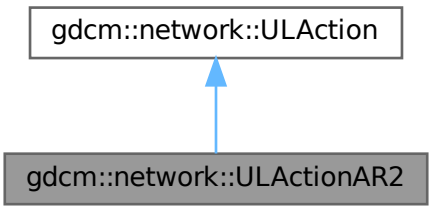
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

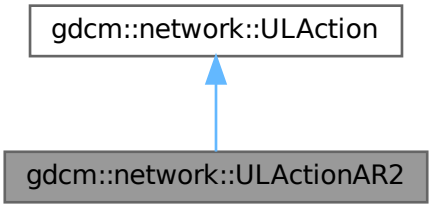
10.344 gdcm::network::ULActionAR2 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR2:



Collaboration diagram for gdcm::network::ULActionAR2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.344.1 Member Function Documentation

10.344.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

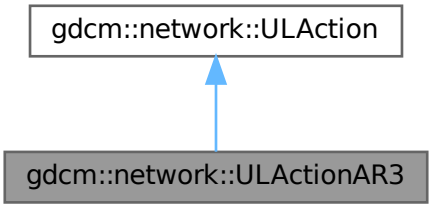
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

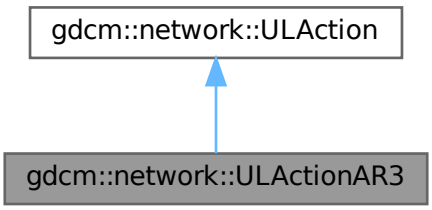
10.345 gdcm::network::ULActionAR3 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR3:



Collaboration diagram for gdcm::network::ULActionAR3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.345.1 Member Function Documentation

10.345.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

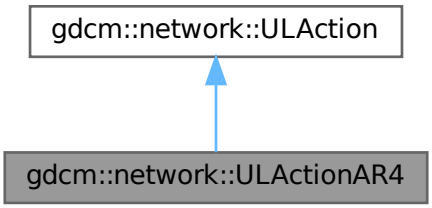
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

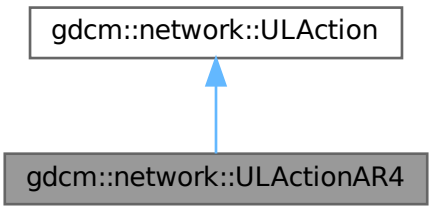
10.346 gdcm::network::ULActionAR4 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR4:



Collaboration diagram for gdcm::network::ULActionAR4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.346.1 Member Function Documentation

10.346.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

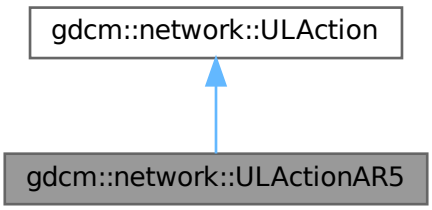
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

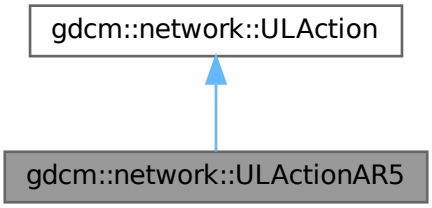
10.347 gdcm::network::ULActionAR5 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR5:



Collaboration diagram for gdcm::network::ULActionAR5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.347.1 Member Function Documentation

10.347.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

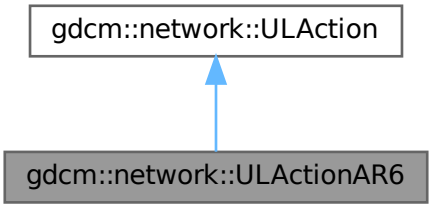
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

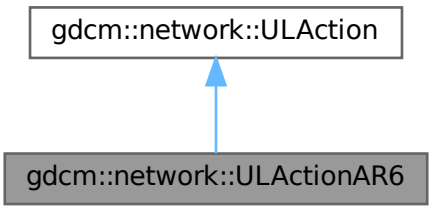
10.348 gdcm::network::ULActionAR6 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR6:



Collaboration diagram for gdcm::network::ULActionAR6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.348.1 Member Function Documentation

10.348.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

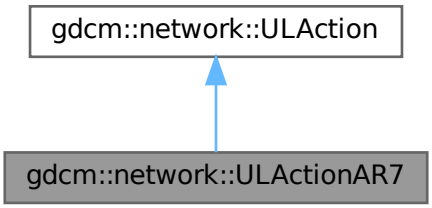
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

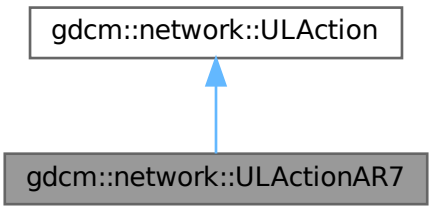
10.349 gdcm::network::ULActionAR7 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR7:



Collaboration diagram for gdcm::network::ULActionAR7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.349.1 Member Function Documentation

10.349.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

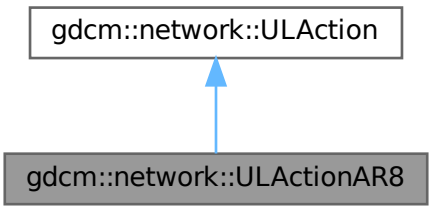
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

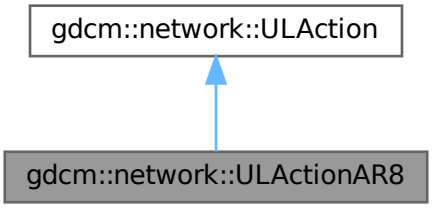
10.350 gdcm::network::ULActionAR8 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR8:



Collaboration diagram for gdcm::network::ULActionAR8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.350.1 Member Function Documentation

10.350.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

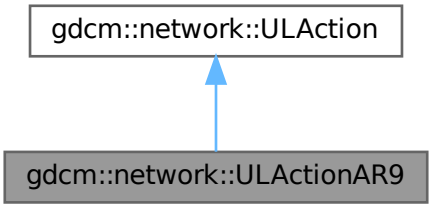
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

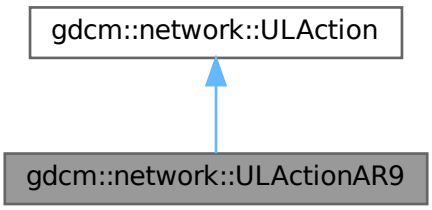
10.351 gdcm::network::ULActionAR9 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR9:



Collaboration diagram for gdcm::network::ULActionAR9:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.351.1 Member Function Documentation

10.351.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR9::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

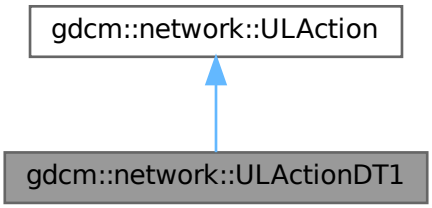
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

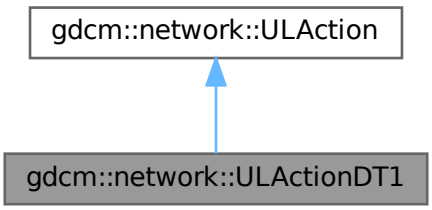
10.352 gdcm::network::ULActionDT1 Class Reference

```
#include <gdcmULActionDT.h>
```

Inheritance diagram for gdcm::network::ULActionDT1:



Collaboration diagram for gdcm::network::ULActionDT1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.352.1 Member Function Documentation

10.352.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

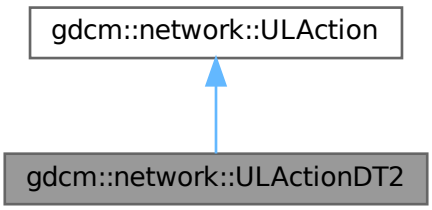
The documentation for this class was generated from the following file:

- gdcmULActionDT.h

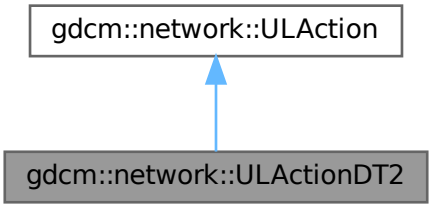
10.353 gdcm::network::ULActionDT2 Class Reference

```
#include <gdcmULActionDT.h>
```

Inheritance diagram for gdcm::network::ULActionDT2:



Collaboration diagram for gdcm::network::ULActionDT2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

10.353.1 Member Function Documentation

10.353.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent )  [override], [virtual]
```

Implements gdcm::network::ULAction.

The documentation for this class was generated from the following file:

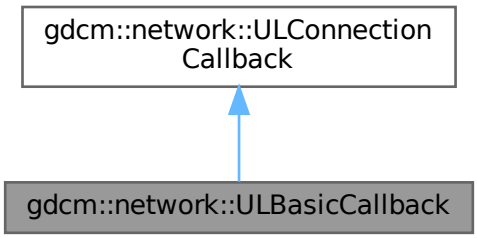
- gdcmULActionDT.h

10.354 gdcm::network::ULBasicCallback Class Reference

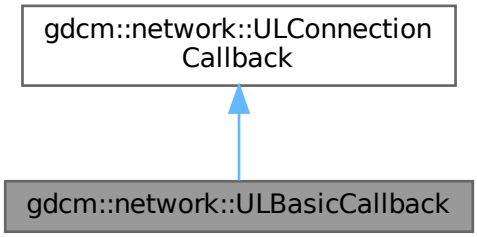
ULBasicCallback.

```
#include <gdcmULBasicCallback.h>
```

Inheritance diagram for gdcm::network::ULBasicCallback:



Collaboration diagram for gdcm::network::ULBasicCallback:



Public Member Functions

- ULBasicCallback ()=default
- ~ULBasicCallback () override=default
- std::vector< DataSet > const & GetDataSets () const
- std::vector< DataSet > const & GetResponses () const
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

10.354.1 Detailed Description

ULBasicCallback.

This is the most basic of callbacks for how the ULConnectionManager handles incoming datasets. DataSets are just concatenated to the mDataSets vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the ULConnectionManager.

10.354.2 Constructor & Destructor Documentation

10.354.2.1 ULBasicCallback()

```
gdcm::network::ULBasicCallback::ULBasicCallback ( ) [default]
```

10.354.2.2 ~ULBasicCallback()

```
gdcm::network::ULBasicCallback::~ULBasicCallback ( ) [override], [default]
```

10.354.3 Member Function Documentation

10.354.3.1 GetDataSets()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetDataSets ( ) const
```

10.354.3.2 GetResponses()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetResponses ( ) const
```

10.354.3.3 HandleDataSet()

```
void gdcm::network::ULBasicCallback::HandleDataSet (
            const DataSet & inDataSet )  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

10.354.3.4 HandleResponse()

```
void gdcm::network::ULBasicCallback::HandleResponse (
            const DataSet & inDataSet )  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

The documentation for this class was generated from the following file:

- gdcmULBasicCallback.h

10.355 gdcm::network::ULConnection Class Reference

ULConnection.

```
#include <gdcmULConnection.h>
```

Public Member Functions

- ULConnection (const ULConnection &)=delete
- ULConnection (const ULConnectionInfo &inUserInformation)
- virtual ~ULConnection ()
- void AddAcceptedPresentationContext (const PresentationContextAC &inPC)
- PresentationContextRQ FindContext (const DataElement &de) const
- std::vector< PresentationContextAC > & GetAcceptedPresentationContexts ()
- std::vector< PresentationContextAC > const & GetAcceptedPresentationContexts () const
- const ULConnectionInfo & GetConnectionInfo () const
- uint32_t GetMaxPDUSize () const
- const PresentationContextAC * GetPresentationContextACByID (uint8_t id) const
- uint8_t GetPresentationContextIDFromPresentationContext (PresentationContextRQ const &pc) const

  return 0 upon error
- const PresentationContextRQ * GetPresentationContextRQByID (uint8_t id) const
- std::vector< PresentationContextRQ > const & GetPresentationContexts () const
- std::iostream * GetProtocol ()

- EStateID GetState () const
- ARTIMTimer & GetTimer ()
- bool InitializeConnection ()

  used to establish scu connections
- bool InitializeIncomingConnection ()

  used to establish scp connections
- void operator= (const ULConnection &)=delete
- void SetMaxPDUSize (uint32_t inSize)
- void SetPresentationContexts (const std::vector< PresentationContext > &inContexts)
- void SetPresentationContexts (const std::vector< PresentationContextRQ > &inContexts)
- void SetState (const EStateID &inState)
- void StopProtocol ()

Friends

- class ULActionAE6
- class ULConnectionManager

10.355.1 Detailed Description

ULConnection.

This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

The ULConnectionManager tells the ULConnection what data can actually be sent.

This class is done this way so that it can be eventually be replaced with a ULSecureConnection, if such a protocol is warranted, so that all data that passes through can be managed through a secure connection. For now, this class provides a simple pass-through mechanism to the socket itself.

So, for instance, a gdcm object will be passes to this object, and it will then get passed along the connection, if that connection is in the proper state to do so.

For right now, this class is not directly intended to be inherited from, but the potential for future ULSecureConnection warrants the addition, rather than having everything be managed from within the ULConnectionManager (or this class) without a wrapper.

10.355.2 Constructor & Destructor Documentation

10.355.2.1 ULConnection() [1/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnectionInfo & inUserInformation )
```

10.355.2.2 ~ULConnection()

```
virtual gdcm::network::ULConnection::~ULConnection ( )  [virtual]
```

10.355.2.3 ULConnection() [2/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnection &  )  [delete]
```

10.355.3 Member Function Documentation

10.355.3.1 AddAcceptedPresentationContext()

```
void gdcm::network::ULConnection::AddAcceptedPresentationContext (
            const PresentationContextAC & inPC )
```

10.355.3.2 FindContext()

```
PresentationContextRQ gdcm::network::ULConnection::FindContext (
            const DataElement & de ) const
```

10.355.3.3 GetAcceptedPresentationContexts() [1/2]

```
std::vector< PresentationContextAC > & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts ( )
```

10.355.3.4 GetAcceptedPresentationContexts() [2/2]

```
std::vector< PresentationContextAC > const & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts ( ) const
```

10.355.3.5 GetConnectionInfo()

```
const ULConnectionInfo & gdcm::network::ULConnection::GetConnectionInfo ( ) const
```

10.355.3.6 GetMaxPDUSize()

```
uint32_t gdcm::network::ULConnection::GetMaxPDUSize ( ) const
```

10.355.3.7 GetPresentationContextACByID()

```
const PresentationContextAC * gdcm::network::ULConnection::GetPresentationContextACByID (
            uint8_t id ) const
```

10.355.3.8 GetPresentationContextIDFromPresentationContext()

```
uint8_t gdcm::network::ULConnection::GetPresentationContextIDFromPresentationContext (
            PresentationContextRQ const & pc ) const
```

return 0 upon error

10.355.3.9 GetPresentationContextRQByID()

```
const PresentationContextRQ * gdcm::network::ULConnection::GetPresentationContextRQByID (
            uint8_t id ) const
```

10.355.3.10 GetPresentationContexts()

```
std::vector< PresentationContextRQ > const & gdcm::network::ULConnection::GetPresentationContexts
( ) const
```

10.355.3.11 GetProtocol()

```
std::iostream * gdcm::network::ULConnection::GetProtocol ( )
```

10.355.3.12 GetState()

```
EStateID gdcm::network::ULConnection::GetState ( ) const
```

10.355.3.13 GetTimer()

```
ARTIMTimer & gdcm::network::ULConnection::GetTimer ( )
```

10.355.3.14 InitializeConnection()

```
bool gdcm::network::ULConnection::InitializeConnection ( )
```

used to establish scu connections

10.355.3.15 InitializeIncomingConnection()

```
bool gdcm::network::ULConnection::InitializeIncomingConnection ( )
```

used to establish scp connections

10.355.3.16 operator=()

```
void gdcm::network::ULConnection::operator= (
            const ULConnection &  )  [delete]
```

10.355.3.17 SetMaxPDUSize()

```
void gdcm::network::ULConnection::SetMaxPDUSize (
            uint32_t inSize )
```

10.355.3.18 SetPresentationContexts() [1/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContext > & inContexts )
```

10.355.3.19 SetPresentationContexts() [2/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContextRQ > & inContexts )
```

10.355.3.20 SetState()

```
void gdcm::network::ULConnection::SetState (
            const EStateID & inState )
```

10.355.3.21 StopProtocol()

```
void gdcm::network::ULConnection::StopProtocol ( )
```

10.355.4 Friends And Related Symbol Documentation

10.355.4.1 ULActionAE6

```
friend class ULActionAE6  [friend]
```

10.355.4.2 ULConnectionManager

```
friend class ULConnectionManager [friend]
```

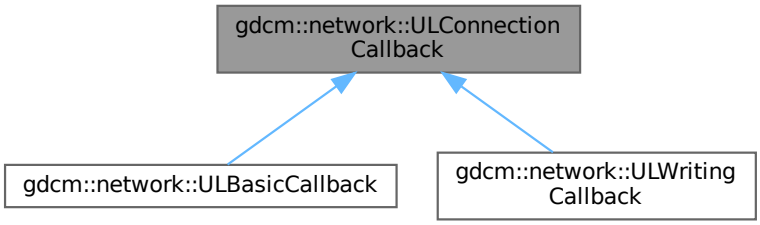
The documentation for this class was generated from the following file:

- gdcmULConnection.h

10.356 gdcm::network::ULConnectionCallback Class Reference

```
#include <gdcmULConnectionCallback.h>
```

Inheritance diagram for gdcm::network::ULConnectionCallback:



Public Member Functions

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- virtual void HandleDataSet (const DataSet &inDataSet)=0
- virtual void HandleResponse (const DataSet &inDataSet)=0
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Protected Member Functions

- void DataSetHandled ()

Protected Attributes

- bool mImplicit

10.356.1 Detailed Description

When a dataset comes back from a query/move/etc, the result can either be stored entirely in memory, or could be stored on disk. This class provides a mechanism to indicate what the ULConnectionManager should do with datasets that are produced through query results. The ULConnectionManager will call the HandleDataSet function during the course of receiving datasets. Particular implementations should fill in what that function does, including updating progress, etc. NOTE: since cmove requires that multiple event loops be employed, the callback function MUST set mHandledData↩ Set to true. otherwise, the cmove event loop handler will not know data was received, and proceed to end the loop prematurely.

10.356.2 Constructor & Destructor Documentation

10.356.2.1 ULConnectionCallback()

```
gdcm::network::ULConnectionCallback::ULConnectionCallback ( ) [inline]
```

10.356.2.2 ∼ULConnectionCallback()

```
virtual gdcm::network::ULConnectionCallback::∼ULConnectionCallback ( ) [virtual], [default]
```

10.356.3 Member Function Documentation

10.356.3.1 DataSetHandled()

```
void gdcm::network::ULConnectionCallback::DataSetHandled ( ) [inline], [protected]
```

10.356.3.2 DataSetHandles()

```
bool gdcm::network::ULConnectionCallback::DataSetHandles ( ) const [inline]
```

10.356.3.3 HandleDataSet()

```
virtual void gdcm::network::ULConnectionCallback::HandleDataSet (
            const DataSet & inDataSet ) [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

10.356.3.4 HandleResponse()

```
virtual void gdcm::network::ULConnectionCallback::HandleResponse (
            const DataSet & inDataSet ) [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

10.356.3.5 ResetHandledDataSet()

```
void gdcm::network::ULConnectionCallback::ResetHandledDataSet ( ) [inline]
```

10.356.3.6 SetImplicitFlag()

```
void gdcm::network::ULConnectionCallback::SetImplicitFlag (
            const bool imp ) [inline]
```

10.356.4 Member Data Documentation

10.356.4.1 mImplicit

```
bool gdcm::network::ULConnectionCallback::mImplicit [protected]
```

The documentation for this class was generated from the following file:

- gdcmULConnectionCallback.h

10.357 gdcm::network::ULConnectionInfo Class Reference

ULConnectionInfo.

```
#include <gdcmULConnectionInfo.h>
```

Public Member Functions

- ULConnectionInfo ()
- const char ∗ GetCalledAETitle () const
- std::string GetCalledComputerName () const
- unsigned long GetCalledIPAddress () const
- int GetCalledIPPort () const
- const char ∗ GetCallingAETitle () const
- unsigned long GetMaxPDULength () const
- bool Initialize (UserInformation const &inUserInformation, const char ∗inCalledAETitle, const char ∗inCalling↩ AETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)
- void SetMaxPDULength (unsigned long inMaxPDULength)

10.357.1 Detailed Description

ULConnectionInfo.

this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

10.357.2 Constructor & Destructor Documentation

10.357.2.1 ULConnectionInfo()

```
gdcm::network::ULConnectionInfo::ULConnectionInfo ( )
```

10.357.3 Member Function Documentation

10.357.3.1 GetCalledAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCalledAETitle ( ) const
```

10.357.3.2 GetCalledComputerName()

```
std::string gdcm::network::ULConnectionInfo::GetCalledComputerName ( ) const
```

10.357.3.3 GetCalledIPAddress()

```
unsigned long gdcm::network::ULConnectionInfo::GetCalledIPAddress ( ) const
```

10.357.3.4 GetCalledIPPort()

```
int gdcm::network::ULConnectionInfo::GetCalledIPPort ( ) const
```

10.357.3.5 GetCallingAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCallingAETitle ( ) const
```

10.357.3.6 GetMaxPDULength()

```
unsigned long gdcm::network::ULConnectionInfo::GetMaxPDULength ( ) const
```

10.357.3.7 Initialize()

```
bool gdcm::network::ULConnectionInfo::Initialize (
            UserInformation const & inUserInformation,
            const char * inCalledAETitle,
            const char * inCallingAETitle,
            unsigned long inCalledIPAddress,
            int inCalledIPPort,
            std::string inCalledComputerName )
```

10.357.3.8 SetMaxPDULength()

```
void gdcm::network::ULConnectionInfo::SetMaxPDULength (
            unsigned long inMaxPDULength )
```

The documentation for this class was generated from the following file:

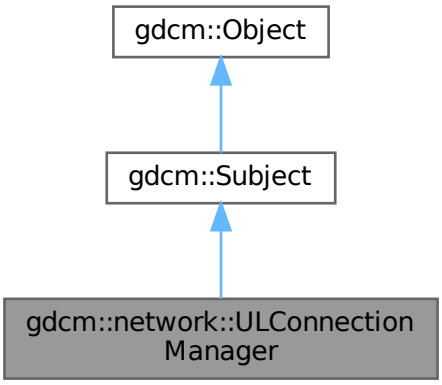
- gdcmULConnectionInfo.h

10.358 gdcm::network::ULConnectionManager Class Reference

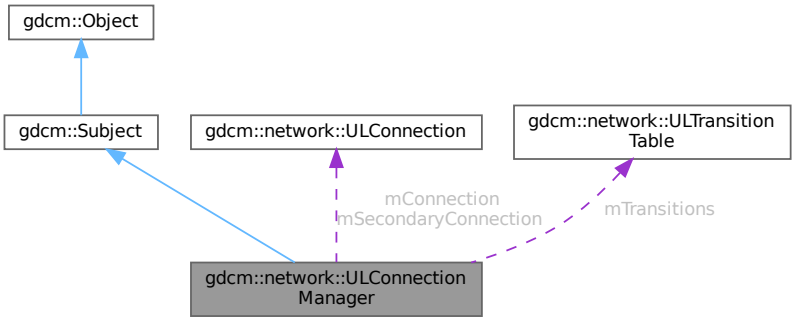
ULConnectionManager.

```
#include <gdcmULConnectionManager.h>
```

Inheritance diagram for gdcm::network::ULConnectionManager:



Collaboration diagram for gdcm::network::ULConnectionManager:



Public Member Functions

- ULConnectionManager ()
- ~ULConnectionManager () override
- bool BreakConnection (const double &inTimeout)
- void BreakConnectionNow ()
- bool EstablishConnection (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< PresentationContext > const &pcVector)
- bool EstablishConnectionMove (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, uint16_t inReturnPort, std::vector< PresentationContext > const &pcVector)
- std::vector< PresentationDataValue > SendEcho ()
- std::vector< DataSet > SendFind (const BaseRootQuery *inRootQuery)
- void SendFind (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendMove (const BaseRootQuery *inRootQuery)
- bool SendMove (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)

  return false upon error
- std::vector< DataSet > SendNAction (const BaseQuery *inQuery)
- void SendNAction (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNCreate (const BaseQuery *inQuery)
- void SendNCreate (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNDelete (const BaseQuery *inQuery)
- void SendNDelete (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNEventReport (const BaseQuery *inQuery)
- void SendNEventReport (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNGet (const BaseQuery *inQuery)
- void SendNGet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNSet (const BaseQuery *inQuery)
- void SendNSet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendStore (const File &file, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)
- void SendStore (const File &file, ULConnectionCallback *inCallback, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)

  callback based API

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- ULConnectionManager (const ULConnectionManager &inCM)
- EStateID RunEventLoop (ULEvent &inEvent, ULConnection *inWhichConnection, ULConnectionCallback *in↩ Callback, const bool &startWaiting)
- EStateID RunMoveEventLoop (ULEvent &inEvent, ULConnectionCallback *inCallback)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- ULConnection * mConnection
- ULConnection * mSecondaryConnection
- ULTransitionTable mTransitions

10.358.1 Detailed Description

ULConnectionManager.

The ULConnectionManager performs actions on the ULConnection given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

Its inputs are ULEvents, and it performs ULActions.

10.358.2 Constructor & Destructor Documentation

10.358.2.1 ULConnectionManager() [1/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager (
            const ULConnectionManager & inCM )  [protected]
```

10.358.2.2 ULConnectionManager() [2/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager ( )
```

10.358.2.3 ~ULConnectionManager()

```
gdcm::network::ULConnectionManager::~ULConnectionManager ( )  [override]
```

10.358.3 Member Function Documentation

10.358.3.1 BreakConnection()

```
bool gdcm::network::ULConnectionManager::BreakConnection (
            const double & inTimeout )
```

10.358.3.2 BreakConnectionNow()

```
void gdcm::network::ULConnectionManager::BreakConnectionNow ( )
```

10.358.3.3 EstablishConnection()

```
bool gdcm::network::ULConnectionManager::EstablishConnection (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            std::vector< PresentationContext > const & pcVector )
```

returns true if a connection of the given AETitle (ie, 'this' program) is able to connect to the given AETitle and Port in a certain amount of time providing the connection type will establish the proper exchange syntax with a server; if a different functionality is required, a different connection should be established. returns false if the connection type is 'move'– have to give a return port for move to work as specified.

10.358.3.4 EstablishConnectionMove()

```
bool gdcm::network::ULConnectionManager::EstablishConnectionMove (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            uint16_t inReturnPort,
            std::vector< PresentationContext > const & pcVector )
```

returns true for above reasons, but contains the special 'move' port

10.358.3.5 RunEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunEventLoop (
            ULEvent & inEvent,
            ULConnection * inWhichConnection,
            ULConnectionCallback * inCallback,
            const bool & startWaiting )  [protected]
```

10.358.3.6 RunMoveEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunMoveEventLoop (
            ULEvent & inEvent,
            ULConnectionCallback * inCallback )  [protected]
```

10.358.3.7 SendEcho()

```
std::vector< PresentationDataValue > gdcm::network::ULConnectionManager::SendEcho ( )
```

10.358.3.8 SendFind() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery )
```

10.358.3.9 SendFind() [2/2]

```
void gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.10 SendMove() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery )
```

10.358.3.11 SendMove() [2/2]

```
bool gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback )
```

return false upon error

10.358.3.12 SendNAction() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery )
```

10.358.3.13 SendNAction() [2/2]

```
void gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.14 SendNCreate() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery )
```

10.358.3.15 SendNCreate() [2/2]

```
void gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.16 SendNDelete() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery )
```

10.358.3.17 SendNDelete() [2/2]

```
void gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.18 SendNEventReport() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery )
```

10.358.3.19 SendNEventReport() [2/2]

```
void gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.20 SendNGet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery )
```

10.358.3.21 SendNGet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.22 SendNSet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery )
```

10.358.3.23 SendNSet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback )
```

10.358.3.24 SendStore() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0 )
```

10.358.3.25 SendStore() [2/2]

```
void gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            ULConnectionCallback * inCallback,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0 )
```

callback based API

10.358.4 Member Data Documentation

10.358.4.1 mConnection

```
ULConnection* gdcm::network::ULConnectionManager::mConnection  [protected]
```

10.358.4.2 mSecondaryConnection

```
ULConnection* gdcm::network::ULConnectionManager::mSecondaryConnection [protected]
```

10.358.4.3 mTransitions

```
ULTransitionTable gdcm::network::ULConnectionManager::mTransitions [protected]
```

The documentation for this class was generated from the following file:

- gdcmULConnectionManager.h

10.359 gdcm::network::ULEvent Class Reference

ULEvent.

```
#include <gdcmULEvent.h>
```

Public Member Functions

- ULEvent (const EEventID &inEventID, BasePDU *inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ULEvent (const EEventID &inEventID, std::vector< BasePDU * > inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ~ULEvent ()
- std::streampos GetDataSetPos () const
- EEventID GetEvent () const
- std::istream * GetIStream () const
- std::vector< BasePDU * > const & GetPDUs () const
- void SetEvent (const EEventID &inEvent)
- void SetPDU (std::vector< BasePDU * > const &inPDU)

10.359.1 Detailed Description

ULEvent.

base class for network events.

An event consists of the event ID and the data associated with that event.

Note that once a PDU is created, it is now the responsibility of the associated event to destroy it!

10.359.2 Constructor & Destructor Documentation

10.359.2.1 ULEvent() [1/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            std::vector< BasePDU * > inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0 )  [inline]
```

10.359.2.2 ULEvent() [2/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            BasePDU * inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0 )  [inline]
```

10.359.2.3 ~ULEvent()

```
gdcm::network::ULEvent::~ULEvent ( )  [inline]
```

10.359.3 Member Function Documentation

10.359.3.1 GetDataSetPos()

```
std::streampos gdcm::network::ULEvent::GetDataSetPos ( ) const  [inline]
```

10.359.3.2 GetEvent()

```
EEventID gdcm::network::ULEvent::GetEvent ( ) const  [inline]
```

10.359.3.3 GetIStream()

```
std::istream * gdcm::network::ULEvent::GetIStream ( ) const  [inline]
```

10.359.3.4 GetPDUs()

```
std::vector< BasePDU * > const & gdcm::network::ULEvent::GetPDUs ( ) const  [inline]
```

10.359.3.5 SetEvent()

```
void gdcm::network::ULEvent::SetEvent (
            const EEventID & inEvent )  [inline]
```

10.359.3.6 SetPDU()

```
void gdcm::network::ULEvent::SetPDU (
            std::vector< BasePDU * > const & inPDU )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmULEvent.h

10.360 gdcm::network::ULTransitionTable Class Reference

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

```
#include <gdcmULTransitionTable.h>
```

Public Member Functions

- ULTransitionTable ()
- void HandleEvent (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) const
- void PrintTable () const

10.360.1 Detailed Description

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Based roughly on the solutions in player2.cpp in the boost examples and this so question: http↩ ://stackoverflow.com/questions/1647631/c-state-machine-design

The transition table is constructed of TableRows. Each row is based on an event, and an event handler in the Transition↩ Table object takes a given event, and then finds the given row.

Then, given the current state of the connection, determines the appropriate action to take and then the state to transition to next.

10.360.2 Constructor & Destructor Documentation

10.360.2.1 ULTransitionTable()

```
gdcm::network::ULTransitionTable::ULTransitionTable ( )
```

10.360.3 Member Function Documentation

10.360.3.1 HandleEvent()

```
void gdcm::network::ULTransitionTable::HandleEvent (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent ) const
```

10.360.3.2 PrintTable()

```
void gdcm::network::ULTransitionTable::PrintTable ( ) const
```

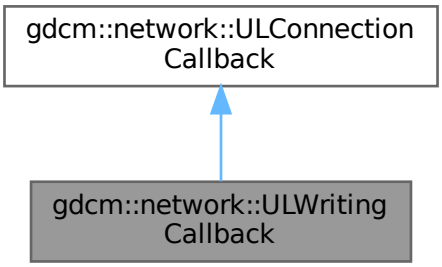
The documentation for this class was generated from the following file:

- gdcmULTransitionTable.h

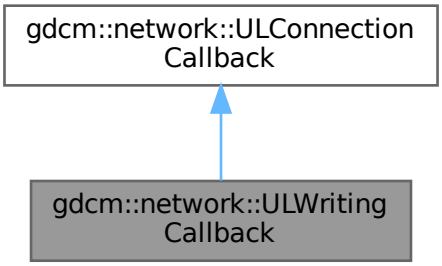
10.361 gdcm::network::ULWritingCallback Class Reference

```
#include <gdcmULWritingCallback.h>
```

Inheritance diagram for gdcm::network::ULWritingCallback:



Collaboration diagram for gdcm::network::ULWritingCallback:



Public Member Functions

- ULWritingCallback ()=default
- ~ULWritingCallback () override=default
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override
- void SetDirectory (const std::string &inDirectoryName)

  provide the directory into which all files are written.

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

10.361.1 Constructor & Destructor Documentation

10.361.1.1 ULWritingCallback()

```
gdcm::network::ULWritingCallback::ULWritingCallback ( ) [default]
```

10.361.1.2 ~ULWritingCallback()

```
gdcm::network::ULWritingCallback::~ULWritingCallback ( ) [override], [default]
```

10.361.2 Member Function Documentation

10.361.2.1 HandleDataSet()

```
void gdcm::network::ULWritingCallback::HandleDataSet (
            const DataSet & inDataSet ) [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

10.361.2.2 HandleResponse()

```
void gdcm::network::ULWritingCallback::HandleResponse (
            const DataSet & inDataSet ) [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

10.361.2.3 SetDirectory()

```
void gdcm::network::ULWritingCallback::SetDirectory (
            const std::string & inDirectoryName ) [inline]
```

provide the directory into which all files are written.

The documentation for this class was generated from the following file:

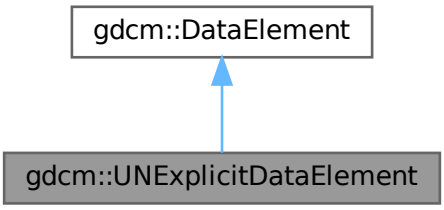
- gdcmULWritingCallback.h

10.362 gdcm::UNExplicitDataElement Class Reference

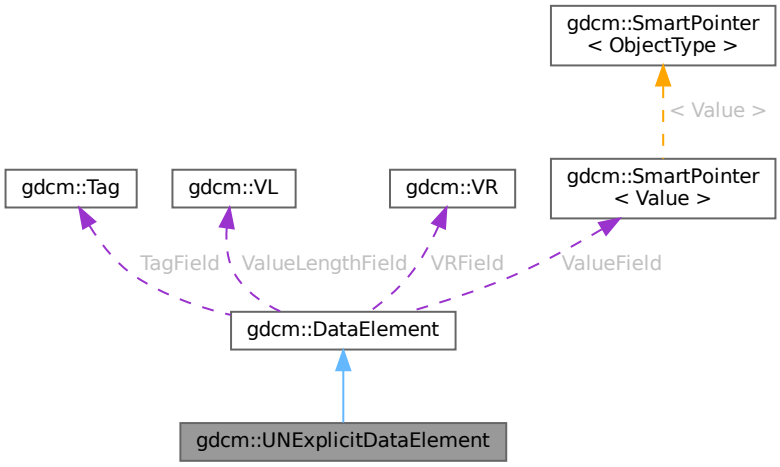
Class to read/write a DataElement as UNExplicit Data Element.

```
#include <gdcmUNExplicitDataElement.h>
```

Inheritance diagram for gdcm::UNExplicitDataElement:



Collaboration diagram for gdcm::UNExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)

- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.362.1 Detailed Description

Class to read/write a DataElement as UNExplicit Data Element.

Note

bla

10.362.2 Member Function Documentation

10.362.2.1 GetLength()

```
VL gdcm::UNExplicitDataElement::GetLength ( ) const
```

10.362.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitDataElement::Read (
            std::istream & is )
```

10.362.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.362.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.362.2.5 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length )
```

The documentation for this class was generated from the following file:

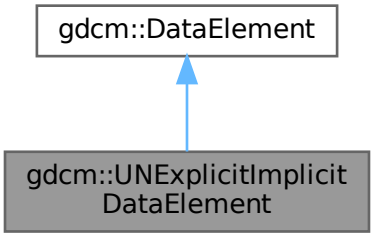
- gdcmUNExplicitDataElement.h

10.363 gdcm::UNExplicitImplicitDataElement Class Reference

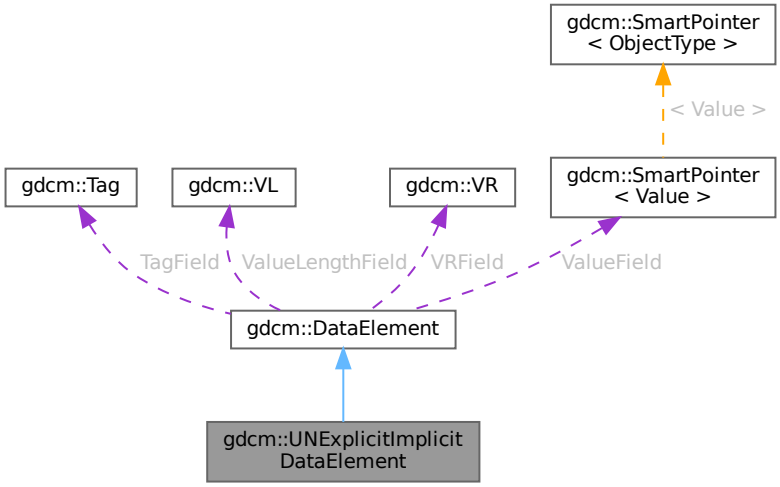
Class to read/write a DataElement as ExplicitImplicit Data Element.

```
#include <gdcmUNExplicitImplicitDataElement.h>
```

Inheritance diagram for gdcm::UNExplicitImplicitDataElement:



Collaboration diagram for gdcm::UNExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.363.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

This class gather two known bugs:

1. GDCM 1.2.0 would rewrite VR=UN Value Length on 2 bytes instead of 4 bytes
2. GDCM 1.2.0 would also rewrite DataElement as Implicit when the VR would not be known this would only happen in some very rare cases. gdcm 2.X design could handle bug #1 or #2 exclusively, this class can now handle file which have both issues. See: gdcmData/TheralysGDCM120Bug.dcm

10.363.2 Member Function Documentation

10.363.2.1 GetLength()

```
VL gdcm::UNExplicitImplicitDataElement::GetLength ( ) const
```

10.363.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitImplicitDataElement::Read (
            std::istream & is )
```

10.363.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitImplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.363.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::UNExplicitImplicitDataElement::ReadValue (
            std::istream & is )
```

The documentation for this class was generated from the following file:

- gdcmUNExplicitImplicitDataElement.h

10.364 gdcm::Unpacker12Bits Class Reference

Pack/Unpack 12 bits pixel into 16bits.

```
#include <gdcmUnpacker12Bits.h>
```

Static Public Member Functions

- static bool Pack (char ∗out, const char ∗in, size_t n)
- static bool Unpack (char ∗out, const char ∗in, size_t n)

10.364.1 Detailed Description

Pack/Unpack 12 bits pixel into 16bits.

- You can only pack an even number of 16bits, which means a multiple of 4 (expressed in bytes)
- You can only unpack a multiple of 3 bytes

This class has no purpose in general purpose DICOM implementation. However to be able to cope with some early ACR-NEMA file generated by a well-known private vendor, one would need to unpack 12bits Stored Pixel Value into a more standard 16bits Stored Pixel Value.

See also

Rescaler

10.364.2 Member Function Documentation

10.364.2.1 Pack()

```
static bool gdcm::Unpacker12Bits::Pack (
            char * out,
            const char * in,
            size_t n )  [static]
```

Pack an array of 16bits where all values are 12bits into a pack form. n is the length in bytes of array in, out will be a fake 8bits array of size (n / 2) ∗ 3

10.364.2.2 Unpack()

```
static bool gdcm::Unpacker12Bits::Unpack (
            char * out,
            const char * in,
            size_t n )  [static]
```

Unpack an array of 'packed' 12bits data into a more conventional 16bits array. n is the length in bytes of array in, out will be a 16bits array of size (n / 3) ∗ 2

The documentation for this class was generated from the following file:

- gdcmUnpacker12Bits.h

10.365 gdcm::Usage Class Reference

Usage.

```
#include <gdcmUsage.h>
```

Public Types

- enum UsageType {
  Mandatory ,
  Conditional ,
  UserOption ,
  Invalid }

Public Member Functions

- Usage (UsageType type=Invalid)
- operator UsageType () const

Static Public Member Functions

- static const char * GetUsageString (UsageType type)
- static UsageType GetUsageType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Usage &vr)

10.365.1 Detailed Description

Usage.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C.

A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

10.365.2 Member Enumeration Documentation

10.365.2.1 UsageType

`enum gdcm::Usage::UsageType`

Enumerator

Mandatory	
Conditional	
UserOption	
Invalid	

10.365.3 Constructor & Destructor Documentation

10.365.3.1 Usage()

```
gdcm::Usage::Usage (
            UsageType type = Invalid )  [inline]
```

10.365.4 Member Function Documentation

10.365.4.1 GetUsageString()

```
static const char * gdcm::Usage::GetUsageString (
            UsageType type )  [static]
```

10.365.4.2 GetUsageType()

```
static UsageType gdcm::Usage::GetUsageType (
            const char * type )  [static]
```

10.365.4.3 operator UsageType()

```
gdcm::Usage::operator UsageType ( ) const  [inline]
```

10.365.5 Friends And Related Symbol Documentation

10.365.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Usage & vr )  [friend]
```

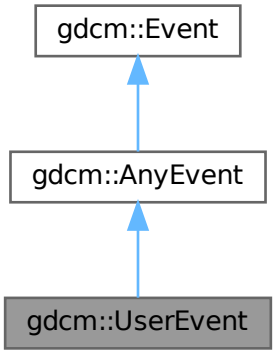
The documentation for this class was generated from the following file:

- gdcmUsage.h

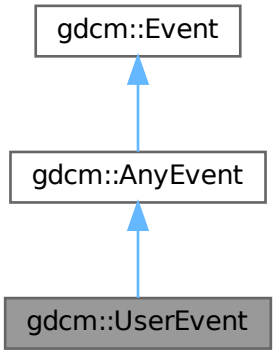
10.366 gdcm::UserEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::UserEvent:



Collaboration diagram for gdcm::UserEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

10.367 gdcm::network::UserInformation Class Reference

UserInformation.

```
#include <gdcmUserInformation.h>
```

Public Member Functions

- UserInformation ()
- UserInformation (const UserInformation &)=delete
- ~UserInformation ()
- void AddRoleSelectionSub (RoleSelectionSub const &r)
- void AddSOPClassExtendedNegociationSub (SOPClassExtendedNegociationSub const &s)
- MaximumLengthSub & GetMaximumLengthSub ()
- const MaximumLengthSub & GetMaximumLengthSub () const
- UserInformation & operator= (const UserInformation &)
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

10.367.1 Detailed Description

UserInformation.

Table 9-16 USER INFORMATION ITEM FIELDS

TODO what is the goal of :

Table 9-20 USER INFORMATION ITEM FIELDS

10.367.2 Constructor & Destructor Documentation

10.367.2.1 UserInformation() [1/2]

```
gdcm::network::UserInformation::UserInformation ( )
```

10.367.2.2 ~UserInformation()

```
gdcm::network::UserInformation::~UserInformation ( )
```

10.367.2.3 UserInformation() [2/2]

```
gdcm::network::UserInformation::UserInformation (
            const UserInformation &  )  [delete]
```

10.367.3 Member Function Documentation

10.367.3.1 AddRoleSelectionSub()

```
void gdcm::network::UserInformation::AddRoleSelectionSub (
            RoleSelectionSub const & r )
```

10.367.3.2 AddSOPClassExtendedNegociationSub()

```
void gdcm::network::UserInformation::AddSOPClassExtendedNegociationSub (
            SOPClassExtendedNegociationSub const & s )
```

10.367.3.3 GetMaximumLengthSub() [1/2]

```
MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub ( )  [inline]
```

10.367.3.4 GetMaximumLengthSub() [2/2]

```
const MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub ( ) const  [inline]
```

10.367.3.5 operator=()

```
UserInformation & gdcm::network::UserInformation::operator= (
            const UserInformation &  )
```

10.367.3.6 Print()

```
void gdcm::network::UserInformation::Print (
            std::ostream & os ) const
```

10.367.3.7 Read()

```
std::istream & gdcm::network::UserInformation::Read (
            std::istream & is )
```

10.367.3.8 Size()

```
size_t gdcm::network::UserInformation::Size ( ) const
```

10.367.3.9 Write()

```
const std::ostream & gdcm::network::UserInformation::Write (
            std::ostream & os ) const
```

The documentation for this class was generated from the following file:

- gdcmUserInformation.h

10.368 gdcm::UUIDGenerator Class Reference

Class for generating unique UUID.

```
#include <gdcmUUIDGenerator.h>
```

Public Member Functions

- const char ∗ Generate ()

Static Public Member Functions

- static bool IsValid (const char ∗uid)

  Find out if the string is a valid UUID or not.

10.368.1 Detailed Description

Class for generating unique UUID.

generate DCE 1.1 uid

10.368.2 Member Function Documentation

10.368.2.1 Generate()

```
const char * gdcm::UUIDGenerator::Generate ( )
```

Return the generated uuid NOT THREAD SAFE

10.368.2.2 IsValid()

```
static bool gdcm::UUIDGenerator::IsValid (
            const char * uid )  [static]
```

Find out if the string is a valid UUID or not.

The documentation for this class was generated from the following file:

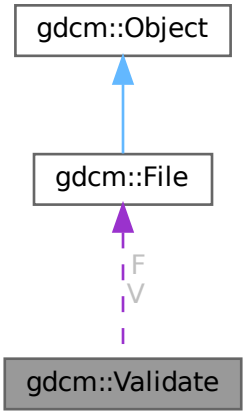
- gdcmUUIDGenerator.h

10.369 gdcm::Validate Class Reference

Validate class.

```
#include <gdcmValidate.h>
```

Collaboration diagram for gdcm::Validate:



Public Member Functions

- Validate ()
- ∼Validate ()
- const File & GetValidatedFile ()
- void SetFile (File const &f)
- void Validation ()

Protected Attributes

- const File ∗ F
- File V

10.369.1 Detailed Description

Validate class.

10.369.2 Constructor & Destructor Documentation

10.369.2.1 Validate()

```
gdcm::Validate::Validate ( )
```

10.369.2.2 ∼Validate()

```
gdcm::Validate::~Validate ( )
```

10.369.3 Member Function Documentation

10.369.3.1 GetValidatedFile()

```
const File & gdcm::Validate::GetValidatedFile ( )  [inline]
```

10.369.3.2 SetFile()

```
void gdcm::Validate::SetFile (
            File const & f )  [inline]
```

10.369.3.3 Validation()

```
void gdcm::Validate::Validation ( )
```

10.369.4 Member Data Documentation

10.369.4.1 F

```
const File* gdcm::Validate::F  [protected]
```

10.369.4.2 V

```
File gdcm::Validate::V  [protected]
```

The documentation for this class was generated from the following file:

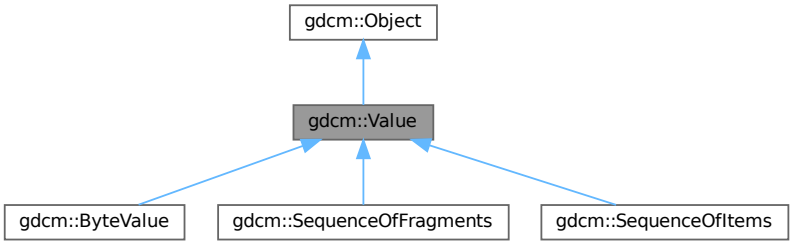
- gdcmValidate.h

10.370 gdcm::Value Class Reference

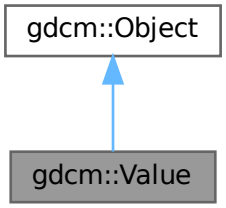
Class to represent the value of a Data Element.

```
#include <gdcmValue.h>
```

Inheritance diagram for gdcm::Value:



Collaboration diagram for gdcm::Value:



Public Member Functions

- Value ()=default
- ~Value () override=default
- virtual void Clear ()=0
- virtual VL GetLength () const =0
- virtual bool operator== (const Value &val) const =0
- virtual void SetLength (VL l)=0

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class DataElement

10.370.1 Detailed Description

Class to represent the value of a Data Element.

Note

VALUE: A component of a Value Field. A Value Field may consist of one or more of these components.

10.370.2 Constructor & Destructor Documentation

10.370.2.1 Value()

```
gdcm::Value::Value ( ) [default]
```

10.370.2.2 ~Value()

```
gdcm::Value::~Value ( ) [override], [default]
```

10.370.3 Member Function Documentation

10.370.3.1 Clear()

```
virtual void gdcm::Value::Clear ( ) [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

10.370.3.2 GetLength()

```
virtual VL gdcm::Value::GetLength ( ) const [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

Referenced by gdcm::DataSet::InsertDataElement(), and gdcm::DataElement::SetValue().

10.370.3.3 operator==()

```
virtual bool gdcm::Value::operator== (
            const Value & val ) const [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

10.370.3.4 SetLength()

```
virtual void gdcm::Value::SetLength (
            VL l ) [pure virtual]
```

Implemented in gdcm::SequenceOfFragments, gdcm::SequenceOfItems, and gdcm::ByteValue.

10.370.3.5 SetLengthOnly()

```
virtual void gdcm::Value::SetLengthOnly (
            VL l ) [protected], [virtual]
```

Reimplemented in gdcm::ByteValue.

10.370.4 Friends And Related Symbol Documentation

10.370.4.1 DataElement

```
friend class DataElement  [friend]
```

The documentation for this class was generated from the following file:

- gdcmValue.h

10.371 gdcm::ValueIO< TDE, TSwap, TType > Class Template Reference

Class to dispatch template calls.

```
#include <gdcmValueIO.h>
```

Static Public Member Functions

- static std::istream & Read (std::istream &is, Value &v, bool readvalues)
- static const std::ostream & Write (std::ostream &os, const Value &v)

10.371.1 Detailed Description

template<typename TDE, typename TSwap, typename TType = uint8_t>
class gdcm::ValueIO< TDE, TSwap, TType >

Class to dispatch template calls.

10.371.2 Member Function Documentation

10.371.2.1 Read()

```
template<typename TDE , typename TSwap , typename TType = uint8_t>
static std::istream & gdcm::ValueIO< TDE, TSwap, TType >::Read (
            std::istream & is,
            Value & v,
            bool readvalues )  [static]
```

10.371.2.2 Write()

```
template<typename TDE , typename TSwap , typename TType = uint8_t>
static const std::ostream & gdcm::ValueIO< TDE, TSwap, TType >::Write (
            std::ostream & os,
            const Value & v )  [static]
```

The documentation for this class was generated from the following file:

- gdcmValueIO.h

10.372 gdcm::MrProtocol::Vector3 Struct Reference

```
#include <gdcmMrProtocol.h>
```

Public Attributes

- double dCor
- double dSag
- double dTra

10.372.1 Member Data Documentation

10.372.1.1 dCor

```
double gdcm::MrProtocol::Vector3::dCor
```

10.372.1.2 dSag

```
double gdcm::MrProtocol::Vector3::dSag
```

10.372.1.3 dTra

```
double gdcm::MrProtocol::Vector3::dTra
```

The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

10.373 gdcm::Version Class Reference

major/minor and build version

```
#include <gdcmVersion.h>
```

Public Member Functions

- Version ()=default
- ~Version ()=default
- void Print (std::ostream &os=std::cout) const

Static Public Member Functions

- static int GetBuildVersion ()
- static int GetMajorVersion ()
- static int GetMinorVersion ()
- static const char * GetVersion ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Version &v)

10.373.1 Detailed Description

major/minor and build version

10.373.2 Constructor & Destructor Documentation

10.373.2.1 Version()

```
gdcm::Version::Version ( ) [default]
```

10.373.2.2 ~Version()

```
gdcm::Version::~Version ( ) [default]
```

10.373.3 Member Function Documentation

10.373.3.1 GetBuildVersion()

```
static int gdcm::Version::GetBuildVersion ( ) [static]
```

10.373.3.2 GetMajorVersion()

```
static int gdcm::Version::GetMajorVersion ( ) [static]
```

10.373.3.3 GetMinorVersion()

```
static int gdcm::Version::GetMinorVersion ( ) [static]
```

10.373.3.4 GetVersion()

```
static const char * gdcm::Version::GetVersion ( ) [static]
```

10.373.3.5 Print()

```
void gdcm::Version::Print (
            std::ostream & os = std::cout ) const
```

10.373.4 Friends And Related Symbol Documentation

10.373.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Version & v ) [friend]
```

The documentation for this class was generated from the following file:

- gdcmVersion.h

10.374 gdcm::VL Class Reference

Value Length.

```
#include <gdcmVL.h>
```

Public Types

- typedef uint32_t Type

Public Member Functions

- VL (uint32_t vl=0)
- VL GetLength () const
- bool IsOdd () const

  Return whether or not the VL is odd or not.
- bool IsUndefined () const
- operator uint32_t () const
- VL & operator++ ()
- VL operator++ (int)
- VL & operator+= (VL const &vl)

  += operator
- template<typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TSwap >
  std::istream & Read16 (std::istream &is)
- void SetToUndefined ()
- template<typename TSwap >
  const std::ostream & Write (std::ostream &os) const
- template<typename TSwap >
  const std::ostream & Write16 (std::ostream &os) const

Static Public Member Functions

- static uint16_t GetVL16Max ()
- static uint32_t GetVL32Max ()

Friends

- std::ostream & operator<< (std::ostream &os, const VL &vl)

10.374.1 Detailed Description

Value Length.

Warning

this is a 4bytes value ! Do not try to use it for 2bytes value length

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, ReadAndDumpDICOMDIR2.cxx, and rle2img.cxx.

10.374.2 Member Typedef Documentation

10.374.2.1 Type

```
typedef uint32_t gdcm::VL::Type
```

10.374.3 Constructor & Destructor Documentation

10.374.3.1 VL()

```
gdcm::VL::VL (
            uint32_t vl = 0 )  [inline]
```

10.374.4 Member Function Documentation

10.374.4.1 GetLength()

```
VL gdcm::VL::GetLength ( ) const  [inline]
```

Examples

ReadAndDumpDICOMDIR2.cxx.

Referenced by gdcm::FileMetaInformation::GetFullLength(), gdcm::DataSet::GetLength(), and gdcm::Item::Write().

10.374.4.2 GetVL16Max()

```
static uint16_t gdcm::VL::GetVL16Max ( )  [inline], [static]
```

10.374.4.3 GetVL32Max()

```
static uint32_t gdcm::VL::GetVL32Max ( )  [inline], [static]
```

10.374.4.4 IsOdd()

```
bool gdcm::VL::IsOdd ( ) const  [inline]
```

Return whether or not the VL is odd or not.

10.374.4.5 IsUndefined()

```
bool gdcm::VL::IsUndefined ( ) const  [inline]
```

10.374.4.6 operator uint32_t()

```
gdcm::VL::operator uint32_t ( ) const  [inline]
```

10.374.4.7 operator++() [1/2]

```
VL & gdcm::VL::operator++ ( ) [inline]
```

10.374.4.8 operator++() [2/2]

```
VL gdcm::VL::operator++ (
            int ) [inline]
```

10.374.4.9 operator+=()

```
VL & gdcm::VL::operator+= (
            VL const & vl ) [inline]
```

+= operator

10.374.4.10 Read()

```
template<typename TSwap >
std::istream & gdcm::VL::Read (
            std::istream & is ) [inline]
```

10.374.4.11 Read16()

```
template<typename TSwap >
std::istream & gdcm::VL::Read16 (
            std::istream & is ) [inline]
```

10.374.4.12 SetToUndefined()

```
void gdcm::VL::SetToUndefined ( ) [inline]
```

10.374.4.13 Write()

```
template<typename TSwap >
const std::ostream & gdcm::VL::Write (
            std::ostream & os ) const [inline]
```

Referenced by gdcm::Fragment::Write(), gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write(

10.374.4.14 Write16()

```
template<typename TSwap >
const std::ostream & gdcm::VL::Write16 (
            std::ostream & os ) const  [inline]
```

10.374.5 Friends And Related Symbol Documentation

10.374.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VL & vl )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmVL.h

10.375 gdcm::VM Class Reference

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

```
#include <gdcmVM.h>
```

Public Types

- enum VMType {
  VM0 = 0 ,
  VM1 = 1 ,
  VM2 = 2 ,
  VM3 = 4 ,
  VM4 = 8 ,
  VM5 = 16 ,
  VM6 = 32 ,
  VM8 = 64 ,
  VM9 = 128 ,
  VM10 = 256 ,
  VM12 = 512 ,
  VM16 = 1024 ,
  VM18 = 2048 ,
  VM24 = 4096 ,
  VM28 = 8192 ,
  VM32 = 16384 ,
  VM35 = 32768 ,
  VM99 = 65536 ,
  VM256 = 131072 ,

VM1_2 = VM1 | VM2 ,
VM1_3 = VM1 | VM2 | VM3 ,
VM1_4 = VM1 | VM2 | VM3 | VM4 ,
VM1_5 = VM1 | VM2 | VM3 | VM4 | VM5 ,
VM1_8 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 ,
VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 ,
VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 ,
VM1_n = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM2_2n = VM2 | VM4 | VM6 | VM8 | VM16 | VM24 | VM32 | VM256 ,
VM2_n = VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM3_4 = VM3 | VM4 ,
VM3_3n = VM3 | VM6 | VM9 | VM24 | VM99 | VM256 ,
VM3_n = VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM4_4n = VM4 | VM16 | VM24 | VM32 | VM256 ,
VM6_6n = VM6 | VM12 | VM18 | VM24 ,
VM6_n = VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM7_7n ,
VM30_30n ,
VM47_47n ,
VM_END = VM1_n + 1 }

Public Member Functions

- VM (VMType type=VM0)
- bool Compatible (VM const &vm) const
- unsigned int GetLength () const
- operator VMType () const

Static Public Member Functions

- static size_t GetNumberOfElementsFromArray (const char *array, size_t length)
- static const char * GetVMString (VMType vm)
- static VMType GetVMType (const char *vm)
- static VMType GetVMTypeFromLength (size_t length, unsigned int size)
- static bool IsValid (int vm1, VMType vm2)

Static Protected Member Functions

- static unsigned int GetIndex (VMType vm)

Friends

- std::ostream & operator<< (std::ostream &os, const VM &vm)

10.375.1 Detailed Description

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

Some private dict define some more: 4-4n 1-4 1-5 256 9 3-4

even more:

7-7n 10 18 12 35 47_47n 30_30n 28

6-6n

10.375.2 Member Enumeration Documentation

10.375.2.1 VMType

`enum gdcm::VM::VMType`

Enumerator

VM0	
VM1	
VM2	
VM3	
VM4	
VM5	
VM6	
VM8	
VM9	
VM10	
VM12	
VM16	
VM18	
VM24	
VM28	
VM32	
VM35	
VM99	
VM256	
VM1_2	
VM1_3	
VM1_4	
VM1_5	
VM1_8	
VM1_32	
VM1_99	
VM1_n	
VM2_2n	

Enumerator

VM2_n	
VM3_4	
VM3_3n	
VM3_n	
VM4_4n	
VM6_6n	
VM6_n	
VM7_7n	
VM30_30n	
VM47_47n	
VM_END	

10.375.3 Constructor & Destructor Documentation

10.375.3.1 VM()

```
gdcm::VM::VM (
            VMType type = VM0 )  [inline]
```

10.375.4 Member Function Documentation

10.375.4.1 Compatible()

```
bool gdcm::VM::Compatible (
            VM const & vm ) const
```

WARNING: Implementation deficiency The Compatible function is poorly implemented, the reference vm should be coming from the dictionary, while the passed in value is the value guess from the file.

10.375.4.2 GetIndex()

```
static unsigned int gdcm::VM::GetIndex (
            VMType vm )  [static], [protected]
```

10.375.4.3 GetLength()

```
unsigned int gdcm::VM::GetLength ( ) const
```

References gdcm::operator<<().

10.375.4.4 GetNumberOfElementsFromArray()

```
static size_t gdcm::VM::GetNumberOfElementsFromArray (
            const char * array,
            size_t length )  [static]
```

10.375.4.5 GetVMString()

```
static const char * gdcm::VM::GetVMString (
            VMType vm )  [static]
```

Return the string as written in the official DICOM dict from a custom enum type

10.375.4.6 GetVMType()

```
static VMType gdcm::VM::GetVMType (
            const char * vm )  [static]
```

10.375.4.7 GetVMTypeFromLength()

```
static VMType gdcm::VM::GetVMTypeFromLength (
            size_t length,
            unsigned int size )  [static]
```

10.375.4.8 IsValid()

```
static bool gdcm::VM::IsValid (
            int vm1,
            VMType vm2 )  [static]
```

Check if vm1 is valid compare to vm2, i.e vm1 is element of vm2 vm1 is typically deduce from counting in a ValueField

10.375.4.9 operator VMType()

```
gdcm::VM::operator VMType ( ) const  [inline]
```

10.375.5 Friends And Related Symbol Documentation

10.375.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VM & vm )  [friend]
```

The documentation for this class was generated from the following file:

- gdcmVM.h

10.376 gdcm::VMToLength< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVM.h

10.377 gdcm::VR Class Reference

VR class.

```
#include <gdcmVR.h>
```

Public Types

- enum VRType : long long {
  INVALID = 0 ,
  AE = 1 ,
  AS = 2 ,
  AT = 4 ,
  CS = 8 ,
  DA = 16 ,
  DS = 32 ,
  DT = 64 ,
  FD = 128 ,
  FL = 256 ,
  IS = 512 ,
  LO = 1024 ,
  LT = 2048 ,
  OB = 4096 ,
  OD = 134217728 ,
  OF = 8192 ,
  OL = 268435456 ,
  OV = 2147483648 ,
  OW = 16384 ,
  PN = 32768 ,
  SH = 65536 ,
  SL = 131072 ,
  SQ = 262144 ,
  SS = 524288 ,
  ST = 1048576 ,
  SV = 4294967296 ,
  TM = 2097152 ,
  UC = 536870912 ,
  UI = 4194304 ,
  UL = 8388608 ,
  UN = 16777216 ,
  UR = 1073741824 ,
  US = 33554432 ,
  UT = 67108864 ,

UV = 8589934592 ,
OB_OW = OB | OW ,
US_SS = US | SS ,
US_SS_OW = US | SS | OW ,
US_OW = US | OW ,
VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI | UL | US ,
VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV ,
VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT ,
VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV ,
VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN ,
VRALL = VRASCII | VRBINARY ,
VR_END = UV+1 }

Public Member Functions

- VR (VRType vr=INVALID)
- bool Compatible (VR const &vr) const
- int GetLength () const
- unsigned int GetSize () const
- unsigned int GetSizeof () const
- bool IsDual () const
- bool IsVRFile () const
- operator VRType () const
- std::istream & Read (std::istream &is)
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static bool CanDisplay (VRType vr)
- static uint32_t GetLength (VRType vr)
- static const char * GetVRString (VRType vr)
- static const char * GetVRStringFromFile (VRType vr)
- static VRType GetVRType (const char *vr)
- static VRType GetVRTypeFromFile (const char *vr)
- static bool IsASCII (VRType vr)
- static bool IsASCII2 (VRType vr)
- static bool IsBinary (VRType vr)
- static bool IsBinary2 (VRType vr)
- static bool IsSwap (const char *vr)
- static bool IsValid (const char *vr)
- static bool IsValid (const char *vr1, VRType vr2)

Friends

- std::ostream & operator<< (std::ostream &os, const VR &vr)

10.377.1 Detailed Description

VR class.

This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict

Note

VALUE REPRESENTATION (VR) Specifies the data type and format of the Value(s) contained in the Value Field of a Data Element. VALUE REPRESENTATION FIELD: The field where the Value Representation of a Data Element is stored in the encoding of a Data Element structure with explicit VR.

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and SimplePrint.cs.

10.377.2 Member Enumeration Documentation

10.377.2.1 VRType

```
enum gdcm::VR::VRType :  long long
```

Enumerator

INVALID	
AE	
AS	
AT	
CS	
DA	
DS	
DT	
FD	
FL	
IS	
LO	
LT	
OB	
OD	
OF	
OL	
OV	
OW	
PN	
SH	
SL	
SQ	
SS	

Enumerator

ST	
SV	
TM	
UC	
UI	
UL	
UN	
UR	
US	
UT	
UV	
OB_OW	
US_SS	
US_SS_OW	
US_OW	
VL16	
VL32	
VRASCII	
VRBINARY	
VR_VM1	
VRALL	
VR_END	

Examples

Cleaner.cs, NewSequence.cs, and SimplePrint.cs.

10.377.3 Constructor & Destructor Documentation

10.377.3.1 VR()

```
gdcm::VR::VR (
            VRType vr = INVALID )  [inline]
```

10.377.4 Member Function Documentation

10.377.4.1 CanDisplay()

```
static bool gdcm::VR::CanDisplay (
            VRType vr )  [static]
```

10.377.4.2 Compatible()

```
bool gdcm::VR::Compatible (
            VR const & vr ) const
```

Examples

SimplePrint.cs.

10.377.4.3 GetLength() [1/2]

```
int gdcm::VR::GetLength ( ) const  [inline]
```

10.377.4.4 GetLength() [2/2]

```
static uint32_t gdcm::VR::GetLength (
            VRType vr )  [inline], [static]
```

10.377.4.5 GetSize()

```
unsigned int gdcm::VR::GetSize ( ) const  [inline]
```

References AE, AS, AT, CS, DA, DS, DT, FD, FL, INVALID, IS, LT, OB, OB_OW, OD, OF, OL, OV, OW, PN, SH, SL, SQ, SS, ST, SV, TM, UC, UL, UN, UR, US, US_OW, US_SS, US_SS_OW, UT, UV, VL16, VL32, VR_END, VR_VM1, VRALL, VRASCII, VRBINARY, and VRTypeTemplateCase.

10.377.4.6 GetSizeof()

```
unsigned int gdcm::VR::GetSizeof ( ) const
```

10.377.4.7 GetVRString()

```
static const char * gdcm::VR::GetVRString (
            VRType vr )  [static]
```

10.377.4.8 GetVRStringFromFile()

```
static const char * gdcm::VR::GetVRStringFromFile (
            VRType vr )  [static]
```

10.377.4.9 GetVRType()

```
static VRType gdcm::VR::GetVRType (
            const char * vr )  [static]
```

10.377.4.10 GetVRTypeFromFile()

```
static VRType gdcm::VR::GetVRTypeFromFile (
            const char * vr )  [static]
```

10.377.4.11 IsASCII()

```
static bool gdcm::VR::IsASCII (
            VRType vr )  [static]
```

10.377.4.12 IsASCII2()

```
static bool gdcm::VR::IsASCII2 (
            VRType vr )  [static]
```

10.377.4.13 IsBinary()

```
static bool gdcm::VR::IsBinary (
            VRType vr )  [static]
```

10.377.4.14 IsBinary2()

```
static bool gdcm::VR::IsBinary2 (
            VRType vr )  [static]
```

10.377.4.15 IsDual()

```
bool gdcm::VR::IsDual ( ) const
```

10.377.4.16 IsSwap()

```
static bool gdcm::VR::IsSwap (
            const char * vr )  [static]
```

10.377.4.17 IsValid() [1/2]

```
static bool gdcm::VR::IsValid (
            const char * vr )  [static]
```

10.377.4.18 IsValid() [2/2]

```
static bool gdcm::VR::IsValid (
            const char * vr1,
            VRType vr2 )  [static]
```

10.377.4.19 IsVRFile()

```
bool gdcm::VR::IsVRFile ( ) const
```

Referenced by gdcm::DataElement::SetVR().

10.377.4.20 operator VRType()

```
gdcm::VR::operator VRType ( ) const  [inline]
```

10.377.4.21 Read()

```
std::istream & gdcm::VR::Read (
            std::istream & is )  [inline]
```

References gdcmDebugMacro.

10.377.4.22 Write()

```
const std::ostream & gdcm::VR::Write (
            std::ostream & os ) const  [inline]
```

References gdcmAssertAlwaysMacro.

10.377.5 Friends And Related Symbol Documentation

10.377.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VR & vr )  [friend]
```

The documentation for this class was generated from the following file:

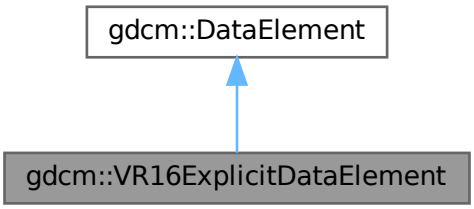
- gdcmVR.h

10.378 gdcm::VR16ExplicitDataElement Class Reference

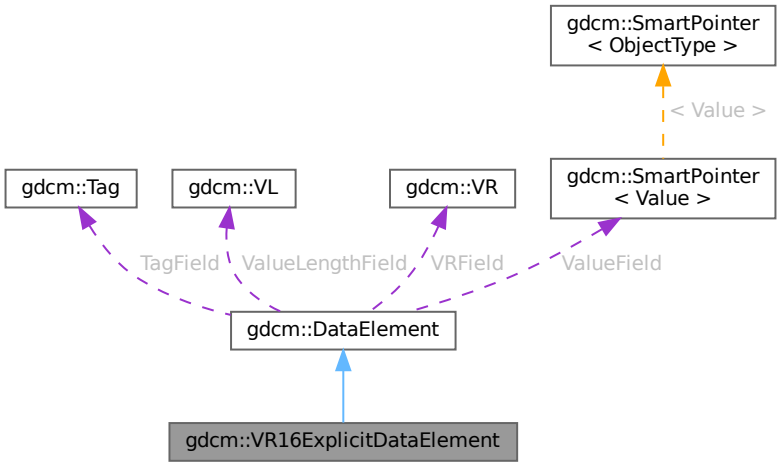
Class to read/write a DataElement as Explicit Data Element.

```
#include <gdcmVR16ExplicitDataElement.h>
```

Inheritance diagram for gdcm::VR16ExplicitDataElement:



Collaboration diagram for gdcm::VR16ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap >
  std::istream & Read (std::istream &is)

- template<typename TSwap >
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap >
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR)
- void Empty ()

  Make Data Element empty (no Value)
- const ByteValue * GetByteValue () const
- template<typename TDE >
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE , typename TSwap >
  std::istream & Read (std::istream &is)
- template<typename TDE , typename TSwap >
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE , typename TSwap >
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)

- template<typename TDE , typename TSwap >
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE , typename TSwap >
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

10.378.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

This class support 16 bits when finding an unknown VR: For instance: Siemens_CT_Sensation64_has_VR_RT.↩dcm

10.378.2 Member Function Documentation

10.378.2.1 GetLength()

```
VL gdcm::VR16ExplicitDataElement::GetLength ( ) const
```

10.378.2.2 Read()

```
template<typename TSwap >
std::istream & gdcm::VR16ExplicitDataElement::Read (
            std::istream & is )
```

10.378.2.3 ReadPreValue()

```
template<typename TSwap >
std::istream & gdcm::VR16ExplicitDataElement::ReadPreValue (
            std::istream & is )
```

10.378.2.4 ReadValue()

```
template<typename TSwap >
std::istream & gdcm::VR16ExplicitDataElement::ReadValue (
            std::istream & is,
            bool readvalues = true )
```

10.378.2.5 ReadWithLength()

```
template<typename TSwap >
std::istream & gdcm::VR16ExplicitDataElement::ReadWithLength (
            std::istream & is,
            VL & length )
```

The documentation for this class was generated from the following file:

- gdcmVR16ExplicitDataElement.h

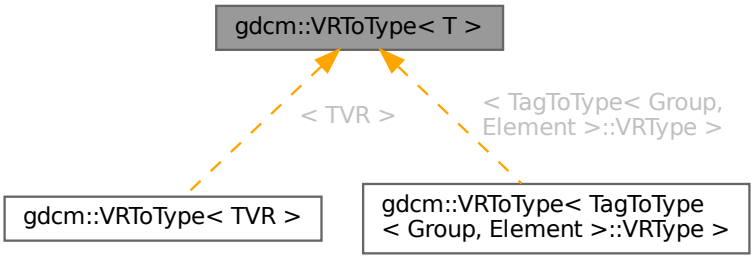
10.379 gdcm::VRToEncoding< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVR.h

10.380 gdcm::VRToType< T > Struct Template Reference

Inheritance diagram for gdcm::VRToType< T >:



10.380.1 Detailed Description

template<long long T>
struct gdcm::VRToType< T >

Examples

DumpGEMSMovieGroup.cxx.

The documentation for this struct was generated from the following file:

- gdcmVR.h

10.381 gdcm::VRVLSize< T > Class Template Reference

The documentation for this class was generated from the following file:

- gdcmAttribute.h

10.382 gdcm::VRVLSize< 0 > Class Reference

```
#include <gdcmAttribute.h>
```

Static Public Member Functions

- static uint16_t Read (std::istream &_is)
- static void Write (std::ostream &os)

10.382.1 Member Function Documentation

10.382.1.1 Read()

```
static uint16_t gdcm::VRVLSize< 0 >::Read (
            std::istream & _is )  [inline], [static]
```

10.382.1.2 Write()

```
static void gdcm::VRVLSize< 0 >::Write (
            std::ostream & os )  [inline], [static]
```

The documentation for this class was generated from the following file:

- gdcmAttribute.h

10.383 gdcm::VRVLSize< 1 > Class Reference

```
#include <gdcmAttribute.h>
```

Static Public Member Functions

- static uint32_t Read (std::istream &_is)
- static void Write (std::ostream &os)

10.383.1 Member Function Documentation

10.383.1.1 Read()

```
static uint32_t gdcm::VRVLSize< 1 >::Read (
            std::istream & _is )  [inline], [static]
```

10.383.1.2 Write()

```
static void gdcm::VRVLSize< 1 >::Write (
            std::ostream & os )  [inline], [static]
```

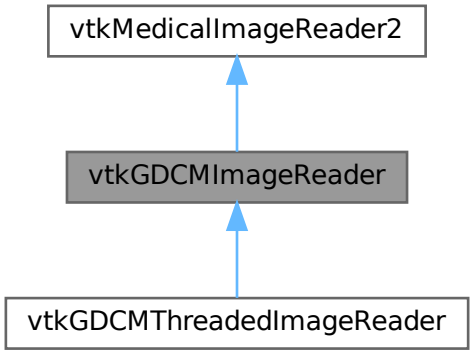
The documentation for this class was generated from the following file:

- gdcmAttribute.h

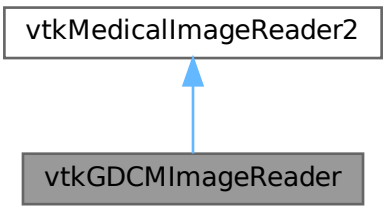
10.384 vtkGDCMImageReader Class Reference

```
#include <vtkGDCMImageReader.h>
```

Inheritance diagram for vtkGDCMImageReader:



Collaboration diagram for vtkGDCMImageReader:



Public Member Functions

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkImageData ∗ GetOverlay (int i)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader ∗ New ()

Protected Member Functions

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

10.384.1 Detailed Description

Examples

AWTMedical3.java, Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MIPViewer.java, MPRViewer.java, MPRViewer2.java, MagnifyFile.cxx, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, offscreenimage.cxx, and reslicesphere.cxx.

10.384.2 Constructor & Destructor Documentation

10.384.2.1 vtkGDCMImageReader()

```
vtkGDCMImageReader::vtkGDCMImageReader ( ) [protected]
```

Examples

HelloActiviz2.cs.

10.384.2.2 ~vtkGDCMImageReader()

```
vtkGDCMImageReader::~vtkGDCMImageReader ( ) [protected]
```

10.384.3 Member Function Documentation

10.384.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader::CanReadFile (
            const char * fname ) [virtual]
```

Examples

AWTMedical3.java, and MetaImageMD5Activiz.cs.

10.384.3.2 ExecuteData()

```
void vtkGDCMImageReader::ExecuteData (
            vtkDataObject * out ) [protected]
```

10.384.3.3 ExecuteInformation()

```
void vtkGDCMImageReader::ExecuteInformation ( ) [protected]
```

10.384.3.4 FillMedicalImageInformation()

```
void vtkGDCMImageReader::FillMedicalImageInformation (
            const gdcm::ImageReader & reader ) [protected]
```

10.384.3.5 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader::GetDescriptiveName ( ) [inline], [virtual]
```

10.384.3.6 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader::GetFileExtensions ( ) [inline], [virtual]
```

10.384.3.7 GetIconImage()

```
vtkImageData * vtkGDCMImageReader::GetIconImage ( )
```

10.384.3.8 GetOverlay()

```
vtkImageData * vtkGDCMImageReader::GetOverlay (
            int i )
```

10.384.3.9 LoadSingleFile()

```
int vtkGDCMImageReader::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen ) [protected]
```

10.384.3.10 New()

```
static vtkGDCMImageReader * vtkGDCMImageReader::New ( ) [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, MagnifyFile.cxx, MetaImageMD5Activiz.cs, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, offscreenimage.cxx, and reslicesphere.cxx.

10.384.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent ) [virtual]
```

Reimplemented in vtkGDCMThreadedImageReader.

10.384.3.12 RequestDataCompat()

```
int vtkGDCMImageReader::RequestDataCompat ( ) [protected]
```

10.384.3.13 RequestInformationCompat()

```
int vtkGDCMImageReader::RequestInformationCompat ( ) [protected]
```

10.384.3.14 SetCurve()

```
virtual void vtkGDCMImageReader::SetCurve (
            vtkPolyData * pd ) [virtual]
```

10.384.3.15 SetFileNames()

```
virtual void vtkGDCMImageReader::SetFileNames (
            vtkStringArray * ) [virtual]
```

Examples

AWTMedical3.java, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, MIPViewer.java, MPRViewer.java, MPRViewer2.java, ReadSeriesIntoVTK.java, and gdcmorthoplanes.cxx.

10.384.3.16 SetFilePattern()

```
void vtkGDCMImageReader::SetFilePattern (
            const char * ) [inline], [protected]
```

10.384.3.17 SetFilePrefix()

```
void vtkGDCMImageReader::SetFilePrefix (
            const char * ) [inline], [protected]
```

10.384.3.18 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd ) [virtual]
```

10.384.3.19 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            ApplyLookupTable ,
            int  )
```

10.384.3.20 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int  )
```

10.384.3.21 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadIconImage ,
            int  )
```

10.384.3.22 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadOverlays ,
            int  )
```

10.384.3.23 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LossyFlag ,
            int  )
```

10.384.3.24 vtkGetMacro() [1/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyLookupTable ,
            int  )
```

10.384.3.25 vtkGetMacro() [2/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyYBRToRGB ,
            int  )
```

10.384.3.26 vtkGetMacro() [3/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ImageFormat ,
            int  )
```

10.384.3.27 vtkGetMacro() [4/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadIconImage ,
            int  )
```

10.384.3.28 vtkGetMacro() [5/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadOverlays ,
            int  )
```

10.384.3.29 vtkGetMacro() [6/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LossyFlag ,
            int  )
```

10.384.3.30 vtkGetMacro() [7/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfIconImages ,
            int  )
```

10.384.3.31 vtkGetMacro() [8/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfOverlays ,
            int  )
```

10.384.3.32 vtkGetMacro() [9/11]

```
vtkGDCMImageReader::vtkGetMacro (
            PlanarConfiguration ,
            int  )
```

10.384.3.33 vtkGetMacro() [10/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Scale ,
            double  )
```

10.384.3.34 vtkGetMacro() [11/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Shift ,
            double  )
```

10.384.3.35 vtkGetObjectMacro() [1/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            Curve ,
            vtkPolyData  )
```

10.384.3.36 vtkGetObjectMacro() [2/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4  )
```

10.384.3.37 vtkGetObjectMacro() [3/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray  )
```

10.384.3.38 vtkGetObjectMacro() [4/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties  )
```

10.384.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePattern  )  [protected]
```

10.384.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePrefix  )  [protected]
```

10.384.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader::vtkGetVector3Macro (
            ImagePositionPatient ,
            double  )
```

10.384.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double  )
```

10.384.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader::vtkSetMacro (
            ApplyLookupTable ,
            int  )
```

10.384.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadIconImage ,
            int  )
```

10.384.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadOverlays ,
            int  )
```

10.384.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LossyFlag ,
            int  )
```

10.384.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double  )  [protected]
```

10.384.3.48 vtkTypeMacro()

```
vtkGDCMImageReader::vtkTypeMacro (
            vtkGDCMImageReader ,
            vtkMedicalImageReader2  )
```

10.384.4 Member Data Documentation

10.384.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader::ApplyInverseVideo  [protected]
```

10.384.4.2 ApplyLookupTable

```
int vtkGDCMImageReader::ApplyLookupTable  [protected]
```

10.384.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader::ApplyPlanarConfiguration  [protected]
```

10.384.4.4 ApplyShiftScale

```
int vtkGDCMImageReader::ApplyShiftScale  [protected]
```

10.384.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader::ApplyYBRToRGB  [protected]
```

10.384.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader::Curve  [protected]
```

10.384.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader::DirectionCosines  [protected]
```

10.384.4.8 FileNames

```
vtkStringArray* vtkGDCMImageReader::FileNames  [protected]
```

10.384.4.9 ForceRescale

```
int vtkGDCMImageReader::ForceRescale  [protected]
```

10.384.4.10 IconDataScalarType

```
int vtkGDCMImageReader::IconDataScalarType  [protected]
```

10.384.4.11 IconImageDataExtent

```
int vtkGDCMImageReader::IconImageDataExtent[6]  [protected]
```

10.384.4.12 IconNumberOfScalarComponents

```
int vtkGDCMImageReader::IconNumberOfScalarComponents  [protected]
```

10.384.4.13 ImageFormat

```
int vtkGDCMImageReader::ImageFormat  [protected]
```

10.384.4.14 ImageOrientationPatient

```
double vtkGDCMImageReader::ImageOrientationPatient[6]  [protected]
```

10.384.4.15 ImagePositionPatient

```
double vtkGDCMImageReader::ImagePositionPatient[3]  [protected]
```

10.384.4.16 LoadIconImage

```
int vtkGDCMImageReader::LoadIconImage  [protected]
```

10.384.4.17 LoadOverlays

```
int vtkGDCMImageReader::LoadOverlays [protected]
```

10.384.4.18 LossyFlag

```
int vtkGDCMImageReader::LossyFlag [protected]
```

10.384.4.19 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMImageReader::MedicalImageProperties [protected]
```

10.384.4.20 NumberOfIconImages

```
int vtkGDCMImageReader::NumberOfIconImages [protected]
```

10.384.4.21 NumberOfOverlays

```
int vtkGDCMImageReader::NumberOfOverlays [protected]
```

10.384.4.22 PlanarConfiguration

```
int vtkGDCMImageReader::PlanarConfiguration [protected]
```

10.384.4.23 Scale

```
double vtkGDCMImageReader::Scale [protected]
```

10.384.4.24 Shift

```
double vtkGDCMImageReader::Shift [protected]
```

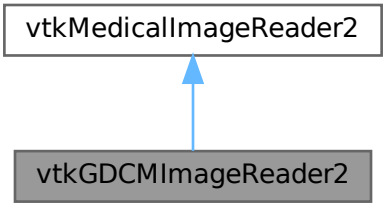
The documentation for this class was generated from the following file:

- vtkGDCMImageReader.h

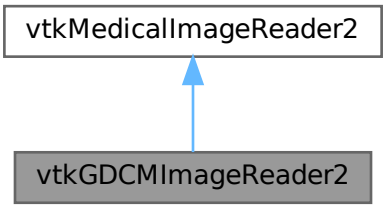
10.385 vtkGDCMImageReader2 Class Reference

```
#include <vtkGDCMImageReader2.h>
```

Inheritance diagram for vtkGDCMImageReader2:



Collaboration diagram for vtkGDCMImageReader2:



Public Member Functions

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkAlgorithmOutput ∗ GetIconImagePort ()
- vtkImageData ∗ GetOverlay (int i)
- vtkAlgorithmOutput ∗ GetOverlayPort (int index)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)

- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader2, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader2 ∗ New ()

Protected Member Functions

- vtkGDCMImageReader2 ()
- ∼vtkGDCMImageReader2 ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char ∗filename, char ∗pointer, unsigned long &outlen)
- int ProcessRequest (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗output↩ Vector)
- int RequestData (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗output↩ Vector)
- int RequestDataCompat ()
- int RequestInformation (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗outputVector)
- int RequestInformationCompat ()
- void SetFilePattern (const char ∗)
- void SetFilePrefix (const char ∗)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

10.385.1 Detailed Description

Examples

Compute3DSpacing.cxx.

10.385.2 Constructor & Destructor Documentation

10.385.2.1 vtkGDCMImageReader2()

```
vtkGDCMImageReader2::vtkGDCMImageReader2 ( ) [protected]
```

10.385.2.2 ~vtkGDCMImageReader2()

```
vtkGDCMImageReader2::~vtkGDCMImageReader2 ( ) [protected]
```

10.385.3 Member Function Documentation

10.385.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader2::CanReadFile (
            const char * fname ) [virtual]
```

10.385.3.2 FillMedicalImageInformation()

```
void vtkGDCMImageReader2::FillMedicalImageInformation (
            const gdcm::ImageReader & reader )  [protected]
```

10.385.3.3 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader2::GetDescriptiveName ( )  [inline], [virtual]
```

10.385.3.4 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader2::GetFileExtensions ( )  [inline], [virtual]
```

10.385.3.5 GetIconImage()

```
vtkImageData * vtkGDCMImageReader2::GetIconImage ( )
```

10.385.3.6 GetIconImagePort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetIconImagePort ( )
```

10.385.3.7 GetOverlay()

```
vtkImageData * vtkGDCMImageReader2::GetOverlay (
            int i )
```

10.385.3.8 GetOverlayPort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetOverlayPort (
            int index )
```

10.385.3.9 LoadSingleFile()

```
int vtkGDCMImageReader2::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen )  [protected]
```

10.385.3.10 New()

```
static vtkGDCMImageReader2 * vtkGDCMImageReader2::New ( )  [static]
```

Examples

Compute3DSpacing.cxx.

10.385.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

10.385.3.12 ProcessRequest()

```
int vtkGDCMImageReader2::ProcessRequest (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector )  [protected]
```

10.385.3.13 RequestData()

```
int vtkGDCMImageReader2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector )  [protected]
```

10.385.3.14 RequestDataCompat()

```
int vtkGDCMImageReader2::RequestDataCompat ( )  [protected]
```

10.385.3.15 RequestInformation()

```
int vtkGDCMImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector )  [protected]
```

10.385.3.16 RequestInformationCompat()

```
int vtkGDCMImageReader2::RequestInformationCompat ( )  [protected]
```

10.385.3.17 SetCurve()

```
virtual void vtkGDCMImageReader2::SetCurve (
            vtkPolyData * pd )  [virtual]
```

10.385.3.18 SetFilePattern()

```
void vtkGDCMImageReader2::SetFilePattern (
            const char *  )  [inline], [protected]
```

10.385.3.19 SetFilePrefix()

```
void vtkGDCMImageReader2::SetFilePrefix (
            const char *  )  [inline], [protected]
```

10.385.3.20 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader2::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd )  [virtual]
```

10.385.3.21 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyLookupTable ,
            int  )
```

10.385.3.22 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int  )
```

10.385.3.23 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadIconImage ,
            int  )
```

10.385.3.24 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int  )
```

10.385.3.25 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LossyFlag ,
            int  )
```

10.385.3.26 vtkGetMacro() [1/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyLookupTable ,
            int  )
```

10.385.3.27 vtkGetMacro() [2/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyYBRToRGB ,
            int  )
```

10.385.3.28 vtkGetMacro() [3/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ImageFormat ,
            int  )
```

10.385.3.29 vtkGetMacro() [4/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadIconImage ,
            int  )
```

10.385.3.30 vtkGetMacro() [5/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadOverlays ,
            int  )
```

10.385.3.31 vtkGetMacro() [6/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LossyFlag ,
            int  )
```

10.385.3.32 vtkGetMacro() [7/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfIconImages ,
            int  )
```

10.385.3.33 vtkGetMacro() [8/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int  )
```

10.385.3.34 vtkGetMacro() [9/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            PlanarConfiguration ,
            int  )
```

10.385.3.35 vtkGetMacro() [10/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Scale ,
            double  )
```

10.385.3.36 vtkGetMacro() [11/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Shift ,
            double  )
```

10.385.3.37 vtkGetObjectMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            Curve ,
            vtkPolyData  )
```

10.385.3.38 vtkGetObjectMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4  )
```

10.385.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePattern  )  [protected]
```

10.385.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePrefix  )  [protected]
```

10.385.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader2::vtkGetVector3Macro (
            ImagePositionPatient ,
            double  )
```

10.385.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader2::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double  )
```

10.385.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            ApplyLookupTable ,
            int  )
```

10.385.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadIconImage ,
            int  )
```

10.385.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadOverlays ,
            int  )
```

10.385.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LossyFlag ,
            int  )
```

10.385.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader2::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double  )  [protected]
```

10.385.3.48 vtkTypeMacro()

```
vtkGDCMImageReader2::vtkTypeMacro (
            vtkGDCMImageReader2 ,
            vtkMedicalImageReader2  )
```

10.385.4 Member Data Documentation

10.385.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader2::ApplyInverseVideo  [protected]
```

10.385.4.2 ApplyLookupTable

```
int vtkGDCMImageReader2::ApplyLookupTable  [protected]
```

10.385.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader2::ApplyPlanarConfiguration  [protected]
```

10.385.4.4 ApplyShiftScale

```
int vtkGDCMImageReader2::ApplyShiftScale  [protected]
```

10.385.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader2::ApplyYBRToRGB  [protected]
```

10.385.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader2::Curve  [protected]
```

10.385.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader2::DirectionCosines  [protected]
```

10.385.4.8 ForceRescale

```
int vtkGDCMImageReader2::ForceRescale  [protected]
```

10.385.4.9 IconDataScalarType

```
int vtkGDCMImageReader2::IconDataScalarType  [protected]
```

10.385.4.10 IconImageDataExtent

```
int vtkGDCMImageReader2::IconImageDataExtent[6]  [protected]
```

10.385.4.11 IconNumberOfScalarComponents

```
int vtkGDCMImageReader2::IconNumberOfScalarComponents  [protected]
```

10.385.4.12 ImageFormat

```
int vtkGDCMImageReader2::ImageFormat  [protected]
```

10.385.4.13 ImageOrientationPatient

```
double vtkGDCMImageReader2::ImageOrientationPatient[6]  [protected]
```

10.385.4.14 ImagePositionPatient

```
double vtkGDCMImageReader2::ImagePositionPatient[3]  [protected]
```

10.385.4.15 LoadIconImage

```
int vtkGDCMImageReader2::LoadIconImage  [protected]
```

10.385.4.16 LoadOverlays

```
int vtkGDCMImageReader2::LoadOverlays [protected]
```

10.385.4.17 LossyFlag

```
int vtkGDCMImageReader2::LossyFlag [protected]
```

10.385.4.18 NumberOfIconImages

```
int vtkGDCMImageReader2::NumberOfIconImages [protected]
```

10.385.4.19 NumberOfOverlays

```
int vtkGDCMImageReader2::NumberOfOverlays [protected]
```

10.385.4.20 PlanarConfiguration

```
int vtkGDCMImageReader2::PlanarConfiguration [protected]
```

10.385.4.21 Scale

```
double vtkGDCMImageReader2::Scale [protected]
```

10.385.4.22 Shift

```
double vtkGDCMImageReader2::Shift [protected]
```

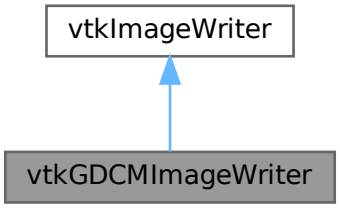
The documentation for this class was generated from the following file:

- vtkGDCMImageReader2.h

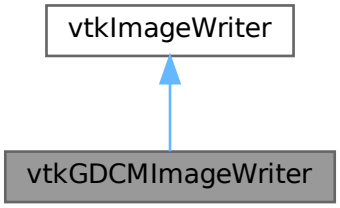
10.386 vtkGDCMImageWriter Class Reference

```
#include <vtkGDCMImageWriter.h>
```

Inheritance diagram for vtkGDCMImageWriter:



Collaboration diagram for vtkGDCMImageWriter:



Public Types

- enum CompressionTypes {
  NO_COMPRESSION = 0 ,
  JPEG_COMPRESSION ,
  JPEG2000_COMPRESSION ,
  JPEGLS_COMPRESSION ,
  RLE_COMPRESSION }

Public Member Functions

- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetDirectionCosines (vtkMatrix4x4 ∗matrix)
- virtual void SetDirectionCosinesFromImageOrientationPatient (const double dircos[6])
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (CompressionType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetStringMacro (SeriesUID)
- vtkGetStringMacro (StudyUID)
- vtkSetMacro (CompressionType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (ImageFormat, int)
- vtkSetMacro (LossyFlag, int)
- vtkSetMacro (PlanarConfiguration, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetStringMacro (SeriesUID)
- vtkSetStringMacro (StudyUID)
- vtkTypeMacro (vtkGDCMImageWriter, vtkImageWriter)
- virtual void Write ()

Static Public Member Functions

- static vtkGDCMImageWriter ∗ New ()

Protected Member Functions

- vtkGDCMImageWriter ()
- ∼vtkGDCMImageWriter ()
- virtual char ∗ GetFileName ()
- int WriteGDCMData (vtkImageData ∗data, int timeStep)
- void WriteSlice (vtkImageData ∗data)

10.386.1 Detailed Description

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

10.386.2 Member Enumeration Documentation

10.386.2.1 CompressionTypes

```
enum vtkGDCMImageWriter::CompressionTypes
```

Enumerator

NO_COMPRESSION	
JPEG_COMPRESSION	
JPEG2000_COMPRESSION	
JPEGLS_COMPRESSION	
RLE_COMPRESSION	

10.386.3 Constructor & Destructor Documentation

10.386.3.1 vtkGDCMImageWriter()

```
vtkGDCMImageWriter::vtkGDCMImageWriter ( ) [protected]
```

10.386.3.2 ~vtkGDCMImageWriter()

```
vtkGDCMImageWriter::~vtkGDCMImageWriter ( ) [protected]
```

10.386.4 Member Function Documentation

10.386.4.1 GetDescriptiveName()

```
virtual const char * vtkGDCMImageWriter::GetDescriptiveName ( ) [inline], [virtual]
```

10.386.4.2 GetFileExtensions()

```
virtual const char * vtkGDCMImageWriter::GetFileExtensions ( ) [inline], [virtual]
```

10.386.4.3 GetFileName()

```
virtual char * vtkGDCMImageWriter::GetFileName ( )  [protected], [virtual]
```

10.386.4.4 New()

```
static vtkGDCMImageWriter * vtkGDCMImageWriter::New ( )  [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloVTKWorld.cs, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

10.386.4.5 PrintSelf()

```
virtual void vtkGDCMImageWriter::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

10.386.4.6 SetDirectionCosines()

```
virtual void vtkGDCMImageWriter::SetDirectionCosines (
            vtkMatrix4x4 * matrix )  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

10.386.4.7 SetDirectionCosinesFromImageOrientationPatient()

```
virtual void vtkGDCMImageWriter::SetDirectionCosinesFromImageOrientationPatient (
            const double dircos[6] )  [virtual]
```

10.386.4.8 SetFileNames()

```
virtual void vtkGDCMImageWriter::SetFileNames (
            vtkStringArray *  )  [virtual]
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

10.386.4.9 SetMedicalImageProperties()

```
virtual void vtkGDCMImageWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties *  )  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

10.386.4.10 vtkBooleanMacro() [1/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            FileLowerLeft ,
            int  )
```

10.386.4.11 vtkBooleanMacro() [2/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            LossyFlag ,
            int  )
```

10.386.4.12 vtkGetMacro() [1/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            CompressionType ,
            int  )
```

10.386.4.13 vtkGetMacro() [2/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            FileLowerLeft ,
            int  )
```

10.386.4.14 vtkGetMacro() [3/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            ImageFormat ,
            int  )
```

10.386.4.15 vtkGetMacro() [4/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            LossyFlag ,
            int  )
```

10.386.4.16 vtkGetMacro() [5/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            PlanarConfiguration ,
            int  )
```

10.386.4.17 vtkGetMacro() [6/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Scale ,
            double  )
```

10.386.4.18 vtkGetMacro() [7/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Shift ,
            double  )
```

10.386.4.19 vtkGetObjectMacro() [1/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4  )
```

10.386.4.20 vtkGetObjectMacro() [2/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray  )
```

10.386.4.21 vtkGetObjectMacro() [3/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties  )
```

10.386.4.22 vtkGetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            SeriesUID  )
```

10.386.4.23 vtkGetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            StudyUID  )
```

10.386.4.24 vtkSetMacro() [1/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            CompressionType ,
            int  )
```

10.386.4.25 vtkSetMacro() [2/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            FileLowerLeft ,
            int  )
```

10.386.4.26 vtkSetMacro() [3/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            ImageFormat ,
            int  )
```

10.386.4.27 vtkSetMacro() [4/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            LossyFlag ,
            int  )
```

10.386.4.28 vtkSetMacro() [5/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            PlanarConfiguration ,
            int  )
```

10.386.4.29 vtkSetMacro() [6/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Scale ,
            double  )
```

10.386.4.30 vtkSetMacro() [7/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Shift ,
            double  )
```

10.386.4.31 vtkSetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            SeriesUID  )
```

10.386.4.32 vtkSetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            StudyUID  )
```

10.386.4.33 vtkTypeMacro()

```
vtkGDCMImageWriter::vtkTypeMacro (
            vtkGDCMImageWriter ,
            vtkImageWriter  )
```

10.386.4.34 Write()

```
virtual void vtkGDCMImageWriter::Write ( )  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

10.386.4.35 WriteGDCMData()

```
int vtkGDCMImageWriter::WriteGDCMData (
            vtkImageData * data,
            int timeStep )  [protected]
```

10.386.4.36 WriteSlice()

```
void vtkGDCMImageWriter::WriteSlice (
            vtkImageData * data )  [protected]
```

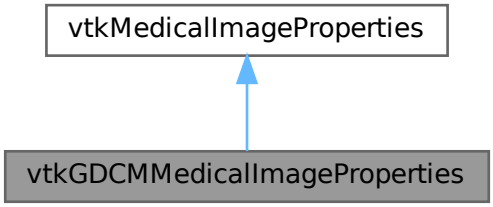
The documentation for this class was generated from the following file:

- vtkGDCMImageWriter.h

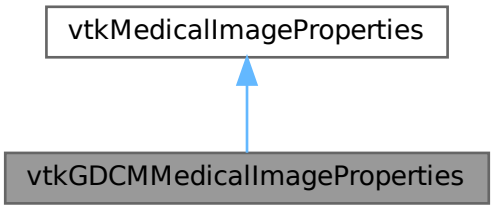
10.387 vtkGDCMMedicalImageProperties Class Reference

```
#include <vtkGDCMMedicalImageProperties.h>
```

Inheritance diagram for vtkGDCMMedicalImageProperties:



Collaboration diagram for vtkGDCMMedicalImageProperties:



Public Member Functions

- virtual void Clear ()
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMMedicalImageProperties, vtkMedicalImageProperties)

Static Public Member Functions

- static vtkGDCMMedicalImageProperties ∗ New ()

Protected Member Functions

- vtkGDCMMedicalImageProperties ()
- ∼vtkGDCMMedicalImageProperties ()
- gdcm::File const & GetFile (unsigned int t)
- void PushBackFile (gdcm::File const &f)

Friends

- class vtkGDCMImageReader
- class vtkGDCMImageReader2
- class vtkGDCMImageWriter

10.387.1 Constructor & Destructor Documentation

10.387.1.1 vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::vtkGDCMMedicalImageProperties ( )  [protected]
```

10.387.1.2 ∼vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::∼vtkGDCMMedicalImageProperties ( )  [protected]
```

10.387.2 Member Function Documentation

10.387.2.1 Clear()

```
virtual void vtkGDCMMedicalImageProperties::Clear ( )  [virtual]
```

10.387.2.2 GetFile()

```
gdcm::File const & vtkGDCMMedicalImageProperties::GetFile (
            unsigned int t )  [protected]
```

10.387.2.3 New()

```
static vtkGDCMMedicalImageProperties * vtkGDCMMedicalImageProperties::New ( )  [static]
```

10.387.2.4 PrintSelf()

```
void vtkGDCMMedicalImageProperties::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.387.2.5 PushBackFile()

```
void vtkGDCMMedicalImageProperties::PushBackFile (
            gdcm::File const & f )  [protected]
```

10.387.2.6 vtkTypeMacro()

```
vtkGDCMMedicalImageProperties::vtkTypeMacro (
            vtkGDCMMedicalImageProperties ,
            vtkMedicalImageProperties  )
```

10.387.3 Friends And Related Symbol Documentation

10.387.3.1 vtkGDCMImageReader

```
friend class vtkGDCMImageReader  [friend]
```

10.387.3.2 vtkGDCMImageReader2

```
friend class vtkGDCMImageReader2  [friend]
```

10.387.3.3 vtkGDCMImageWriter

```
friend class vtkGDCMImageWriter  [friend]
```

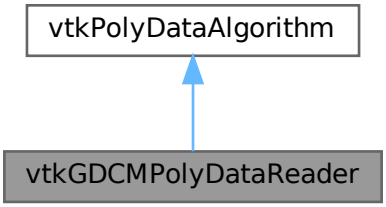
The documentation for this class was generated from the following file:

- vtkGDCMMedicalImageProperties.h

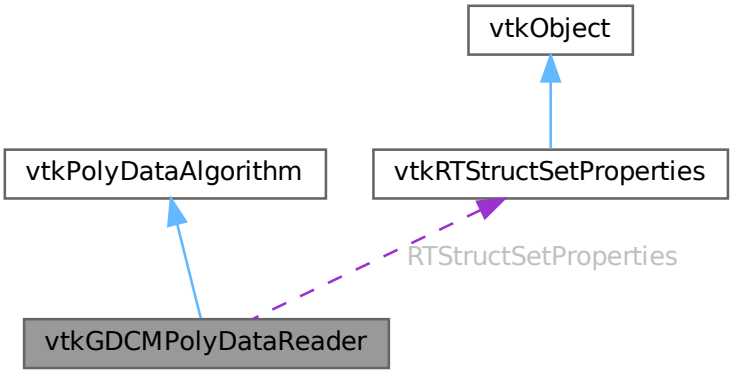
10.388 vtkGDCMPolyDataReader Class Reference

```
#include <vtkGDCMPolyDataReader.h>
```

Inheritance diagram for vtkGDCMPolyDataReader:



Collaboration diagram for vtkGDCMPolyDataReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetObjectMacro (RTStructSetProperties, vtkRTStructSetProperties)
- vtkGetStringMacro (FileName)
- vtkSetStringMacro (FileName)
- vtkTypeMacro (vtkGDCMPolyDataReader, vtkPolyDataAlgorithm)

Static Public Member Functions

- static vtkGDCMPolyDataReader ∗ New ()

Protected Member Functions

- vtkGDCMPolyDataReader ()
- ∼vtkGDCMPolyDataReader ()
- void FillMedicalImageInformation (const gdcm::Reader &reader)
- int RequestData (vtkInformation ∗, vtkInformationVector ∗∗, vtkInformationVector ∗)
- int RequestData_HemodynamicWaveformStorage (gdcm::Reader const &reader, vtkInformationVector ∗output↩ Vector)
- int RequestData_RTStructureSetStorage (gdcm::Reader const &reader, vtkInformationVector ∗outputVector)
- int RequestInformation (vtkInformation ∗vtkNotUsed(request), vtkInformationVector ∗∗vtkNotUsed(inputVector), vtkInformationVector ∗outputVector)
- int RequestInformation_HemodynamicWaveformStorage (gdcm::Reader const &reader)
- int RequestInformation_RTStructureSetStorage (gdcm::Reader const &reader)

Protected Attributes

- char ∗ FileName
- vtkMedicalImageProperties ∗ MedicalImageProperties
- vtkRTStructSetProperties ∗ RTStructSetProperties

10.388.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

10.388.2 Constructor & Destructor Documentation

10.388.2.1 vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::vtkGDCMPolyDataReader ( )  [protected]
```

10.388.2.2 ∼vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::∼vtkGDCMPolyDataReader ( )  [protected]
```

10.388.3 Member Function Documentation

10.388.3.1 FillMedicalImageInformation()

```
void vtkGDCMPolyDataReader::FillMedicalImageInformation (
            const gdcm::Reader & reader )  [protected]
```

10.388.3.2 New()

```
static vtkGDCMPolyDataReader * vtkGDCMPolyDataReader::New ( )  [static]
```

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

10.388.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataReader::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

10.388.3.4 RequestData()

```
int vtkGDCMPolyDataReader::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector *  )  [protected]
```

10.388.3.5 RequestData_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestData_HemodynamicWaveformStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector )  [protected]
```

10.388.3.6 RequestData_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestData_RTStructureSetStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector )  [protected]
```

10.388.3.7 RequestInformation()

```
int vtkGDCMPolyDataReader::RequestInformation (
            vtkInformation * vtkNotUsedrequest,
            vtkInformationVector ** vtkNotUsedinputVector,
            vtkInformationVector * outputVector )  [protected]
```

10.388.3.8 RequestInformation_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_HemodynamicWaveformStorage (
            gdcm::Reader const & reader )  [protected]
```

10.388.3.9 RequestInformation_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_RTStructureSetStorage (
            gdcm::Reader const & reader )  [protected]
```

10.388.3.10 vtkGetObjectMacro() [1/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties  )
```

10.388.3.11 vtkGetObjectMacro() [2/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            RTStructSetProperties ,
            vtkRTStructSetProperties  )
```

10.388.3.12 vtkGetStringMacro()

```
vtkGDCMPolyDataReader::vtkGetStringMacro (
            FileName  )
```

10.388.3.13 vtkSetStringMacro()

```
vtkGDCMPolyDataReader::vtkSetStringMacro (
            FileName  )
```

10.388.3.14 vtkTypeMacro()

```
vtkGDCMPolyDataReader::vtkTypeMacro (
            vtkGDCMPolyDataReader ,
            vtkPolyDataAlgorithm  )
```

10.388.4 Member Data Documentation

10.388.4.1 FileName

```
char* vtkGDCMPolyDataReader::FileName  [protected]
```

10.388.4.2 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataReader::MedicalImageProperties [protected]
```

10.388.4.3 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataReader::RTStructSetProperties [protected]
```

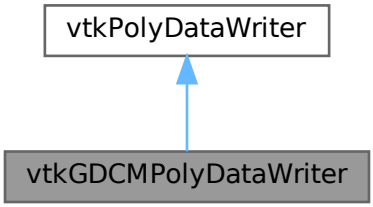
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataReader.h

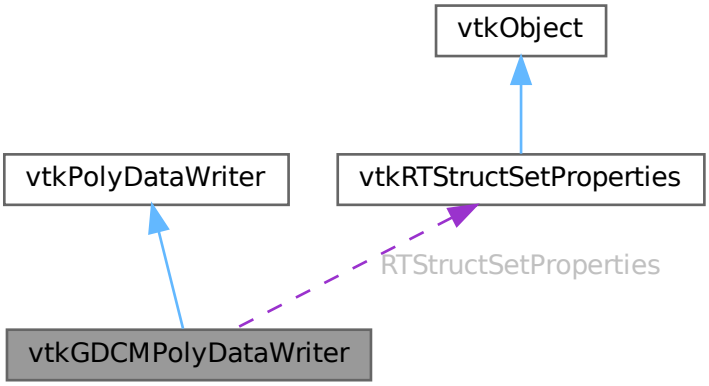
10.389 vtkGDCMPolyDataWriter Class Reference

```
#include <vtkGDCMPolyDataWriter.h>
```

Inheritance diagram for vtkGDCMPolyDataWriter:



Collaboration diagram for vtkGDCMPolyDataWriter:



Public Member Functions

- void InitializeRTStructSet (vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtk↩StringArray ∗inROINames, vtkStringArray ∗inROIAlgorithmName, vtkStringArray ∗inROIType)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- void SetNumberOfInputPorts (int n)
- virtual void SetRTStructSetProperties (vtkRTStructSetProperties ∗pd)
- vtkTypeMacro (vtkGDCMPolyDataWriter, vtkPolyDataWriter)

Static Public Member Functions

- static vtkGDCMPolyDataWriter ∗ New ()

Protected Member Functions

- vtkGDCMPolyDataWriter ()
- ∼vtkGDCMPolyDataWriter ()
- void WriteData ()
- void WriteRTSTRUCTData (gdcm::File &file, int num)
- void WriteRTSTRUCTInfo (gdcm::File &file)

Protected Attributes

- vtkMedicalImageProperties ∗ MedicalImageProperties
- vtkRTStructSetProperties ∗ RTStructSetProperties

10.389.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

10.389.2 Constructor & Destructor Documentation

10.389.2.1 vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::vtkGDCMPolyDataWriter ( )  [protected]
```

10.389.2.2 ∼vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::∼vtkGDCMPolyDataWriter ( )  [protected]
```

10.389.3 Member Function Documentation

10.389.3.1 InitializeRTStructSet()

```
void vtkGDCMPolyDataWriter::InitializeRTStructSet (
            vtkStdString inDirectory,
            vtkStdString inStructLabel,
            vtkStdString inStructName,
            vtkStringArray * inROINames,
            vtkStringArray * inROIAlgorithmName,
            vtkStringArray * inROIType )
```

Examples

GenerateRTSTRUCT.cxx.

10.389.3.2 New()

```
static vtkGDCMPolyDataWriter * vtkGDCMPolyDataWriter::New ( )  [static]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

10.389.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataWriter::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

10.389.3.4 SetMedicalImageProperties()

```
virtual void vtkGDCMPolyDataWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd )  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

10.389.3.5 SetNumberOfInputPorts()

```
void vtkGDCMPolyDataWriter::SetNumberOfInputPorts (
            int n )
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

10.389.3.6 SetRTStructSetProperties()

```
virtual void vtkGDCMPolyDataWriter::SetRTStructSetProperties (
            vtkRTStructSetProperties * pd )  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

10.389.3.7 vtkTypeMacro()

```
vtkGDCMPolyDataWriter::vtkTypeMacro (
            vtkGDCMPolyDataWriter ,
            vtkPolyDataWriter  )
```

10.389.3.8 WriteData()

```
void vtkGDCMPolyDataWriter::WriteData ( )  [protected]
```

10.389.3.9 WriteRTSTRUCTData()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTData (
            gdcm::File & file,
            int num )  [protected]
```

10.389.3.10 WriteRTSTRUCTInfo()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTInfo (
            gdcm::File & file )  [protected]
```

10.389.4 Member Data Documentation

10.389.4.1 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataWriter::MedicalImageProperties  [protected]
```

10.389.4.2 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataWriter::RTStructSetProperties  [protected]
```

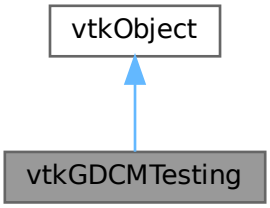
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataWriter.h

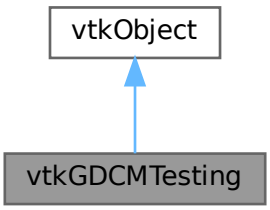
10.390 vtkGDCMTesting Class Reference

```
#include <vtkGDCMTesting.h>
```

Inheritance diagram for vtkGDCMTesting:



Collaboration diagram for vtkGDCMTesting:



Public Types

- typedef const char ∗const (∗ MD5MetaImagesType)[3]

Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMTesting, vtkObject)

Static Public Member Functions

- static const char ∗ GetGDCMDataRoot ()
- static const char ∗const ∗ GetMD5MetaImage (unsigned int file)
- static const char ∗ GetMHDMD5FromFile (const char ∗filepath)
- static unsigned int GetNumberOfMD5MetaImages ()
- static const char ∗ GetRAWMD5FromFile (const char ∗filepath)
- static const char ∗ GetVTKDataRoot ()
- static vtkGDCMTesting ∗ New ()

Protected Member Functions

- vtkGDCMTesting ()
- ∼vtkGDCMTesting ()

10.390.1 Detailed Description

Examples

HelloActiviz5.cs, HelloVTKWorld2.cs, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, and RefCounting.cs.

10.390.2 Member Typedef Documentation

10.390.2.1 MD5MetaImagesType

```
typedef const char* const(* vtkGDCMTesting::MD5MetaImagesType)[3]
```

10.390.3 Constructor & Destructor Documentation

10.390.3.1 vtkGDCMTesting()

```
vtkGDCMTesting::vtkGDCMTesting ( )  [protected]
```

10.390.3.2 ∼vtkGDCMTesting()

```
vtkGDCMTesting::∼vtkGDCMTesting ( )  [protected]
```

10.390.4 Member Function Documentation

10.390.4.1 GetGDCMDataRoot()

```
static const char * vtkGDCMTesting::GetGDCMDataRoot ( )  [static]
```

Examples

HelloActiviz5.cs, and ReadSeriesIntoVTK.java.

10.390.4.2 GetMD5MetaImage()

```
static const char *const * vtkGDCMTesting::GetMD5MetaImage (
            unsigned int file )  [static]
```

10.390.4.3 GetMHDMD5FromFile()

```
static const char * vtkGDCMTesting::GetMHDMD5FromFile (
            const char * filepath )  [static]
```

Examples

MetaImageMD5Activiz.cs.

10.390.4.4 GetNumberOfMD5MetaImages()

```
static unsigned int vtkGDCMTesting::GetNumberOfMD5MetaImages ( )  [static]
```

10.390.4.5 GetRAWMD5FromFile()

```
static const char * vtkGDCMTesting::GetRAWMD5FromFile (
            const char * filepath )  [static]
```

Examples

MetaImageMD5Activiz.cs.

10.390.4.6 GetVTKDataRoot()

```
static const char * vtkGDCMTesting::GetVTKDataRoot ( )  [static]
```

Examples

HelloActiviz5.cs, and HelloVTKWorld2.cs.

10.390.4.7 New()

```
static vtkGDCMTesting * vtkGDCMTesting::New ( )  [static]
```

Examples

RefCounting.cs.

10.390.4.8 PrintSelf()

```
void vtkGDCMTesting::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.390.4.9 vtkTypeMacro()

```
vtkGDCMTesting::vtkTypeMacro (
            vtkGDCMTesting ,
            vtkObject  )
```

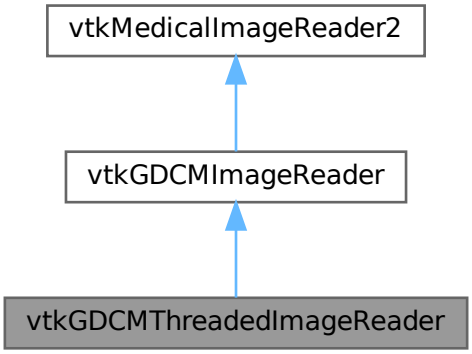
The documentation for this class was generated from the following file:

- vtkGDCMTesting.h

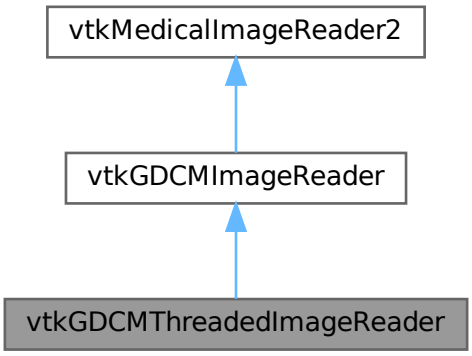
10.391 vtkGDCMThreadedImageReader Class Reference

```
#include <vtkGDCMThreadedImageReader.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader:



Collaboration diagram for vtkGDCMThreadedImageReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (UseShiftScale, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader, vtkGDCMImageReader)

Public Member Functions inherited from vtkGDCMImageReader

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkImageData ∗ GetOverlay (int i)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)

- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMThreadedImageReader * New ()

Static Public Member Functions inherited from vtkGDCMImageReader

- static vtkGDCMImageReader * New ()

Protected Member Functions

- vtkGDCMThreadedImageReader ()
- ~vtkGDCMThreadedImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void ReadFiles (unsigned int nfiles, const char *filenames[])
- void RequestDataCompat ()

Protected Member Functions inherited from vtkGDCMImageReader

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Additional Inherited Members

Protected Attributes inherited from vtkGDCMImageReader

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

10.391.1 Constructor & Destructor Documentation

10.391.1.1 vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::vtkGDCMThreadedImageReader ( )  [protected]
```

10.391.1.2 ~vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::~vtkGDCMThreadedImageReader ( )  [protected]
```

10.391.2 Member Function Documentation

10.391.2.1 ExecuteData()

```
void vtkGDCMThreadedImageReader::ExecuteData (
            vtkDataObject * out )  [protected]
```

10.391.2.2 ExecuteInformation()

```
void vtkGDCMThreadedImageReader::ExecuteInformation ( )  [protected]
```

10.391.2.3 New()

```
static vtkGDCMThreadedImageReader * vtkGDCMThreadedImageReader::New ( )  [static]
```

10.391.2.4 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

Reimplemented from vtkGDCMImageReader.

10.391.2.5 ReadFiles()

```
void vtkGDCMThreadedImageReader::ReadFiles (
            unsigned int nfiles,
            const char * filenames[] )  [protected]
```

10.391.2.6 RequestDataCompat()

```
void vtkGDCMThreadedImageReader::RequestDataCompat ( )  [protected]
```

10.391.2.7 vtkBooleanMacro()

```
vtkGDCMThreadedImageReader::vtkBooleanMacro (
            UseShiftScale ,
            int  )
```

10.391.2.8 vtkGetMacro()

```
vtkGDCMThreadedImageReader::vtkGetMacro (
            UseShiftScale ,
            int  )
```

10.391.2.9 vtkSetMacro() [1/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Scale ,
            double  )
```

10.391.2.10 vtkSetMacro() [2/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Shift ,
            double  )
```

10.391.2.11 vtkSetMacro() [3/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            UseShiftScale ,
            int  )
```

10.391.2.12 vtkTypeMacro()

```
vtkGDCMThreadedImageReader::vtkTypeMacro (
            vtkGDCMThreadedImageReader ,
            vtkGDCMImageReader  )
```

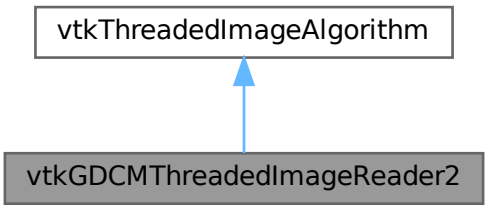
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader.h

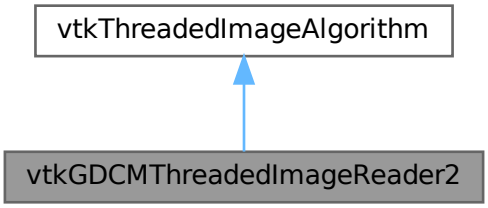
10.392 vtkGDCMThreadedImageReader2 Class Reference

```
#include <vtkGDCMThreadedImageReader2.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader2:



Collaboration diagram for vtkGDCMThreadedImageReader2:



Public Member Functions

- virtual const char ∗ GetFileName (int i=0)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetFileName (const char ∗filename)
- virtual void SetFileNames (vtkStringArray ∗)
- int SplitExtent (int splitExt[6], int startExt[6], int num, int total)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (DataScalarType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (NumberOfScalarComponents, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetMacro (UseShiftScale, int)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetVector3Macro (DataOrigin, double)
- vtkGetVector3Macro (DataSpacing, double)
- vtkGetVector6Macro (DataExtent, int)
- vtkSetMacro (DataScalarType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (NumberOfScalarComponents, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkSetVector3Macro (DataOrigin, double)
- vtkSetVector3Macro (DataSpacing, double)
- vtkSetVector6Macro (DataExtent, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader2, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkGDCMThreadedImageReader2 ∗ New ()

Protected Member Functions

- vtkGDCMThreadedImageReader2 ()
- ∼vtkGDCMThreadedImageReader2 ()
- int RequestInformation (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗outputVector)
- void ThreadedRequestData (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗outputVector, vtkImageData ∗∗∗inData, vtkImageData ∗∗outData, int outExt[6], int id)

10.392.1 Constructor & Destructor Documentation

10.392.1.1 vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::vtkGDCMThreadedImageReader2 ( )  [protected]
```

10.392.1.2 ∼vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::∼vtkGDCMThreadedImageReader2 ( )  [protected]
```

10.392.2 Member Function Documentation

10.392.2.1 GetFileName()

```
virtual const char * vtkGDCMThreadedImageReader2::GetFileName (
            int i = 0 )  [virtual]
```

10.392.2.2 New()

```
static vtkGDCMThreadedImageReader2 * vtkGDCMThreadedImageReader2::New ( )  [static]
```

10.392.2.3 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent )  [virtual]
```

10.392.2.4 RequestInformation()

```
int vtkGDCMThreadedImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector )  [protected]
```

10.392.2.5 SetFileName()

```
virtual void vtkGDCMThreadedImageReader2::SetFileName (
            const char * filename )  [virtual]
```

10.392.2.6 SetFileNames()

```
virtual void vtkGDCMThreadedImageReader2::SetFileNames (
            vtkStringArray *  )  [virtual]
```

10.392.2.7 SplitExtent()

```
int vtkGDCMThreadedImageReader2::SplitExtent (
            int splitExt[6],
            int startExt[6],
            int num,
            int total )
```

10.392.2.8 ThreadedRequestData()

```
void vtkGDCMThreadedImageReader2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int outExt[6],
            int id )  [protected]
```

10.392.2.9 vtkBooleanMacro() [1/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            FileLowerLeft ,
            int  )
```

10.392.2.10 vtkBooleanMacro() [2/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int  )
```

10.392.2.11 vtkBooleanMacro() [3/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            UseShiftScale ,
            int  )
```

10.392.2.12 vtkGetMacro() [1/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            DataScalarType ,
            int  )
```

10.392.2.13 vtkGetMacro() [2/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            FileLowerLeft ,
            int  )
```

10.392.2.14 vtkGetMacro() [3/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            LoadOverlays ,
            int  )
```

10.392.2.15 vtkGetMacro() [4/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int  )
```

10.392.2.16 vtkGetMacro() [5/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfScalarComponents ,
            int  )
```

10.392.2.17 vtkGetMacro() [6/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Scale ,
            double  )
```

10.392.2.18 vtkGetMacro() [7/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Shift ,
            double  )
```

10.392.2.19 vtkGetMacro() [8/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            UseShiftScale ,
            int  )
```

10.392.2.20 vtkGetObjectMacro()

```
vtkGDCMThreadedImageReader2::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray  )
```

10.392.2.21 vtkGetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataOrigin ,
            double  )
```

10.392.2.22 vtkGetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataSpacing ,
            double  )
```

10.392.2.23 vtkGetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkGetVector6Macro (
            DataExtent ,
            int  )
```

10.392.2.24 vtkSetMacro() [1/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            DataScalarType ,
            int  )
```

10.392.2.25 vtkSetMacro() [2/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            FileLowerLeft ,
            int  )
```

10.392.2.26 vtkSetMacro() [3/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            LoadOverlays ,
            int  )
```

10.392.2.27 vtkSetMacro() [4/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            NumberOfScalarComponents ,
            int  )
```

10.392.2.28 vtkSetMacro() [5/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Scale ,
            double  )
```

10.392.2.29 vtkSetMacro() [6/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Shift ,
            double  )
```

10.392.2.30 vtkSetMacro() [7/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            UseShiftScale ,
            int  )
```

10.392.2.31 vtkSetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataOrigin ,
            double  )
```

10.392.2.32 vtkSetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataSpacing ,
            double  )
```

10.392.2.33 vtkSetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkSetVector6Macro (
            DataExtent ,
            int  )
```

10.392.2.34 vtkTypeMacro()

```
vtkGDCMThreadedImageReader2::vtkTypeMacro (
            vtkGDCMThreadedImageReader2 ,
            vtkThreadedImageAlgorithm  )
```

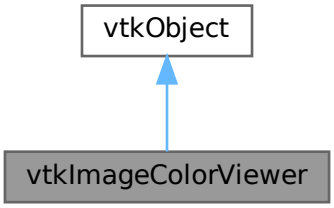
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader2.h

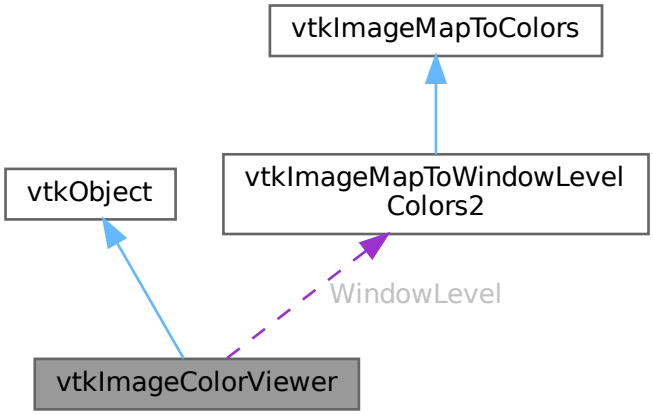
10.393 vtkImageColorViewer Class Reference

```
#include <vtkImageColorViewer.h>
```

Inheritance diagram for vtkImageColorViewer:



Collaboration diagram for vtkImageColorViewer:



Public Types

- enum {
  SLICE_ORIENTATION_YZ = 0 ,
  SLICE_ORIENTATION_XZ = 1 ,
  SLICE_ORIENTATION_XY = 2 }

Public Member Functions

- virtual void AddInput (vtkImageData ∗input)
- virtual void AddInputConnection (vtkAlgorithmOutput ∗input)
- virtual double GetColorLevel ()
- virtual double GetColorWindow ()
- virtual vtkImageData ∗ GetInput ()
- virtual int GetOffScreenRendering ()
- double GetOverlayVisibility ()
- virtual int ∗ GetPosition ()
- virtual int ∗ GetSize ()
- virtual int GetSliceMax ()
- virtual int GetSliceMin ()
- virtual int ∗ GetSliceRange ()
- virtual void GetSliceRange (int &min, int &max)
- virtual void GetSliceRange (int range[2])
- virtual const char ∗ GetWindowName ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void Render (void)
- virtual void SetColorLevel (double s)

- virtual void SetColorWindow (double s)
- virtual void SetDisplayId (void ∗a)
- virtual void SetInput (vtkImageData ∗in)
- virtual void SetInputConnection (vtkAlgorithmOutput ∗input)
- virtual void SetOffScreenRendering (int)
- void SetOverlayVisibility (double vis)
- virtual void SetParentId (void ∗a)
- virtual void SetPosition (int a, int b)
- virtual void SetPosition (int a[2])
- virtual void SetRenderer (vtkRenderer ∗arg)
- virtual void SetRenderWindow (vtkRenderWindow ∗arg)
- virtual void SetSize (int a, int b)
- virtual void SetSize (int a[2])
- virtual void SetSlice (int s)
- virtual void SetSliceOrientation (int orientation)
- virtual void SetSliceOrientationToXY ()
- virtual void SetSliceOrientationToXZ ()
- virtual void SetSliceOrientationToYZ ()
- virtual void SetupInteractor (vtkRenderWindowInteractor ∗)
- virtual void SetWindowId (void ∗a)
- virtual void UpdateDisplayExtent ()
- vtkBooleanMacro (OffScreenRendering, int)
- vtkGetMacro (Slice, int)
- vtkGetMacro (SliceOrientation, int)
- vtkGetObjectMacro (ImageActor, vtkImageActor)
- vtkGetObjectMacro (InteractorStyle, vtkInteractorStyleImage)
- vtkGetObjectMacro (Renderer, vtkRenderer)
- vtkGetObjectMacro (RenderWindow, vtkRenderWindow)
- vtkGetObjectMacro (WindowLevel, vtkImageMapToWindowLevelColors2)
- vtkTypeMacro (vtkImageColorViewer, vtkObject)

Static Public Member Functions

- static vtkImageColorViewer ∗ New ()

Protected Member Functions

- vtkImageColorViewer ()
- ∼vtkImageColorViewer ()
- virtual void InstallPipeline ()
- virtual void UnInstallPipeline ()
- virtual void UpdateOrientation ()

Protected Attributes

- int FirstRender
- vtkImageActor * ImageActor
- vtkRenderWindowInteractor * Interactor
- vtkInteractorStyleImage * InteractorStyle
- vtkImageActor * OverlayImageActor
- vtkRenderer * Renderer
- vtkRenderWindow * RenderWindow
- int Slice
- int SliceOrientation
- vtkImageMapToWindowLevelColors2 * WindowLevel

Friends

- class vtkImageColorViewerCallback

10.393.1 Detailed Description

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.2 Member Enumeration Documentation

10.393.2.1 anonymous enum

```
anonymous enum
```

Enumerator

SLICE_ORIENTATION_YZ	
SLICE_ORIENTATION_XZ	
SLICE_ORIENTATION_XY	

10.393.3 Constructor & Destructor Documentation

10.393.3.1 vtkImageColorViewer()

```
vtkImageColorViewer::vtkImageColorViewer ( ) [protected]
```

10.393.3.2 ~vtkImageColorViewer()

```
vtkImageColorViewer::~vtkImageColorViewer ( ) [protected]
```

10.393.4 Member Function Documentation

10.393.4.1 AddInput()

```
virtual void vtkImageColorViewer::AddInput (
            vtkImageData * input )  [virtual]
```

10.393.4.2 AddInputConnection()

```
virtual void vtkImageColorViewer::AddInputConnection (
            vtkAlgorithmOutput * input )  [virtual]
```

10.393.4.3 GetColorLevel()

```
virtual double vtkImageColorViewer::GetColorLevel ( )  [virtual]
```

10.393.4.4 GetColorWindow()

```
virtual double vtkImageColorViewer::GetColorWindow ( )  [virtual]
```

10.393.4.5 GetInput()

```
virtual vtkImageData * vtkImageColorViewer::GetInput ( )  [virtual]
```

10.393.4.6 GetOffScreenRendering()

```
virtual int vtkImageColorViewer::GetOffScreenRendering ( )  [virtual]
```

10.393.4.7 GetOverlayVisibility()

```
double vtkImageColorViewer::GetOverlayVisibility ( )
```

10.393.4.8 GetPosition()

```
virtual int * vtkImageColorViewer::GetPosition ( )  [virtual]
```

10.393.4.9 GetSize()

```
virtual int * vtkImageColorViewer::GetSize ( )  [virtual]
```

10.393.4.10 GetSliceMax()

```
virtual int vtkImageColorViewer::GetSliceMax ( ) [virtual]
```

10.393.4.11 GetSliceMin()

```
virtual int vtkImageColorViewer::GetSliceMin ( ) [virtual]
```

10.393.4.12 GetSliceRange() [1/3]

```
virtual int * vtkImageColorViewer::GetSliceRange ( ) [virtual]
```

10.393.4.13 GetSliceRange() [2/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int & min,
            int & max ) [virtual]
```

10.393.4.14 GetSliceRange() [3/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int range[2] ) [inline], [virtual]
```

10.393.4.15 GetWindowName()

```
virtual const char * vtkImageColorViewer::GetWindowName ( ) [virtual]
```

10.393.4.16 InstallPipeline()

```
virtual void vtkImageColorViewer::InstallPipeline ( ) [protected], [virtual]
```

10.393.4.17 New()

```
static vtkImageColorViewer * vtkImageColorViewer::New ( ) [static]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.4.18 PrintSelf()

```
void vtkImageColorViewer::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.393.4.19 Render()

```
virtual void vtkImageColorViewer::Render (
            void ) [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.4.20 SetColorLevel()

```
virtual void vtkImageColorViewer::SetColorLevel (
            double s ) [virtual]
```

10.393.4.21 SetColorWindow()

```
virtual void vtkImageColorViewer::SetColorWindow (
            double s ) [virtual]
```

10.393.4.22 SetDisplayId()

```
virtual void vtkImageColorViewer::SetDisplayId (
            void * a ) [virtual]
```

10.393.4.23 SetInput()

```
virtual void vtkImageColorViewer::SetInput (
            vtkImageData * in ) [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.4.24 SetInputConnection()

```
virtual void vtkImageColorViewer::SetInputConnection (
            vtkAlgorithmOutput * input ) [virtual]
```

10.393.4.25 SetOffScreenRendering()

```
virtual void vtkImageColorViewer::SetOffScreenRendering (
            int  )  [virtual]
```

10.393.4.26 SetOverlayVisibility()

```
void vtkImageColorViewer::SetOverlayVisibility (
            double vis )
```

10.393.4.27 SetParentId()

```
virtual void vtkImageColorViewer::SetParentId (
            void * a )  [virtual]
```

10.393.4.28 SetPosition() [1/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a,
            int b )  [virtual]
```

10.393.4.29 SetPosition() [2/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a[2] )  [inline], [virtual]
```

References SetPosition().

Referenced by SetPosition().

10.393.4.30 SetRenderer()

```
virtual void vtkImageColorViewer::SetRenderer (
            vtkRenderer * arg )  [virtual]
```

10.393.4.31 SetRenderWindow()

```
virtual void vtkImageColorViewer::SetRenderWindow (
            vtkRenderWindow * arg )  [virtual]
```

10.393.4.32 SetSize() [1/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a,
            int b )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.4.33 SetSize() [2/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a[2] )  [inline], [virtual]
```

References SetSize().

Referenced by SetSize().

10.393.4.34 SetSlice()

```
virtual void vtkImageColorViewer::SetSlice (
            int s )  [virtual]
```

10.393.4.35 SetSliceOrientation()

```
virtual void vtkImageColorViewer::SetSliceOrientation (
            int orientation )  [virtual]
```

10.393.4.36 SetSliceOrientationToXY()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXY ( )  [inline], [virtual]
```

References SLICE_ORIENTATION_XY.

10.393.4.37 SetSliceOrientationToXZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXZ ( )  [inline], [virtual]
```

References SLICE_ORIENTATION_XZ.

10.393.4.38 SetSliceOrientationToYZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToYZ ( )  [inline], [virtual]
```

References SLICE_ORIENTATION_YZ.

10.393.4.39 SetupInteractor()

```
virtual void vtkImageColorViewer::SetupInteractor (
            vtkRenderWindowInteractor *  )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

10.393.4.40 SetWindowId()

```
virtual void vtkImageColorViewer::SetWindowId (
            void * a )  [virtual]
```

10.393.4.41 UnInstallPipeline()

```
virtual void vtkImageColorViewer::UnInstallPipeline ( )  [protected], [virtual]
```

10.393.4.42 UpdateDisplayExtent()

```
virtual void vtkImageColorViewer::UpdateDisplayExtent ( )  [virtual]
```

10.393.4.43 UpdateOrientation()

```
virtual void vtkImageColorViewer::UpdateOrientation ( )  [protected], [virtual]
```

10.393.4.44 vtkBooleanMacro()

```
vtkImageColorViewer::vtkBooleanMacro (
            OffScreenRendering ,
            int  )
```

10.393.4.45 vtkGetMacro() [1/2]

```
vtkImageColorViewer::vtkGetMacro (
            Slice ,
            int  )
```

10.393.4.46 vtkGetMacro() [2/2]

```
vtkImageColorViewer::vtkGetMacro (
            SliceOrientation ,
            int  )
```

10.393.4.47 vtkGetObjectMacro() [1/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            ImageActor ,
            vtkImageActor  )
```

10.393.4.48 vtkGetObjectMacro() [2/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            InteractorStyle ,
            vtkInteractorStyleImage  )
```

10.393.4.49 vtkGetObjectMacro() [3/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            Renderer ,
            vtkRenderer  )
```

10.393.4.50 vtkGetObjectMacro() [4/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            RenderWindow ,
            vtkRenderWindow  )
```

10.393.4.51 vtkGetObjectMacro() [5/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            WindowLevel ,
            vtkImageMapToWindowLevelColors2  )
```

10.393.4.52 vtkTypeMacro()

```
vtkImageColorViewer::vtkTypeMacro (
            vtkImageColorViewer ,
            vtkObject  )
```

10.393.5 Friends And Related Symbol Documentation

10.393.5.1 vtkImageColorViewerCallback

```
friend class vtkImageColorViewerCallback  [friend]
```

10.393.6 Member Data Documentation

10.393.6.1 FirstRender

```
int vtkImageColorViewer::FirstRender  [protected]
```

10.393.6.2 ImageActor

```
vtkImageActor* vtkImageColorViewer::ImageActor  [protected]
```

10.393.6.3 Interactor

```
vtkRenderWindowInteractor* vtkImageColorViewer::Interactor  [protected]
```

10.393.6.4 InteractorStyle

```
vtkInteractorStyleImage* vtkImageColorViewer::InteractorStyle  [protected]
```

10.393.6.5 OverlayImageActor

```
vtkImageActor* vtkImageColorViewer::OverlayImageActor  [protected]
```

10.393.6.6 Renderer

```
vtkRenderer* vtkImageColorViewer::Renderer  [protected]
```

10.393.6.7 RenderWindow

```
vtkRenderWindow* vtkImageColorViewer::RenderWindow [protected]
```

10.393.6.8 Slice

```
int vtkImageColorViewer::Slice [protected]
```

10.393.6.9 SliceOrientation

```
int vtkImageColorViewer::SliceOrientation [protected]
```

10.393.6.10 WindowLevel

```
vtkImageMapToWindowLevelColors2* vtkImageColorViewer::WindowLevel [protected]
```

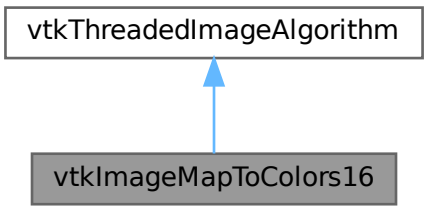
The documentation for this class was generated from the following file:

- vtkImageColorViewer.h

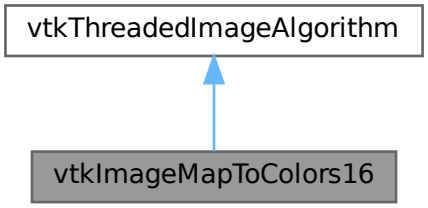
10.394 vtkImageMapToColors16 Class Reference

```
#include <vtkImageMapToColors16.h>
```

Inheritance diagram for vtkImageMapToColors16:



Collaboration diagram for vtkImageMapToColors16:



Public Member Functions

- virtual unsigned long GetMTime ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetLookupTable (vtkScalarsToColors ∗)
- void SetOutputFormatToLuminance ()
- void SetOutputFormatToLuminanceAlpha ()
- void SetOutputFormatToRGB ()
- void SetOutputFormatToRGBA ()
- vtkBooleanMacro (PassAlphaToOutput, int)
- vtkGetMacro (ActiveComponent, int)
- vtkGetMacro (OutputFormat, int)
- vtkGetMacro (PassAlphaToOutput, int)
- vtkGetObjectMacro (LookupTable, vtkScalarsToColors)
- vtkSetMacro (ActiveComponent, int)
- vtkSetMacro (OutputFormat, int)
- vtkSetMacro (PassAlphaToOutput, int)
- vtkTypeMacro (vtkImageMapToColors16, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageMapToColors16 ∗ New ()

Protected Member Functions

- vtkImageMapToColors16 ()
- ∼vtkImageMapToColors16 ()
- virtual int RequestData (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗outputVector)
- virtual int RequestInformation (vtkInformation ∗, vtkInformationVector ∗∗, vtkInformationVector ∗)
- void ThreadedRequestData (vtkInformation ∗request, vtkInformationVector ∗∗inputVector, vtkInformationVector ∗outputVector, vtkImageData ∗∗∗inData, vtkImageData ∗∗outData, int extent[6], int id)

Protected Attributes

- int ActiveComponent
- int DataWasPassed
- vtkScalarsToColors * LookupTable
- int OutputFormat
- int PassAlphaToOutput

10.394.1 Constructor & Destructor Documentation

10.394.1.1 vtkImageMapToColors16()

```
vtkImageMapToColors16::vtkImageMapToColors16 ( )  [protected]
```

10.394.1.2 ~vtkImageMapToColors16()

```
vtkImageMapToColors16::~vtkImageMapToColors16 ( )  [protected]
```

10.394.2 Member Function Documentation

10.394.2.1 GetMTime()

```
virtual unsigned long vtkImageMapToColors16::GetMTime ( )  [virtual]
```

10.394.2.2 New()

```
static vtkImageMapToColors16 * vtkImageMapToColors16::New ( )  [static]
```

10.394.2.3 PrintSelf()

```
void vtkImageMapToColors16::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.394.2.4 RequestData()

```
virtual int vtkImageMapToColors16::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector )  [protected], [virtual]
```

10.394.2.5 RequestInformation()

```
virtual int vtkImageMapToColors16::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector *  )  [protected], [virtual]
```

10.394.2.6 SetLookupTable()

```
virtual void vtkImageMapToColors16::SetLookupTable (
            vtkScalarsToColors *  )  [virtual]
```

10.394.2.7 SetOutputFormatToLuminance()

```
void vtkImageMapToColors16::SetOutputFormatToLuminance ( )  [inline]
```

10.394.2.8 SetOutputFormatToLuminanceAlpha()

```
void vtkImageMapToColors16::SetOutputFormatToLuminanceAlpha ( )  [inline]
```

10.394.2.9 SetOutputFormatToRGB()

```
void vtkImageMapToColors16::SetOutputFormatToRGB ( )  [inline]
```

10.394.2.10 SetOutputFormatToRGBA()

```
void vtkImageMapToColors16::SetOutputFormatToRGBA ( )  [inline]
```

10.394.2.11 ThreadedRequestData()

```
void vtkImageMapToColors16::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int extent[6],
            int id )  [protected]
```

10.394.2.12 vtkBooleanMacro()

```
vtkImageMapToColors16::vtkBooleanMacro (
            PassAlphaToOutput ,
            int  )
```

10.394.2.13 vtkGetMacro() [1/3]

```
vtkImageMapToColors16::vtkGetMacro (
            ActiveComponent ,
            int  )
```

10.394.2.14 vtkGetMacro() [2/3]

```
vtkImageMapToColors16::vtkGetMacro (
            OutputFormat ,
            int  )
```

10.394.2.15 vtkGetMacro() [3/3]

```
vtkImageMapToColors16::vtkGetMacro (
            PassAlphaToOutput ,
            int  )
```

10.394.2.16 vtkGetObjectMacro()

```
vtkImageMapToColors16::vtkGetObjectMacro (
            LookupTable ,
            vtkScalarsToColors  )
```

10.394.2.17 vtkSetMacro() [1/3]

```
vtkImageMapToColors16::vtkSetMacro (
            ActiveComponent ,
            int  )
```

10.394.2.18 vtkSetMacro() [2/3]

```
vtkImageMapToColors16::vtkSetMacro (
            OutputFormat ,
            int  )
```

10.394.2.19 vtkSetMacro() [3/3]

```
vtkImageMapToColors16::vtkSetMacro (
            PassAlphaToOutput ,
            int  )
```

10.394.2.20 vtkTypeMacro()

```
vtkImageMapToColors16::vtkTypeMacro (
            vtkImageMapToColors16 ,
            vtkThreadedImageAlgorithm  )
```

10.394.3 Member Data Documentation

10.394.3.1 ActiveComponent

```
int vtkImageMapToColors16::ActiveComponent  [protected]
```

10.394.3.2 DataWasPassed

```
int vtkImageMapToColors16::DataWasPassed  [protected]
```

10.394.3.3 LookupTable

```
vtkScalarsToColors* vtkImageMapToColors16::LookupTable  [protected]
```

10.394.3.4 OutputFormat

```
int vtkImageMapToColors16::OutputFormat  [protected]
```

10.394.3.5 PassAlphaToOutput

```
int vtkImageMapToColors16::PassAlphaToOutput  [protected]
```

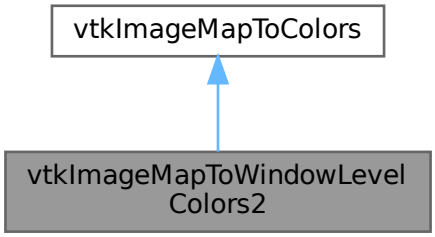
The documentation for this class was generated from the following file:

- vtkImageMapToColors16.h

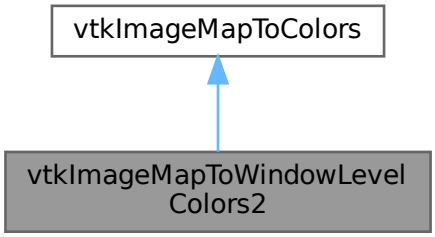
10.395 vtkImageMapToWindowLevelColors2 Class Reference

```
#include <vtkImageMapToWindowLevelColors2.h>
```

Inheritance diagram for vtkImageMapToWindowLevelColors2:



Collaboration diagram for vtkImageMapToWindowLevelColors2:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetMacro (Level, double)
- vtkGetMacro (Window, double)
- vtkSetMacro (Level, double)
- vtkSetMacro (Window, double)
- vtkTypeMacro (vtkImageMapToWindowLevelColors2, vtkImageMapToColors)

Static Public Member Functions

- static vtkImageMapToWindowLevelColors2 * New ()

Protected Member Functions

- vtkImageMapToWindowLevelColors2 ()
- ~vtkImageMapToWindowLevelColors2 ()
- virtual int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- double Level
- double Window

10.395.1 Constructor & Destructor Documentation

10.395.1.1 vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::vtkImageMapToWindowLevelColors2 ( ) [protected]
```

10.395.1.2 ~vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::~vtkImageMapToWindowLevelColors2 ( ) [protected]
```

10.395.2 Member Function Documentation

10.395.2.1 New()

```
static vtkImageMapToWindowLevelColors2 * vtkImageMapToWindowLevelColors2::New ( ) [static]
```

10.395.2.2 PrintSelf()

```
void vtkImageMapToWindowLevelColors2::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.395.2.3 RequestData()

```
virtual int vtkImageMapToWindowLevelColors2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector ) [protected], [virtual]
```

10.395.2.4 RequestInformation()

```
virtual int vtkImageMapToWindowLevelColors2::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector *  )  [protected], [virtual]
```

10.395.2.5 ThreadedRequestData()

```
void vtkImageMapToWindowLevelColors2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int extent[6],
            int id )  [protected]
```

10.395.2.6 vtkGetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Level ,
            double  )
```

10.395.2.7 vtkGetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Window ,
            double  )
```

10.395.2.8 vtkSetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Level ,
            double  )
```

10.395.2.9 vtkSetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Window ,
            double  )
```

10.395.2.10 vtkTypeMacro()

```
vtkImageMapToWindowLevelColors2::vtkTypeMacro (
            vtkImageMapToWindowLevelColors2 ,
            vtkImageMapToColors  )
```

10.395.3 Member Data Documentation

10.395.3.1 Level

```
double vtkImageMapToWindowLevelColors2::Level  [protected]
```

10.395.3.2 Window

```
double vtkImageMapToWindowLevelColors2::Window  [protected]
```

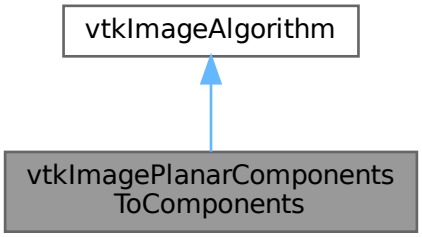
The documentation for this class was generated from the following file:

- vtkImageMapToWindowLevelColors2.h

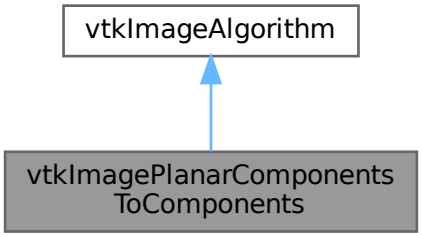
10.396 vtkImagePlanarComponentsToComponents Class Reference

```
#include <vtkImagePlanarComponentsToComponents.h>
```

Inheritance diagram for vtkImagePlanarComponentsToComponents:



Collaboration diagram for vtkImagePlanarComponentsToComponents:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImagePlanarComponentsToComponents, vtkImageAlgorithm)

Static Public Member Functions

- static vtkImagePlanarComponentsToComponents * New ()

Protected Member Functions

- vtkImagePlanarComponentsToComponents ()
- ~vtkImagePlanarComponentsToComponents ()
- virtual int RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)

10.396.1 Constructor & Destructor Documentation

10.396.1.1 vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::vtkImagePlanarComponentsToComponents ( )  [protected]
```

10.396.1.2 ~vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::~vtkImagePlanarComponentsToComponents ( )  [inline], [protected]
```

10.396.2 Member Function Documentation

10.396.2.1 New()

```
static vtkImagePlanarComponentsToComponents * vtkImagePlanarComponentsToComponents::New ( )  [static]
```

10.396.2.2 PrintSelf()

```
void vtkImagePlanarComponentsToComponents::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.396.2.3 RequestData()

```
virtual int vtkImagePlanarComponentsToComponents::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector *  )  [protected], [virtual]
```

10.396.2.4 vtkTypeMacro()

```
vtkImagePlanarComponentsToComponents::vtkTypeMacro (
            vtkImagePlanarComponentsToComponents ,
            vtkImageAlgorithm  )
```

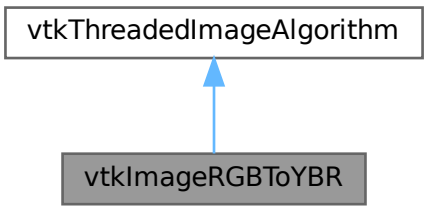
The documentation for this class was generated from the following file:

- vtkImagePlanarComponentsToComponents.h

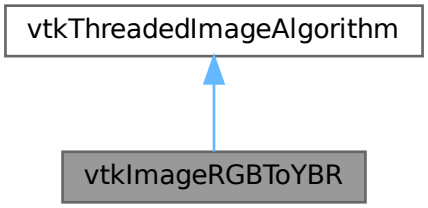
10.397 vtkImageRGBToYBR Class Reference

```
#include <vtkImageRGBToYBR.h>
```

Inheritance diagram for vtkImageRGBToYBR:



Collaboration diagram for vtkImageRGBToYBR:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageRGBToYBR, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageRGBToYBR ∗ New ()

Protected Member Functions

- vtkImageRGBToYBR ()
- ∼vtkImageRGBToYBR ()
- void ThreadedExecute (vtkImageData ∗inData, vtkImageData ∗outData, int ext[6], int id)

10.397.1 Constructor & Destructor Documentation

10.397.1.1 vtkImageRGBToYBR()

```
vtkImageRGBToYBR::vtkImageRGBToYBR ( )  [protected]
```

10.397.1.2 ∼vtkImageRGBToYBR()

```
vtkImageRGBToYBR::∼vtkImageRGBToYBR ( )  [inline], [protected]
```

10.397.2 Member Function Documentation

10.397.2.1 New()

```
static vtkImageRGBToYBR * vtkImageRGBToYBR::New ( )  [static]
```

10.397.2.2 PrintSelf()

```
void vtkImageRGBToYBR::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.397.2.3 ThreadedExecute()

```
void vtkImageRGBToYBR::ThreadedExecute (
            vtkImageData * inData,
            vtkImageData * outData,
            int ext[6],
            int id )  [protected]
```

10.397.2.4 vtkTypeMacro()

```
vtkImageRGBToYBR::vtkTypeMacro (
            vtkImageRGBToYBR ,
            vtkThreadedImageAlgorithm  )
```

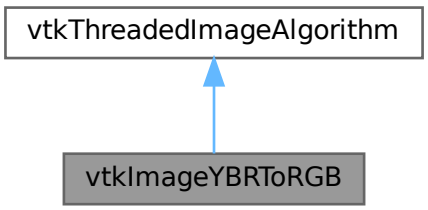
The documentation for this class was generated from the following file:

- vtkImageRGBToYBR.h

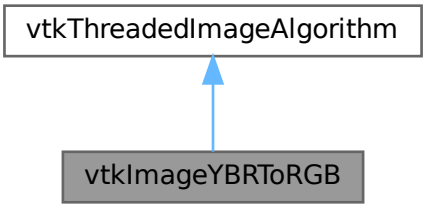
10.398 vtkImageYBRToRGB Class Reference

```
#include <vtkImageYBRToRGB.h>
```

Inheritance diagram for vtkImageYBRToRGB:



Collaboration diagram for vtkImageYBRToRGB:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageYBRToRGB, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageYBRToRGB ∗ New ()

Protected Member Functions

- vtkImageYBRToRGB ()
- ∼vtkImageYBRToRGB ()
- void ThreadedExecute (vtkImageData ∗inData, vtkImageData ∗outData, int ext[6], int id)

10.398.1 Constructor & Destructor Documentation

10.398.1.1 vtkImageYBRToRGB()

```
vtkImageYBRToRGB::vtkImageYBRToRGB ( )  [protected]
```

10.398.1.2 ∼vtkImageYBRToRGB()

```
vtkImageYBRToRGB::∼vtkImageYBRToRGB ( )  [inline], [protected]
```

10.398.2 Member Function Documentation

10.398.2.1 New()

```
static vtkImageYBRToRGB * vtkImageYBRToRGB::New ( )  [static]
```

10.398.2.2 PrintSelf()

```
void vtkImageYBRToRGB::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.398.2.3 ThreadedExecute()

```
void vtkImageYBRToRGB::ThreadedExecute (
            vtkImageData * inData,
            vtkImageData * outData,
            int ext[6],
            int id )  [protected]
```

10.398.2.4 vtkTypeMacro()

```
vtkImageYBRToRGB::vtkTypeMacro (
            vtkImageYBRToRGB ,
            vtkThreadedImageAlgorithm  )
```

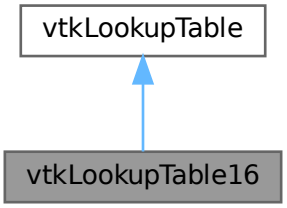
The documentation for this class was generated from the following file:

- vtkImageYBRToRGB.h

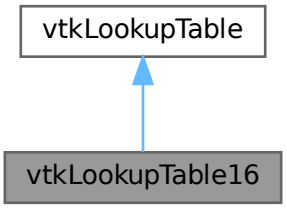
10.399 vtkLookupTable16 Class Reference

```
#include <vtkLookupTable16.h>
```

Inheritance diagram for vtkLookupTable16:



Collaboration diagram for vtkLookupTable16:



Public Member Functions

- void Build ()
- unsigned short ∗ GetPointer (const vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- void SetNumberOfTableValues (vtkIdType number)
- vtkTypeMacro (vtkLookupTable16, vtkLookupTable)
- unsigned char ∗ WritePointer (const vtkIdType id, const int number)

Static Public Member Functions

- static vtkLookupTable16 ∗ New ()

Protected Member Functions

- vtkLookupTable16 (int sze=256, int ext=256)
- ∼vtkLookupTable16 ()
- void MapScalarsThroughTable2 (void ∗input, unsigned char ∗output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)

Protected Attributes

- vtkUnsignedShortArray ∗ Table16

10.399.1 Constructor & Destructor Documentation

10.399.1.1 vtkLookupTable16()

```
vtkLookupTable16::vtkLookupTable16 (
            int sze = 256,
            int ext = 256 )  [protected]
```

10.399.1.2 ~vtkLookupTable16()

```
vtkLookupTable16::~vtkLookupTable16 ( )  [protected]
```

10.399.2 Member Function Documentation

10.399.2.1 Build()

```
void vtkLookupTable16::Build ( )
```

10.399.2.2 GetPointer()

```
unsigned short * vtkLookupTable16::GetPointer (
            const vtkIdType id )  [inline]
```

10.399.2.3 MapScalarsThroughTable2()

```
void vtkLookupTable16::MapScalarsThroughTable2 (
            void * input,
            unsigned char * output,
            int inputDataType,
            int numberOfValues,
            int inputIncrement,
            int outputFormat )  [protected]
```

10.399.2.4 New()

```
static vtkLookupTable16 * vtkLookupTable16::New ( )  [static]
```

10.399.2.5 PrintSelf()

```
void vtkLookupTable16::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.399.2.6 SetNumberOfTableValues()

```
void vtkLookupTable16::SetNumberOfTableValues (
            vtkIdType number )
```

10.399.2.7 vtkTypeMacro()

```
vtkLookupTable16::vtkTypeMacro (
            vtkLookupTable16 ,
            vtkLookupTable  )
```

10.399.2.8 WritePointer()

```
unsigned char * vtkLookupTable16::WritePointer (
            const vtkIdType id,
            const int number )  [inline]
```

References Table16.

10.399.3 Member Data Documentation

10.399.3.1 Table16

```
vtkUnsignedShortArray* vtkLookupTable16::Table16  [protected]
```

Referenced by WritePointer().

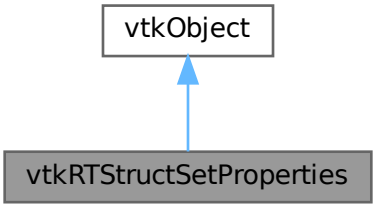
The documentation for this class was generated from the following file:

- vtkLookupTable16.h

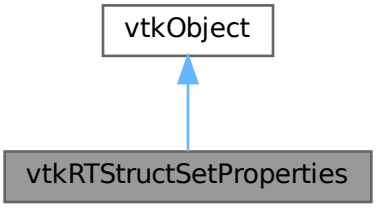
10.400 vtkRTStructSetProperties Class Reference

```
#include <vtkRTStructSetProperties.h>
```

Inheritance diagram for vtkRTStructSetProperties:



Collaboration diagram for vtkRTStructSetProperties:



Public Member Functions

- void AddContourReferencedFrameOfReference (vtkIdType pdnum, const char ∗classuid, const char ∗instanceuid)
- void AddReferencedFrameOfReference (const char ∗classuid, const char ∗instanceuid)
- void AddStructureSetROI (int roinumber, const char ∗reframerefuid, const char ∗roiname, const char ∗ROIGenerationAlgorithm, const char ∗ROIDescription=0)
- void AddStructureSetROIObservation (int refnumber, int observationnumber, const char ∗rtroiinterpretedtype, const char ∗roiinterpreter, const char ∗roiobservationlabel=0)
- virtual void Clear ()
- virtual void DeepCopy (vtkRTStructSetProperties ∗p)
- const char ∗ GetContourReferencedFrameOfReferenceClassUID (vtkIdType pdnum, vtkIdType id)
- const char ∗ GetContourReferencedFrameOfReferenceInstanceUID (vtkIdType pdnum, vtkIdType id)
- vtkIdType GetNumberOfContourReferencedFrameOfReferences ()
- vtkIdType GetNumberOfContourReferencedFrameOfReferences (vtkIdType pdnum)
- vtkIdType GetNumberOfReferencedFrameOfReferences ()
- vtkIdType GetNumberOfStructureSetROIs ()
- const char ∗ GetReferencedFrameOfReferenceClassUID (vtkIdType id)
- const char ∗ GetReferencedFrameOfReferenceInstanceUID (vtkIdType id)
- int GetStructureSetObservationNumber (vtkIdType id)
- const char ∗ GetStructureSetROIDescription (vtkIdType id)
- const char ∗ GetStructureSetROIGenerationAlgorithm (vtkIdType)
- const char ∗ GetStructureSetROIName (vtkIdType)
- int GetStructureSetROINumber (vtkIdType id)
- const char ∗ GetStructureSetROIObservationLabel (vtkIdType id)
- const char ∗ GetStructureSetROIRefFrameRefUID (vtkIdType)
- const char ∗ GetStructureSetRTROIInterpretedType (vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetStringMacro (ReferenceFrameOfReferenceUID)
- vtkGetStringMacro (ReferenceSeriesInstanceUID)
- vtkGetStringMacro (SeriesInstanceUID)
- vtkGetStringMacro (SOPInstanceUID)
- vtkGetStringMacro (StructureSetDate)
- vtkGetStringMacro (StructureSetLabel)
- vtkGetStringMacro (StructureSetName)

- vtkGetStringMacro (StructureSetTime)
- vtkGetStringMacro (StudyInstanceUID)
- vtkSetStringMacro (ReferenceFrameOfReferenceUID)
- vtkSetStringMacro (ReferenceSeriesInstanceUID)
- vtkSetStringMacro (SeriesInstanceUID)
- vtkSetStringMacro (SOPInstanceUID)
- vtkSetStringMacro (StructureSetDate)
- vtkSetStringMacro (StructureSetLabel)
- vtkSetStringMacro (StructureSetName)
- vtkSetStringMacro (StructureSetTime)
- vtkSetStringMacro (StudyInstanceUID)
- vtkTypeMacro (vtkRTStructSetProperties, vtkObject)

Static Public Member Functions

- static vtkRTStructSetProperties ∗ New ()

Protected Member Functions

- vtkRTStructSetProperties ()
- ∼vtkRTStructSetProperties ()

Protected Attributes

- vtkRTStructSetPropertiesInternals ∗ Internals
- char ∗ ReferenceFrameOfReferenceUID
- char ∗ ReferenceSeriesInstanceUID
- char ∗ SeriesInstanceUID
- char ∗ SOPInstanceUID
- char ∗ StructureSetDate
- char ∗ StructureSetLabel
- char ∗ StructureSetName
- char ∗ StructureSetTime
- char ∗ StudyInstanceUID

10.400.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx.

10.400.2 Constructor & Destructor Documentation

10.400.2.1 vtkRTStructSetProperties()

```
vtkRTStructSetProperties::vtkRTStructSetProperties ( ) [protected]
```

10.400.2.2 ~vtkRTStructSetProperties()

```
vtkRTStructSetProperties::~vtkRTStructSetProperties ( )  [protected]
```

10.400.3 Member Function Documentation

10.400.3.1 AddContourReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddContourReferencedFrameOfReference (
            vtkIdType pdnum,
            const char * classuid,
            const char * instanceuid )
```

10.400.3.2 AddReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddReferencedFrameOfReference (
            const char * classuid,
            const char * instanceuid )
```

10.400.3.3 AddStructureSetROI()

```
void vtkRTStructSetProperties::AddStructureSetROI (
            int roinumber,
            const char * reframerefuid,
            const char * roiname,
            const char * ROIGenerationAlgorithm,
            const char * ROIDescription = 0 )
```

10.400.3.4 AddStructureSetROIObservation()

```
void vtkRTStructSetProperties::AddStructureSetROIObservation (
            int refnumber,
            int observationnumber,
            const char * rtroiinterpretedtype,
            const char * roiinterpreter,
            const char * roiobservationlabel = 0 )
```

10.400.3.5 Clear()

```
virtual void vtkRTStructSetProperties::Clear ( )  [virtual]
```

10.400.3.6 DeepCopy()

```
virtual void vtkRTStructSetProperties::DeepCopy (
            vtkRTStructSetProperties * p )  [virtual]
```

10.400.3.7 GetContourReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceClassUID (
            vtkIdType pdnum,
            vtkIdType id )
```

10.400.3.8 GetContourReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceInstanceUID (
            vtkIdType pdnum,
            vtkIdType id )
```

10.400.3.9 GetNumberOfContourReferencedFrameOfReferences() [1/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences ( )
```

10.400.3.10 GetNumberOfContourReferencedFrameOfReferences() [2/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences (
            vtkIdType pdnum )
```

10.400.3.11 GetNumberOfReferencedFrameOfReferences()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfReferencedFrameOfReferences ( )
```

10.400.3.12 GetNumberOfStructureSetROIs()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfStructureSetROIs ( )
```

10.400.3.13 GetReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceClassUID (
            vtkIdType id )
```

10.400.3.14 GetReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceInstanceUID (
            vtkIdType id )
```

10.400.3.15 GetStructureSetObservationNumber()

```
int vtkRTStructSetProperties::GetStructureSetObservationNumber (
            vtkIdType id )
```

10.400.3.16 GetStructureSetROIDescription()

```
const char * vtkRTStructSetProperties::GetStructureSetROIDescription (
            vtkIdType id )
```

10.400.3.17 GetStructureSetROIGenerationAlgorithm()

```
const char * vtkRTStructSetProperties::GetStructureSetROIGenerationAlgorithm (
            vtkIdType  )
```

10.400.3.18 GetStructureSetROIName()

```
const char * vtkRTStructSetProperties::GetStructureSetROIName (
            vtkIdType  )
```

10.400.3.19 GetStructureSetROINumber()

```
int vtkRTStructSetProperties::GetStructureSetROINumber (
            vtkIdType id )
```

10.400.3.20 GetStructureSetROIObservationLabel()

```
const char * vtkRTStructSetProperties::GetStructureSetROIObservationLabel (
            vtkIdType id )
```

10.400.3.21 GetStructureSetROIRefFrameRefUID()

```
const char * vtkRTStructSetProperties::GetStructureSetROIRefFrameRefUID (
            vtkIdType  )
```

10.400.3.22 GetStructureSetRTROIInterpretedType()

```
const char * vtkRTStructSetProperties::GetStructureSetRTROIInterpretedType (
            vtkIdType id )
```

10.400.3.23 New()

```
static vtkRTStructSetProperties * vtkRTStructSetProperties::New ( )  [static]
```

Examples

GenerateRTSTRUCT.cxx.

10.400.3.24 PrintSelf()

```
void vtkRTStructSetProperties::PrintSelf (
            ostream & os,
            vtkIndent indent )
```

10.400.3.25 vtkGetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceFrameOfReferenceUID  )
```

10.400.3.26 vtkGetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceSeriesInstanceUID  )
```

10.400.3.27 vtkGetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SeriesInstanceUID  )
```

10.400.3.28 vtkGetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SOPInstanceUID  )
```

10.400.3.29 vtkGetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetDate  )
```

10.400.3.30 vtkGetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetLabel  )
```

10.400.3.31 vtkGetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetName  )
```

10.400.3.32 vtkGetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetTime  )
```

10.400.3.33 vtkGetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StudyInstanceUID  )
```

10.400.3.34 vtkSetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceFrameOfReferenceUID  )
```

10.400.3.35 vtkSetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceSeriesInstanceUID  )
```

10.400.3.36 vtkSetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SeriesInstanceUID  )
```

10.400.3.37 vtkSetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SOPInstanceUID  )
```

10.400.3.38 vtkSetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetDate  )
```

10.400.3.39 vtkSetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetLabel  )
```

10.400.3.40 vtkSetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetName  )
```

10.400.3.41 vtkSetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetTime  )
```

10.400.3.42 vtkSetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StudyInstanceUID  )
```

10.400.3.43 vtkTypeMacro()

```
vtkRTStructSetProperties::vtkTypeMacro (
            vtkRTStructSetProperties ,
            vtkObject  )
```

10.400.4 Member Data Documentation

10.400.4.1 Internals

```
vtkRTStructSetPropertiesInternals* vtkRTStructSetProperties::Internals  [protected]
```

10.400.4.2 ReferenceFrameOfReferenceUID

```
char* vtkRTStructSetProperties::ReferenceFrameOfReferenceUID [protected]
```

10.400.4.3 ReferenceSeriesInstanceUID

```
char* vtkRTStructSetProperties::ReferenceSeriesInstanceUID [protected]
```

10.400.4.4 SeriesInstanceUID

```
char* vtkRTStructSetProperties::SeriesInstanceUID [protected]
```

10.400.4.5 SOPInstanceUID

```
char* vtkRTStructSetProperties::SOPInstanceUID [protected]
```

10.400.4.6 StructureSetDate

```
char* vtkRTStructSetProperties::StructureSetDate [protected]
```

10.400.4.7 StructureSetLabel

```
char* vtkRTStructSetProperties::StructureSetLabel [protected]
```

10.400.4.8 StructureSetName

```
char* vtkRTStructSetProperties::StructureSetName [protected]
```

10.400.4.9 StructureSetTime

```
char* vtkRTStructSetProperties::StructureSetTime [protected]
```

10.400.4.10 StudyInstanceUID

```
char* vtkRTStructSetProperties::StudyInstanceUID [protected]
```

The documentation for this class was generated from the following file:

- vtkRTStructSetProperties.h

10.401 gdcm::Waveform Class Reference

Waveform class.

```
#include <gdcmWaveform.h>
```

Public Member Functions

- Waveform ()=default

10.401.1 Detailed Description

Waveform class.

10.401.2 Constructor & Destructor Documentation

10.401.2.1 Waveform()

```
gdcm::Waveform::Waveform ( ) [default]
```

The documentation for this class was generated from the following file:

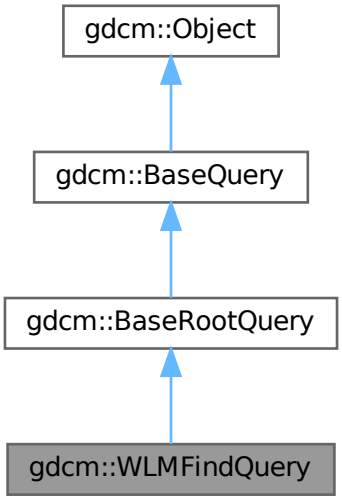
- gdcmWaveform.h

10.402 gdcm::WLMFindQuery Class Reference

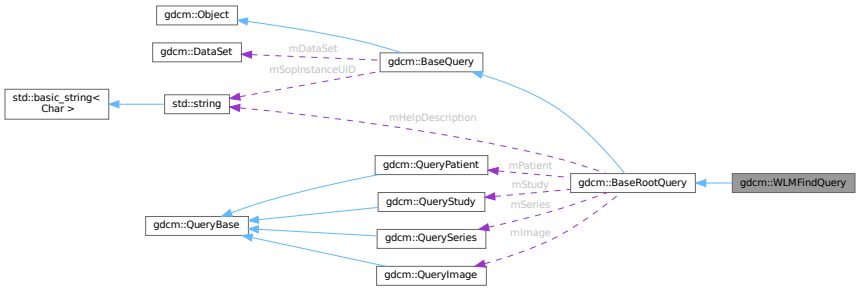
PatientRootQuery.

```
#include <gdcmWLMFindQuery.h>
```

Inheritance diagram for gdcm::WLMFindQuery:



Collaboration diagram for gdcm::WLMFindQuery:



Public Member Functions

- WLMFindQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- DataSet GetValidDataSet () const

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase ∗ Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char ∗str)
- static const char ∗ GetQueryLevelString (EQueryLevel ql)

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

10.402.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

10.402.2 Constructor & Destructor Documentation

10.402.2.1 WLMFindQuery()

```
gdcm::WLMFindQuery::WLMFindQuery ( )
```

10.402.3 Member Function Documentation

10.402.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::WLMFindQuery::GetAbstractSyntaxUID ( ) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

10.402.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::WLMFindQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

10.402.3.3 GetValidDataSet()

```
DataSet gdcm::WLMFindQuery::GetValidDataSet ( ) const  [protected]
```

10.402.3.4 InitializeDataSet()

```
void gdcm::WLMFindQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel )  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

10.402.3.5 ValidateQuery()

```
bool gdcm::WLMFindQuery::ValidateQuery (
            bool inStrict = true ) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

10.402.4 Friends And Related Symbol Documentation

10.402.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

The documentation for this class was generated from the following file:

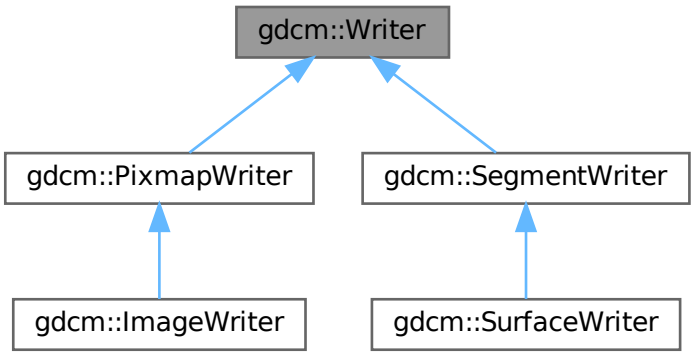
- gdcmWLMFindQuery.h

10.403 gdcm::Writer Class Reference

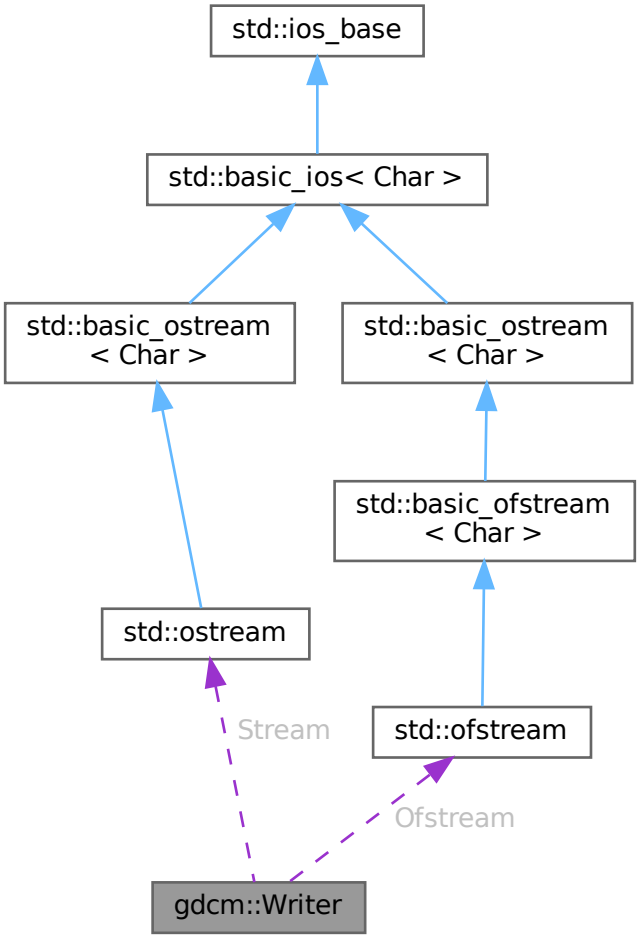
Writer ala DOM (Document Object Model)

```
#include <gdcmWriter.h>
```

Inheritance diagram for gdcm::Writer:



Collaboration diagram for gdcm::Writer:



Public Member Functions

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default)
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header)
- void SetFileName (const char *filename_native)

Set the filename of DICOM file to write:

- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

- virtual bool Write ()

  Main function to tell the writer to write.

Protected Member Functions

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- std::ofstream * Ofstream
- std::ostream * Stream

Friends

- class StreamImageWriter

10.403.1 Detailed Description

Writer ala DOM (Document Object Model)

This class is a non-validating writer, it will only performs well- formedness check only.

Detailed description here To avoid GDCM being yet another broken DICOM lib we try to be user level and avoid writing illegal stuff (odd length, non-zero value for Item start/end length ...) Therefore you cannot (well unless you are really smart) write DICOM with even length tag. All the checks are consider basics:

- Correct Meta Information Header (see gdcm::FileMetaInformation)
- Zero value for Item Length (0xfffe, 0xe00d/0xe0dd)
- Even length for any elements
- Alphabetical order for elements (guaranteed by design of internals)
- 32bits VR will be rewritten with 00

Warning

gdcm::Writer cannot write a DataSet if no SOP Instance UID (0008,0018) is found, unless a DICOMDIR is being written out

See also

Reader DataSet File

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.403.2 Constructor & Destructor Documentation

10.403.2.1 Writer()

```
gdcm::Writer::Writer ( )
```

10.403.2.2 ~Writer()

```
virtual gdcm::Writer::~Writer ( ) [virtual]
```

10.403.3 Member Function Documentation

10.403.3.1 CheckFileMetaInformationOff()

```
void gdcm::Writer::CheckFileMetaInformationOff ( ) [inline]
```

Examples

CreateFakeRTDOSE.cxx, FixBrokenJ2K.cxx, and HelloWorld.cxx.

10.403.3.2 CheckFileMetaInformationOn()

```
void gdcm::Writer::CheckFileMetaInformationOn ( ) [inline]
```

10.403.3.3 GetCheckFileMetaInformation()

```
bool gdcm::Writer::GetCheckFileMetaInformation ( ) const [inline], [protected]
```

10.403.3.4 GetFile()

```
File & gdcm::Writer::GetFile ( ) [inline]
```

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.403.3.5 GetStreamPtr()

```
std::ostream * gdcm::Writer::GetStreamPtr ( ) const [inline], [protected]
```

10.403.3.6 SetCheckFileMetaInformation()

```
void gdcm::Writer::SetCheckFileMetaInformation (
            bool b )  [inline]
```

Undocumented function, do not use (= leave default)

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and PatchFile.cxx.

10.403.3.7 SetFile()

```
void gdcm::Writer::SetFile (
            const File & f )  [inline]
```

Set/Get the DICOM file (DataSet + Header)

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, NewSequence.cs, PatchFile.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

10.403.3.8 SetFileName()

```
void gdcm::Writer::SetFileName (
            const char * filename_native )
```

Set the filename of DICOM file to write:

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

10.403.3.9 SetStream()

```
void gdcm::Writer::SetStream (
            std::ostream & output_stream )  [inline]
```

Set user ostream buffer.

10.403.3.10 SetWriteDataSetOnly()

```
void gdcm::Writer::SetWriteDataSetOnly (
            bool b )  [inline], [protected]
```

10.403.3.11 Write()

```
virtual bool gdcm::Writer::Write ( )  [virtual]
```

Main function to tell the writer to write.

Reimplemented in gdcm::ImageWriter, gdcm::PixmapWriter, gdcm::SegmentWriter, and gdcm::SurfaceWriter.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, pmsct_rgb1.cxx, and rle2img.cxx.

10.403.4 Friends And Related Symbol Documentation

10.403.4.1 StreamImageWriter

```
friend class StreamImageWriter  [friend]
```

10.403.5 Member Data Documentation

10.403.5.1 Ofstream

```
std::ofstream* gdcm::Writer::Ofstream  [protected]
```

10.403.5.2 Stream

```
std::ostream* gdcm::Writer::Stream [protected]
```

The documentation for this class was generated from the following file:

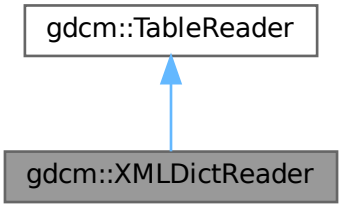
- gdcmWriter.h

10.404 gdcm::XMLDictReader Class Reference

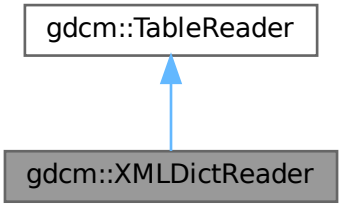
Class for representing a XMLDictReader.

```
#include <gdcmXMLDictReader.h>
```

Inheritance diagram for gdcm::XMLDictReader:



Collaboration diagram for gdcm::XMLDictReader:



Public Member Functions

- XMLDictReader ()
- ~XMLDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const Dict & GetDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

10.404.1 Detailed Description

Class for representing a XMLDictReader.

Note

bla Will read the DICOMV3.xml file

10.404.2 Constructor & Destructor Documentation

10.404.2.1 XMLDictReader()

```
gdcm::XMLDictReader::XMLDictReader ( )
```

10.404.2.2 ~XMLDictReader()

```
gdcm::XMLDictReader::~XMLDictReader ( ) [inline]
```

10.404.3 Member Function Documentation

10.404.3.1 CharacterDataHandler()

```
void gdcm::XMLDictReader::CharacterDataHandler (
            const char * data,
            int length ) [virtual]
```

Reimplemented from gdcm::TableReader.

10.404.3.2 EndElement()

```
void gdcm::XMLDictReader::EndElement (
            const char * name ) [virtual]
```

Reimplemented from gdcm::TableReader.

10.404.3.3 GetDict()

```
const Dict & gdcm::XMLDictReader::GetDict ( ) [inline]
```

10.404.3.4 HandleDescription()

```
void gdcm::XMLDictReader::HandleDescription (
            const char ** atts ) [protected]
```

10.404.3.5 HandleEntry()

```
void gdcm::XMLDictReader::HandleEntry (
            const char ** atts ) [protected]
```

10.404.3.6 StartElement()

```
void gdcm::XMLDictReader::StartElement (
            const char * name,
            const char ** atts ) [virtual]
```

Reimplemented from gdcm::TableReader.

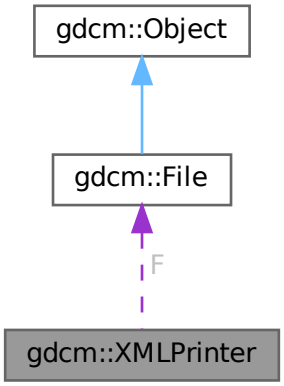
The documentation for this class was generated from the following file:

- gdcmXMLDictReader.h

10.405 gdcm::XMLPrinter Class Reference

```
#include <gdcmXMLPrinter.h>
```

Collaboration diagram for gdcm::XMLPrinter:



Public Types

- enum PrintStyles {
  OnlyUUID = 0 ,
  LOADBULKDATA = 1 }

Public Member Functions

- XMLPrinter ()
- virtual ~XMLPrinter ()
- PrintStyles GetPrintStyle () const
- virtual void HandleBulkData (const char *uuid, const TransferSyntax &ts, const char *bulkdata, size_t bulklen)
- void Print (std::ostream &os)
- void PrintDataSet (const DataSet &ds, const TransferSyntax &ts, std::ostream &os)
- void SetFile (File const &f)
- void SetStyle (PrintStyles ps)

Protected Member Functions

- VR PrintDataElement (std::ostream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, const TransferSyntax &ts)
- void PrintSQ (const SequenceOfItems *sqi, const TransferSyntax &ts, std::ostream &os)

Protected Attributes

- const File * F
- PrintStyles PrintStyle

10.405.1 Member Enumeration Documentation

10.405.1.1 PrintStyles

```
enum gdcm::XMLPrinter::PrintStyles
```

Enumerator

OnlyUUID	
LOADBULKDATA	

10.405.2 Constructor & Destructor Documentation

10.405.2.1 XMLPrinter()

```
gdcm::XMLPrinter::XMLPrinter ( )
```

10.405.2.2 ~XMLPrinter()

```
virtual gdcm::XMLPrinter::~XMLPrinter ( )  [virtual]
```

10.405.3 Member Function Documentation

10.405.3.1 GetPrintStyle()

```
PrintStyles gdcm::XMLPrinter::GetPrintStyle ( ) const  [inline]
```

10.405.3.2 HandleBulkData()

```
virtual void gdcm::XMLPrinter::HandleBulkData (
            const char * uuid,
            const TransferSyntax & ts,
            const char * bulkdata,
            size_t bulklen )  [virtual]
```

Virtual function mechanism to allow application programmer to override the default mechanism for BulkData handling. By default GDCM will simply discard the BulkData and only write the UUID

10.405.3.3 Print()

```
void gdcm::XMLPrinter::Print (
            std::ostream & os )
```

10.405.3.4 PrintDataElement()

```
VR gdcm::XMLPrinter::PrintDataElement (
            std::ostream & os,
            const Dicts & dicts,
            const DataSet & ds,
            const DataElement & de,
            const TransferSyntax & ts )  [protected]
```

10.405.3.5 PrintDataSet()

```
void gdcm::XMLPrinter::PrintDataSet (
            const DataSet & ds,
            const TransferSyntax & ts,
            std::ostream & os )
```

10.405.3.6 PrintSQ()

```
void gdcm::XMLPrinter::PrintSQ (
            const SequenceOfItems * sqi,
            const TransferSyntax & ts,
            std::ostream & os )  [protected]
```

10.405.3.7 SetFile()

```
void gdcm::XMLPrinter::SetFile (
            File const & f )  [inline]
```

10.405.3.8 SetStyle()

```
void gdcm::XMLPrinter::SetStyle (
            PrintStyles ps )  [inline]
```

10.405.4 Member Data Documentation

10.405.4.1 F

```
const File* gdcm::XMLPrinter::F  [protected]
```

10.405.4.2 PrintStyle

```
PrintStyles gdcm::XMLPrinter::PrintStyle [protected]
```

The documentation for this class was generated from the following file:

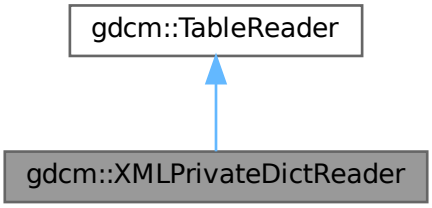
- gdcmXMLPrinter.h

10.406 gdcm::XMLPrivateDictReader Class Reference

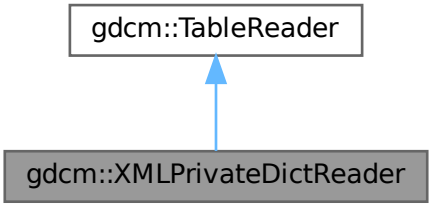
Class for representing a XMLPrivateDictReader.

```
#include <gdcmXMLPrivateDictReader.h>
```

Inheritance diagram for gdcm::XMLPrivateDictReader:



Collaboration diagram for gdcm::XMLPrivateDictReader:



Public Member Functions

- XMLPrivateDictReader ()
- ~XMLPrivateDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const PrivateDict & GetPrivateDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

10.406.1 Detailed Description

Class for representing a XMLPrivateDictReader.

Note

bla Will read the Private.xml file

10.406.2 Constructor & Destructor Documentation

10.406.2.1 XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::XMLPrivateDictReader ( )
```

10.406.2.2 ~XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::~XMLPrivateDictReader ( ) [inline]
```

10.406.3 Member Function Documentation

10.406.3.1 CharacterDataHandler()

```
void gdcm::XMLPrivateDictReader::CharacterDataHandler (
            const char * data,
            int length ) [virtual]
```

Reimplemented from gdcm::TableReader.

10.406.3.2 EndElement()

```
void gdcm::XMLPrivateDictReader::EndElement (
            const char * name ) [virtual]
```

Reimplemented from gdcm::TableReader.

10.406.3.3 GetPrivateDict()

```
const PrivateDict & gdcm::XMLPrivateDictReader::GetPrivateDict ( ) [inline]
```

10.406.3.4 HandleDescription()

```
void gdcm::XMLPrivateDictReader::HandleDescription (
            const char ** atts ) [protected]
```

10.406.3.5 HandleEntry()

```
void gdcm::XMLPrivateDictReader::HandleEntry (
            const char ** atts ) [protected]
```

10.406.3.6 StartElement()

```
void gdcm::XMLPrivateDictReader::StartElement (
            const char * name,
            const char ** atts ) [virtual]
```

Reimplemented from gdcm::TableReader.

The documentation for this class was generated from the following file:

- gdcmXMLPrivateDictReader.h

Chapter 11

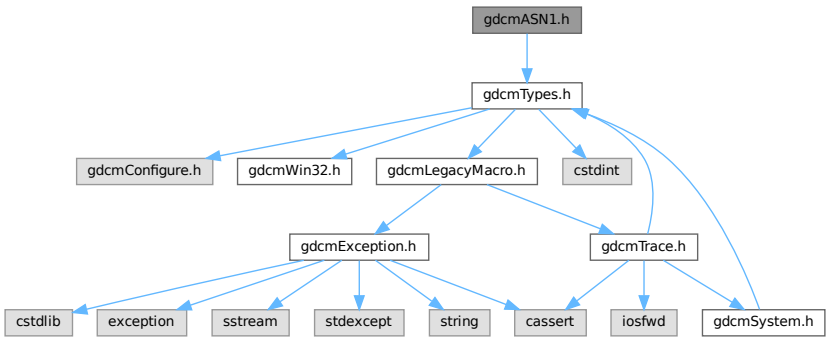
File Documentation

11.1 README.txt File Reference

11.2 TestsList.txt File Reference

11.3 gdcmASN1.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmASN1.h:



Classes

- class gdcm::ASN1

  Class for ASN1.

Namespaces

- namespace gdcm

11.4 gdcmASN1.h

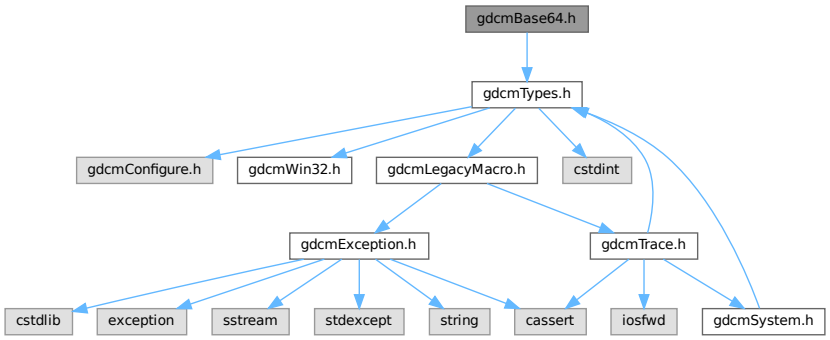
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMASN1_H
#define GDCMASN1_H

#include "gdcmTypes.h"


namespace gdcm
{
//-----------------------------------------------------------------------------
class ASN1Internals;
class GDCM_EXPORT ASN1
{
public :
  ASN1();
  ~ASN1();

  static bool ParseDumpFile(const char *filename);

  static bool ParseDump(const char *array, size_t length);

  ASN1(const ASN1&) = delete;
  void operator=(const ASN1&) = delete;
protected:
  int TestPBKDF2();

private:
  ASN1Internals *Internals;
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMASN1_H
```

11.5 gdcmBase64.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmBase64.h:



Classes

- class gdcm::Base64

  Class for Base64.

Namespaces

- namespace gdcm

11.6 gdcmBase64.h

Go to the documentation of this file.

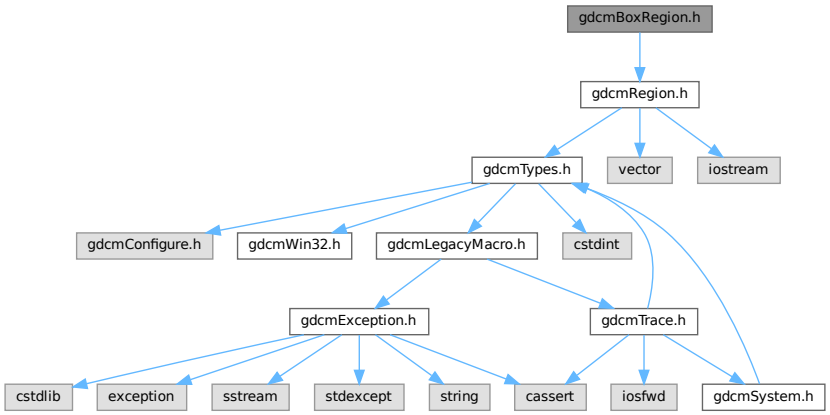
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBASE64_H
00015 #define GDCMBASE64_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT Base64
00026 {
00027 public:
```

```
  static size_t GetEncodeLength(const char *src, size_t srclen );

  static size_t Encode( char *dst, size_t dlen, const char *src, size_t slen );

  static size_t GetDecodeLength( const char *src, size_t len );

  static size_t Decode( char *dst, size_t dlen, const char *src, size_t slen );

  Base64(const Base64&) = delete;
  void operator=(const Base64&) = delete;
};

} // end namespace gdcm

#endif // GDCMBASE64_H
```

11.7 gdcmBoxRegion.h File Reference

`#include "gdcmRegion.h"`

Include dependency graph for gdcmBoxRegion.h:



Classes

- class gdcm::BoxRegion

  Class for manipulation box region.

Namespaces

- namespace gdcm

11.8 gdcmBoxRegion.h

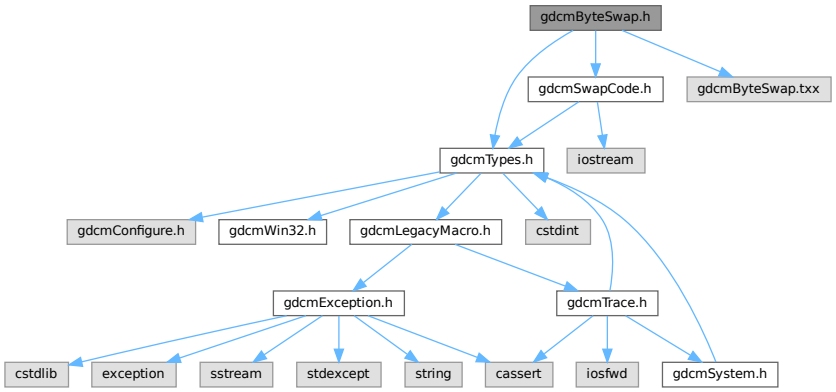
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBOXREGION_H
#define GDCMBOXREGION_H

#include "gdcmRegion.h"

namespace gdcm
{
class BoxRegionInternals;
//-----------------------------------------------------------------------------
class GDCM_EXPORT BoxRegion : public Region
{
public :
  BoxRegion();
  ~BoxRegion() override;

  void SetDomain(unsigned int xmin, unsigned int xmax,
    unsigned int ymin, unsigned int ymax,
    unsigned int zmin, unsigned int zmax);

  unsigned int GetXMin() const;
  unsigned int GetXMax() const;
  unsigned int GetYMin() const;
  unsigned int GetYMax() const;
  unsigned int GetZMin() const;
  unsigned int GetZMax() const;

  // Satisfy pure virtual parent class
  Region *Clone() const override;
  bool Empty() const override;
  bool IsValid() const override;
  size_t Area() const override;
  BoxRegion ComputeBoundingBox() override;

  void Print(std::ostream &os = std::cout) const override;

  static BoxRegion BoundingBox(BoxRegion const & b1, BoxRegion const & b2 );

  BoxRegion(const BoxRegion&);
  void operator=(const BoxRegion&);
private:
  BoxRegionInternals *Internals;
};

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMREGION_H
```

11.9 gdcmByteSwap.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
```

`#include "gdcmByteSwap.txx"`
Include dependency graph for gdcmByteSwap.h:



Classes

- class gdcm::ByteSwap< T >

  ByteSwap.

Namespaces

- namespace gdcm

11.10 gdcmByteSwap.h

Go to the documentation of this file.

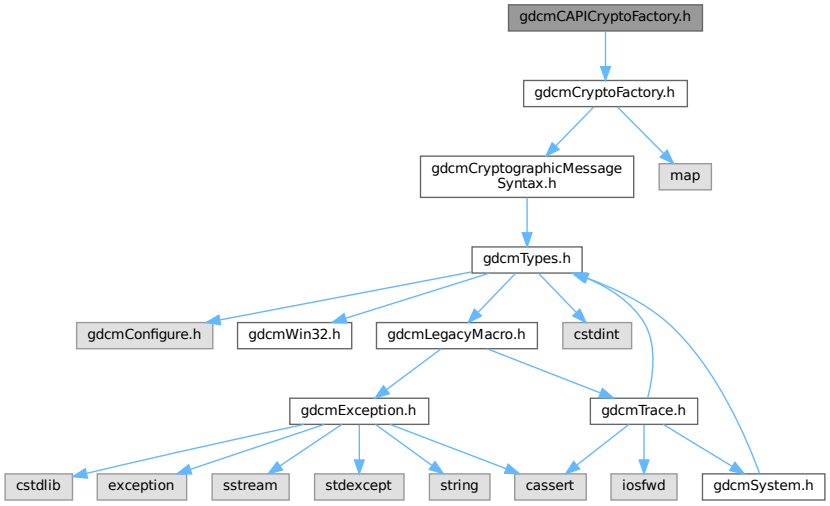
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBYTESWAP_H
#define GDCMBYTESWAP_H

#include "gdcmTypes.h"
#include "gdcmSwapCode.h"

namespace gdcm
{

template<class T>
class ByteSwap
{
```

```
public:
  static bool SystemIsBigEndian ();
  static bool SystemIsLittleEndian ();

  static void Swap(T &p);
  static void SwapFromSwapCodeIntoSystem(T &p, SwapCode const &sc);
  static void SwapRange(T *p, unsigned int num);
  static void SwapRangeFromSwapCodeIntoSystem(T *p, SwapCode const &sc,
    std::streamoff num);

protected:
//  ByteSwap() {}
//  ~ByteSwap() {}

private:

};

} // end namespace gdcm

#include "gdcmByteSwap.txx"

#endif //GDCMBYTESWAP_H
```

11.11 gdcmCAPICryptoFactory.h File Reference

`#include "gdcmCryptoFactory.h"`

Include dependency graph for gdcmCAPICryptoFactory.h:



Classes

- class gdcm::CAPICryptoFactory

Namespaces

- namespace gdcm

11.12 gdcmCAPICryptoFactory.h

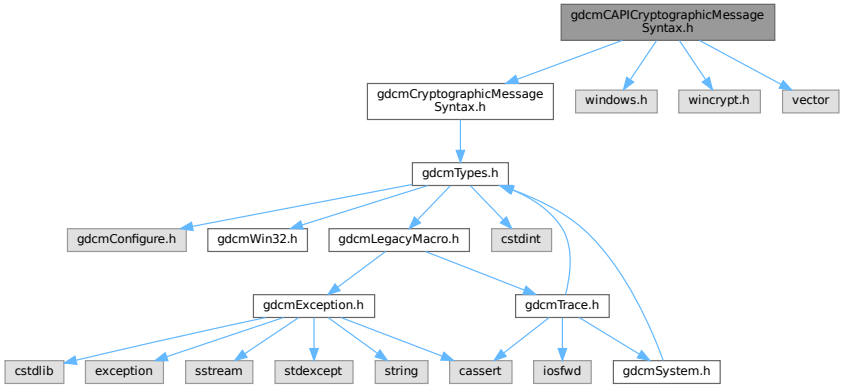
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCAPICRYPTOFACTORY_H
#define GDCMCAPICRYPTOFACTORY_H

#include "gdcmCryptoFactory.h"

namespace gdcm
{

class GDCM_EXPORT CAPICryptoFactory : public CryptoFactory
{
public:
  CAPICryptoFactory(CryptoLib id);
  CryptographicMessageSyntax* CreateCMSProvider();

private:
  CAPICryptoFactory() {}
};

} // end namespace gdcm

#endif //GDCMCAPICRYPTOFACTORY_H
```

11.13 gdcmCAPICryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <windows.h>
#include <wincrypt.h>
#include <vector>
```

Include dependency graph for gdcmCAPICryptographicMessageSyntax.h:



Classes

- class gdcm::CAPICryptographicMessageSyntax

Namespaces

- namespace gdcm

11.14 gdcmCAPICryptographicMessageSyntax.h

Go to the documentation of this file.

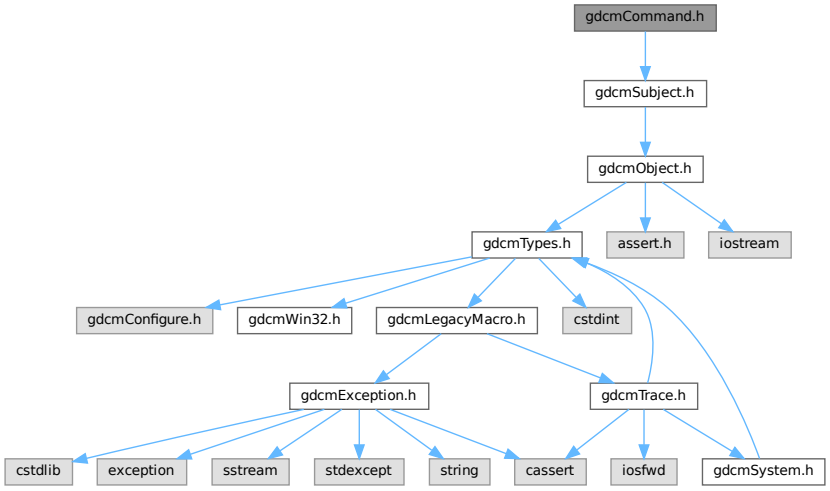
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
#define GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H

#include "gdcmCryptographicMessageSyntax.h"
#include <windows.h>
#include <wincrypt.h>
#include <vector>

namespace gdcm
{

class GDCM_EXPORT CAPICryptographicMessageSyntax : public CryptographicMessageSyntax
{
public:
  CAPICryptographicMessageSyntax();
  ~CAPICryptographicMessageSyntax();

  // X.509
  bool ParseCertificateFile( const char *filename );
  bool ParseKeyFile( const char *filename );

  // PBE
  bool SetPassword(const char * pass, size_t passLen);

  void SetCipherType(CipherTypes type);

  CipherTypes GetCipherType() const;

  bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
  bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;

  bool GetInitialized() const
  {
    return initialized;
  }

private:
  bool Initialize();
  static ALG_ID GetAlgIdByObjId(const char * pszObjId);
  const char *GetCipherObjId() const;
  static void ReverseBytes(unsigned char* data, DWORD len);
  static bool LoadFile(const char * filename, unsigned char* & buffer, DWORD & bufLen);

private:
  bool initialized;
  HCRYPTPROV hProv;
```

```
  std::vector<PCCERT_CONTEXT> certifList;
  HCRYPTKEY hRsaPrivK;
  CipherTypes cipherType;
};

} // end namespace gdcm

#endif //GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
```

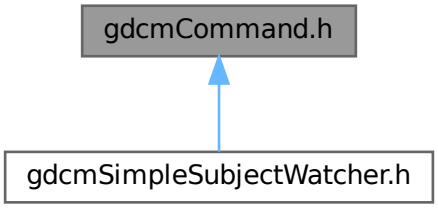
11.15 gdcmCommand.h File Reference

`#include "gdcmSubject.h"`

Include dependency graph for gdcmCommand.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Command

  Command superclass for callback/observer methods.
- class gdcm::MemberCommand< T >

  Command subclass that calls a pointer to a member function.
- class gdcm::SimpleMemberCommand< T >

  Command subclass that calls a pointer to a member function.

Namespaces

- namespace gdcm

11.16 gdcmCommand.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCOMMAND_H
00015 #define GDCMCOMMAND_H
00016
00017 #include "gdcmSubject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022
00027 class GDCM_EXPORT Command : public Subject
00028 {
00029 public :
00030   Command(const Command&) = delete;
00031   void operator=(const Command&) = delete;
00032
00034   virtual void Execute(Subject *caller, const Event & event ) = 0;
00035
00040   virtual void Execute(const Subject *caller, const Event & event ) = 0;
00041
00042 protected:
00043   Command();
00044   ~Command() override;
00045 };
00046
00054 template <class T>
00055 class MemberCommand : public Command
00056 {
00057 public:
00058
00060   typedef  void (T::*TMemberFunctionPointer)(Subject*, const Event &);
00061   typedef  void (T::*TConstMemberFunctionPointer)(const Subject*,
00062                                                   const Event &);
00063
00065   typedef MemberCommand       Self;
00066   //typedef SmartPointer<Self>  Pointer;
00067
00068   MemberCommand(const Self&) = delete;
```

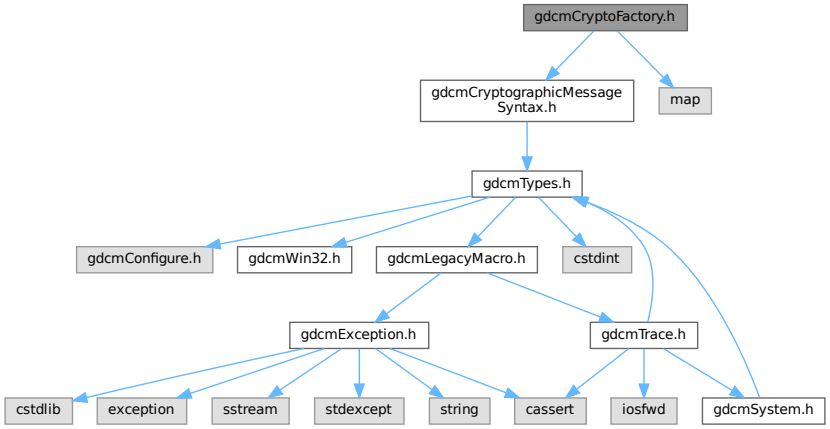
```
  void operator=(const Self&) = delete;

  static SmartPointer<MemberCommand> New()
    {
    return new MemberCommand;
    }

  //gdcmTypeMacro(MemberCommand,Command);

  void SetCallbackFunction(T* object,
                           TMemberFunctionPointer memberFunction)
    {
    m_This = object;
    m_MemberFunction = memberFunction;
    }
  void SetCallbackFunction(T* object,
                           TConstMemberFunctionPointer memberFunction)
    {
    m_This = object;
    m_ConstMemberFunction = memberFunction;
    }

  void Execute(Subject *caller, const Event & event ) override
    {
    if( m_MemberFunction )
      {
      ((*m_This).*(m_MemberFunction))(caller, event);
      }
    }

  void Execute( const Subject *caller, const Event & event ) override
    {
    if( m_ConstMemberFunction )
      {
      ((*m_This).*(m_ConstMemberFunction))(caller, event);
      }
    }

protected:

  T* m_This;
  TMemberFunctionPointer m_MemberFunction;
  TConstMemberFunctionPointer m_ConstMemberFunction;
  MemberCommand():m_MemberFunction(nullptr),m_ConstMemberFunction(nullptr) {}
  ~MemberCommand() override= default;

};

template <typename T>
class SimpleMemberCommand : public Command
{
public:

  typedef  void (T::*TMemberFunctionPointer)();

  typedef SimpleMemberCommand   Self;
  //typedef SmartPointer<Self>    Pointer;

  SimpleMemberCommand(const Self&) = delete;
  void operator=(const Self&) = delete;

  //gdcmTypeMacro(SimpleMemberCommand,Command);

  static SmartPointer<SimpleMemberCommand> New()
    {
    return new SimpleMemberCommand;
    }

  void SetCallbackFunction(T* object,
                           TMemberFunctionPointer memberFunction)
    {
    m_This = object;
    m_MemberFunction = memberFunction;
    }

  void Execute(Subject *,const Event & ) override
    {
    if( m_MemberFunction )
      {
      ((*m_This).*(m_MemberFunction))();
      }
```

```
    }
  void Execute(const Subject *,const Event & ) override
    {
    if( m_MemberFunction )
      {
      ((*m_This).*(m_MemberFunction))();
      }
    }

protected:
  T* m_This;
  TMemberFunctionPointer m_MemberFunction;
  SimpleMemberCommand():m_This(nullptr),m_MemberFunction(nullptr) {}
  ~SimpleMemberCommand() override = default;
};

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMCOMMAND_H
```

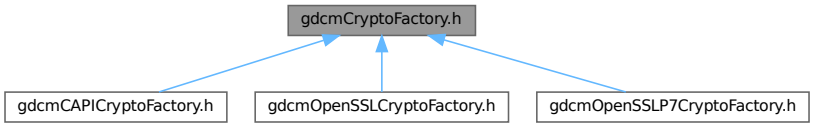
11.17 gdcmCryptoFactory.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <map>
```

Include dependency graph for gdcmCryptoFactory.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptoFactory

  Class to do handle the crypto factory.

Namespaces

- namespace gdcm

11.18 gdcmCryptoFactory.h

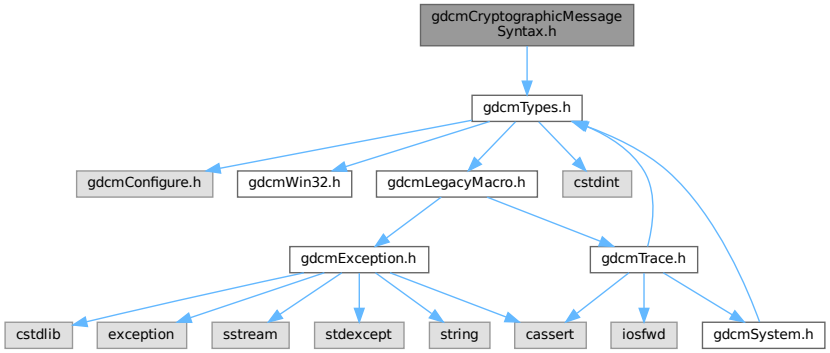
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCRYPTOFACTORY_H
#define GDCMCRYPTOFACTORY_H

#include "gdcmCryptographicMessageSyntax.h"
#include <map>

namespace gdcm
{

class GDCM_EXPORT CryptoFactory
{
public:
  enum CryptoLib {DEFAULT = 0, OPENSSL = 1, CAPI = 2, OPENSSLP7 = 3};

  virtual CryptographicMessageSyntax* CreateCMSProvider() = 0;
  static CryptoFactory* GetFactoryInstance(CryptoLib id = DEFAULT);

protected:
  CryptoFactory(CryptoLib id)
  {
    AddLib(id, this);
  }

private:
  static std::map<CryptoLib, CryptoFactory*>& getInstanceMap()
  {
    static std::map<CryptoLib, CryptoFactory*> libs;
    return libs;
  }

  static void AddLib(CryptoLib id, CryptoFactory* f)
  {
    if (getInstanceMap().insert(std::pair<CryptoLib, CryptoFactory*>(id, f)).second == false)
      {
      gdcmErrorMacro( "Library already registered under id " « (int)id );
      }
  }

protected:
  CryptoFactory()= default;
  ~CryptoFactory()= default;
};

} // end namespace gdcm

#endif // GDCMCRYPTOFACTORY_H
```

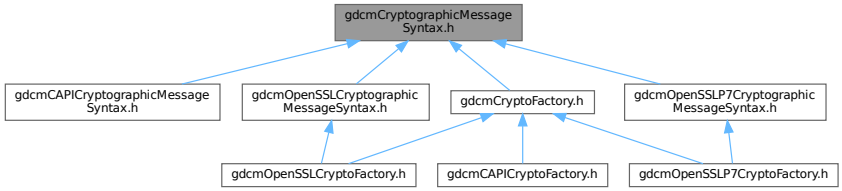
11.19 gdcmCryptographicMessageSyntax.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptographicMessageSyntax

Namespaces

- namespace gdcm

11.20 gdcmCryptographicMessageSyntax.h

Go to the documentation of this file.

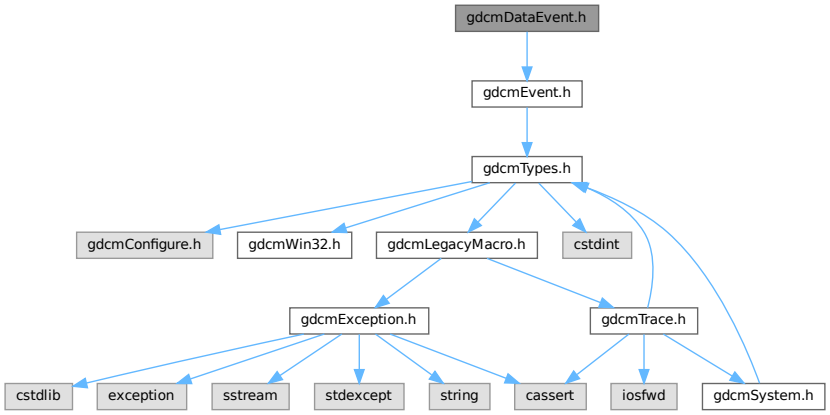
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
#define GDCMCRYPTOGRAPHICMESSAGESYNTAX_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT CryptographicMessageSyntax
{
public:
  CryptographicMessageSyntax() = default;

  virtual ~CryptographicMessageSyntax() = default;
  CryptographicMessageSyntax(const CryptographicMessageSyntax&) = delete;
  void operator=(const CryptographicMessageSyntax&) = delete;

  typedef enum {
    DES3_CIPHER,   // Triple DES
    AES128_CIPHER, // CBC AES
    AES192_CIPHER, // '   '
    AES256_CIPHER  // '   '
  } CipherTypes;

    // X.509
  virtual bool ParseCertificateFile( const char *filename ) = 0;
  virtual bool ParseKeyFile( const char *filename ) = 0;

  // PBE
  virtual bool SetPassword(const char * pass, size_t passLen) = 0;

  virtual bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;
  virtual bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;

  virtual void SetCipherType(CipherTypes type) = 0;

  virtual CipherTypes GetCipherType() const = 0;
};

} // end namespace gdcm

#endif //GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
```

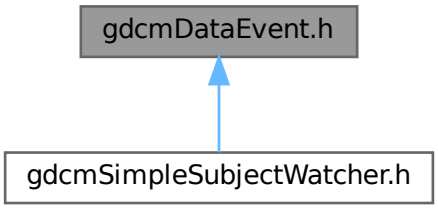
11.21 gdcmDataEvent.h File Reference

```
#include "gdcmEvent.h"
```

Include dependency graph for gdcmDataEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DataEvent

  DataEvent.

Namespaces

- namespace gdcm

11.22 gdcmDataEvent.h

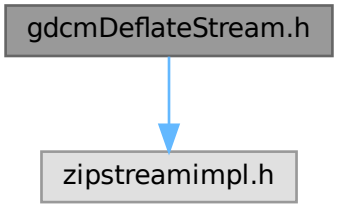
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDATAEVENT_H
#define GDCMDATAEVENT_H

#include "gdcmEvent.h"

namespace gdcm
{

class DataEvent : public AnyEvent
{
public:
  typedef DataEvent Self;
  typedef AnyEvent Superclass;
  DataEvent(const char *bytes = nullptr, size_t len = 0):Bytes(bytes),Length(len) {}
  ~DataEvent() override = default;
  DataEvent(const Self&s) : AnyEvent(s){};
  void operator=(const Self&) = delete;

  const char * GetEventName() const override { return "DataEvent"; }
  bool CheckEvent(const ::gdcm::Event* e) const override
  { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
  ::gdcm::Event* MakeObject() const override
    { return new Self; }

  void SetData(const char *bytes, size_t len) {
    Bytes = bytes;
    Length = len;
  }
  size_t GetDataLength() const { return Length; }
  const char *GetData() const { return Bytes; }

  //std::string GetValueAsString() const { return; }

private:
  const char *Bytes;
  size_t Length;
};


} // end namespace gdcm

#endif //GDCMDATAEVENT_H
```

11.23 gdcmDeflateStream.h File Reference

```
#include "zipstreamimpl.h"
```

Include dependency graph for gdcmDeflateStream.h:



11.24 gdcmDeflateStream.h

Go to the documentation of this file.

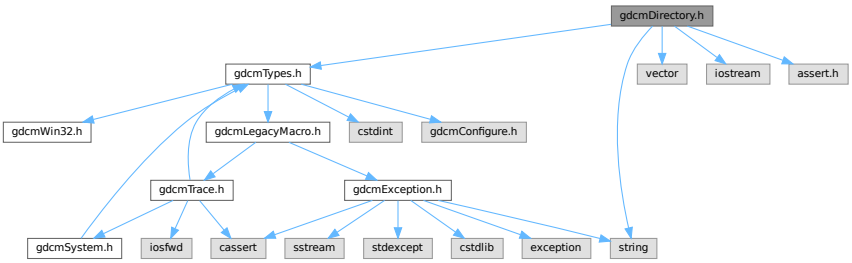
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDEFLATESTREAM_H
#define GDCMDEFLATESTREAM_H

#include "zipstreamimpl.h"

#endif //GDCMDEFLATESTREAM_H
```

11.25 gdcmDirectory.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
#include <iostream>
```

```
#include <assert.h>
```

Include dependency graph for gdcmDirectory.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Directory

  Class for manipulation directories.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Directory &d)

11.26 gdcmDirectory.h

Go to the documentation of this file.

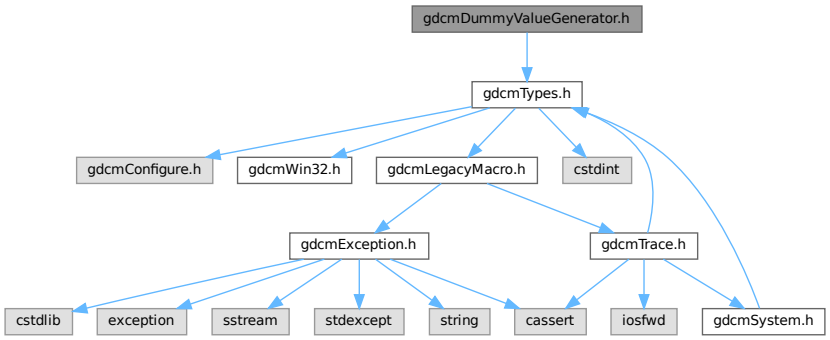
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
#ifndef GDCMDIRECTORY_H
#define GDCMDIRECTORY_H

#include "gdcmTypes.h"

#include <string>
#include <vector>
#include <iostream>
#include <assert.h>

namespace gdcm
{
//-----------------------------------------------------------------------------
class GDCM_EXPORT Directory
{
  friend std::ostream& operator«(std::ostream &_os, const Directory &d);
public :
  Directory() = default;
  ~Directory() = default;
  typedef std::string FilenameType;
  typedef std::vector<FilenameType> FilenamesType;

  void Print(std::ostream &os = std::cout) const;

  FilenameType const &GetToplevel() const { return Toplevel; }

  FilenamesType const &GetFilenames() const {
    assert( !(Toplevel.empty()) && "Need to call Explore first" );
    return Filenames; }

  FilenamesType const &GetDirectories() const { return Directories; }

  unsigned int Load(FilenameType const &name, bool recursive = false);

  // \todo later: GLOB
  // The glob() function searches for all the pathnames matching pattern according to
  // the rules used by the shell (see glob(7)).  No tilde expansion or parameter
  // substitution is done; if you want these, use wordexp(3).
  // int Glob(...);

protected:
  unsigned int Explore(FilenameType const &name, bool recursive);

private :
  FilenamesType Filenames;
  FilenamesType Directories;

  FilenameType Toplevel;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Directory &d)
{
  d.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMDIRECTORY_H
```

11.27 gdcmDummyValueGenerator.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDummyValueGenerator.h:



Classes

- class gdcm::DummyValueGenerator

  Class for generating dummy value.

Namespaces

- namespace gdcm

11.28 gdcmDummyValueGenerator.h

Go to the documentation of this file.

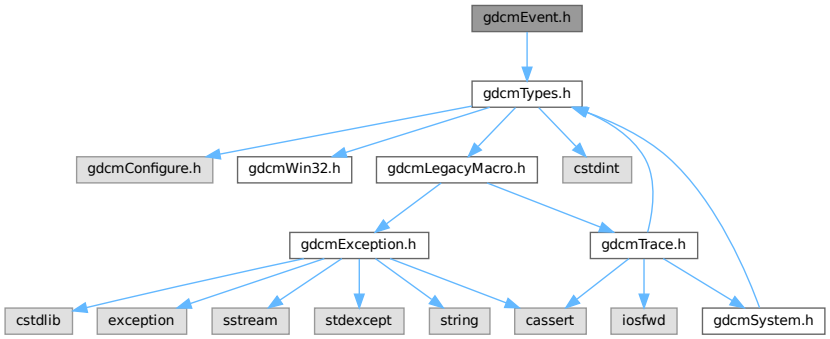
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDUMMYVALUEGENERATOR_H
#define GDCMDUMMYVALUEGENERATOR_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT DummyValueGenerator
{
```

```
00028 public:
00029
00035   static const char* Generate(const char *input);
00036
00037 private:
00038 };
00039
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMDUMMYVALUEGENERATOR_H
```

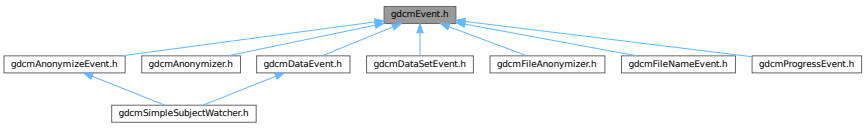
11.29 gdcmEvent.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AbortEvent
- class gdcm::AnyEvent
- class gdcm::EndEvent
- class gdcm::Event

  superclass for callback/observer methods
- class gdcm::ExitEvent
- class gdcm::InitializeEvent

- class gdcm::IterationEvent
- class gdcm::ModifiedEvent
- class gdcm::NoEvent
- class gdcm::StartEvent
- class gdcm::UserEvent

Namespaces

- namespace gdcm

Macros

- #define gdcmEventMacro(classname, super)

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.

11.29.1 Macro Definition Documentation

11.29.1.1 gdcmEventMacro

```
#define gdcmEventMacro(
              classname,
              super )
```

Value:

```
 \
 class  classname : public super { \
   public: \
     typedef classname Self; \
     typedef super Superclass; \
     classname() {} \
     virtual ~classname() override = default; \
     virtual const char * GetEventName() const override { return #classname; } \
     virtual bool CheckEvent(const ::gdcm::Event* e) const override \
       { return dynamic_cast<const Self*>(e) ? true : false; } \
     virtual ::gdcm::Event* MakeObject() const override \
       { return new Self; } \
     classname(const Self&s) : super(s){} \
   private: \
     void operator=(const Self&); \
 }
```

11.30 gdcmEvent.h

Go to the documentation of this file.

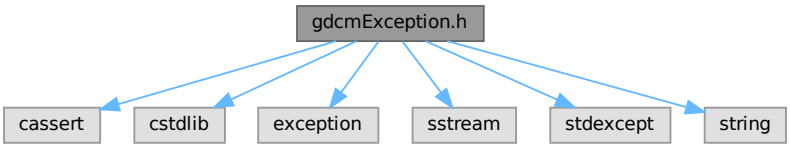
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMEVENT_H
#define GDCMEVENT_H

#include "gdcmTypes.h"

namespace gdcm
{
//-----------------------------------------------------------------------------
class GDCM_EXPORT Event
{
public :
  Event();
  virtual ~Event();
  Event(const Event&);
  void operator=(const Event&) = delete;

  virtual Event* MakeObject() const = 0;

  virtual void Print(std::ostream& os) const;

  virtual const char * GetEventName() const = 0;

  virtual bool CheckEvent(const Event*) const = 0;

};

inline std::ostream& operator«(std::ostream& os, const Event &e)
{
  e.Print(os);
  return os;
}

/*
 *  Macro for creating new Events
 */
#define gdcmEventMacro( classname , super ) \
  \
 class  classname : public super { \
   public: \
     typedef classname Self; \
     typedef super Superclass; \
     classname() {} \
     virtual ~classname() override = default; \
     virtual const char * GetEventName() const override { return #classname; } \
     virtual bool CheckEvent(const ::gdcm::Event* e) const override \
       { return dynamic_cast<const Self*>(e) ? true : false; } \
     virtual ::gdcm::Event* MakeObject() const override \
       { return new Self; } \
     classname(const Self&s) : super(s){} \
   private: \
     void operator=(const Self&); \
 }

gdcmEventMacro( NoEvent            , Event );
gdcmEventMacro( AnyEvent           , Event );
gdcmEventMacro( StartEvent         , AnyEvent );
gdcmEventMacro( EndEvent           , AnyEvent );
//gdcmEventMacro( ProgressEvent      , AnyEvent );
gdcmEventMacro( ExitEvent          , AnyEvent );
gdcmEventMacro( AbortEvent         , AnyEvent );
gdcmEventMacro( ModifiedEvent      , AnyEvent );
gdcmEventMacro( InitializeEvent    , AnyEvent );
gdcmEventMacro( IterationEvent     , AnyEvent );
```

```
//gdcmEventMacro( AnonymizeEvent      , AnyEvent );
gdcmEventMacro( UserEvent           , AnyEvent );


} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMEVENT_H
```

11.31 gdcmException.h File Reference

```
#include <cassert>
#include <cstdlib>
#include <exception>
#include <sstream>
#include <stdexcept>
#include <string>
```

Include dependency graph for gdcmException.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Exception

  Exception.

Namespaces

- namespace gdcm

11.32 gdcmException.h

Go to the documentation of this file.

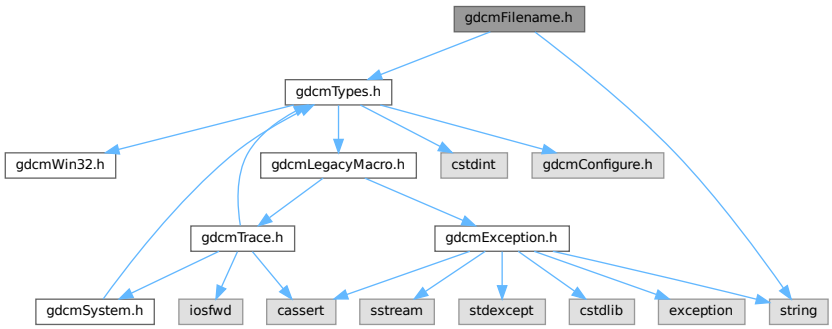
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXCEPTION_H
00015 #define GDCMEXCEPTION_H
00016
00017 #include <cassert>
00018 #include <cstdlib> // NULL
00019 #include <exception>
00020 #include <sstream> // ostringstream
00021 #include <stdexcept> // logic_error
00022 #include <string>
00023
00024 // Disable clang warning "dynamic exception specifications are deprecated".
00025 // We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
00026 // specifier we'll get an error in C++03 by not matching the superclass.
00027 #if defined(__clang__) && defined(__has_warning)
00028 # if __has_warning("-Wdeprecated")
00029 #  pragma clang diagnostic push
00030 #  pragma clang diagnostic ignored "-Wdeprecated"
00031 # endif
00032 #endif
00033
00034 namespace gdcm
00035 {
00036
00043 class Exception : public std::exception
00044 {
00049   typedef std::logic_error StringHolder;
00050
00052   static StringHolder CreateWhat(const char* const desc,
00053                                  const char* const file,
00054                                  const unsigned int lineNumber,
00055                                  const char* const func)
00056   {
00057     assert(desc != nullptr);
00058     assert(file != nullptr);
00059     assert(func != nullptr);
00060     std::ostringstream oswhat;
00061     oswhat « file « ":" « lineNumber « " (" « func « "):\n";
00062     oswhat « desc;
00063     return StringHolder( oswhat.str() );
00064   }
00065
00066 public:
00072   explicit Exception(const char *desc = "None",
00073             const char *file = __FILE__,
00074             unsigned int lineNumber = __LINE__,
00075             // FIXME:  __PRETTY_FUNCTION__ is the non-mangled version for __GNUC__ compiler
00076             const char *func = "" /*__FUNCTION__*/)
00077   :
00078   What( CreateWhat(desc, file, lineNumber, func) ),
00079   Description(desc)
00080   {
00081   }
00082
00083   ~Exception() throw() override {}
00084
00086   const char* what() const throw() override
00087     {
00088     return What.what();
00089     }
00090
00092   const char * GetDescription() const { return Description.what(); }
00093
00094 private:
```

```
  StringHolder  What;
  StringHolder  Description;
};

} // end namespace gdcm

// Undo warning suppression.
#if defined(__clang__) && defined(__has_warning)
# if __has_warning("-Wdeprecated")
#  pragma clang diagnostic pop
# endif
#endif

#endif
```

11.33 gdcmFilename.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmFilename.h:



Classes

- class gdcm::Filename

  Class to manipulate file name's.

Namespaces

- namespace gdcm

11.34 gdcmFilename.h

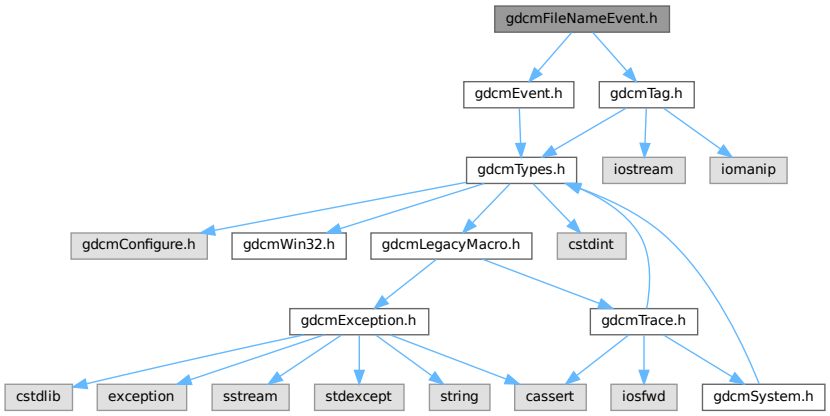
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILENAME_H
#define GDCMFILENAME_H

#include "gdcmTypes.h"

#include <string>

namespace gdcm
{
class GDCM_EXPORT Filename
{
public:
  Filename(const char* filename = ""):FileName(filename ? filename : ""),Path(),Conversion() {}

  const char *GetFileName() const { return FileName.c_str(); }
  const char *GetPath();
  const char *GetName();
  const char *GetExtension();
  const char *ToUnixSlashes();
  const char *ToWindowsSlashes();

  static const char *Join(const char *path, const char *filename);

  bool IsEmpty() const { return FileName.empty(); }

  operator const char * () const { return GetFileName(); }

  // FIXME: I don't like this function
  // It hides the realpath call (maybe useful)
  // and it forces file to exist on the disk whereas Filename
  // should be independent from file existence.
  bool IsIdentical(Filename const &fn) const;

  bool EndWith(const char ending[]) const;

private:
  std::string FileName;
  std::string Path;
  std::string Conversion;
};

} // end namespace gdcm

#endif //GDCMFILENAME_H
```

11.35 gdcmFileNameEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmFileNameEvent.h:



Classes

- class gdcm::FileNameEvent

  FileNameEvent.

Namespaces

- namespace gdcm

11.36 gdcmFileNameEvent.h

Go to the documentation of this file.

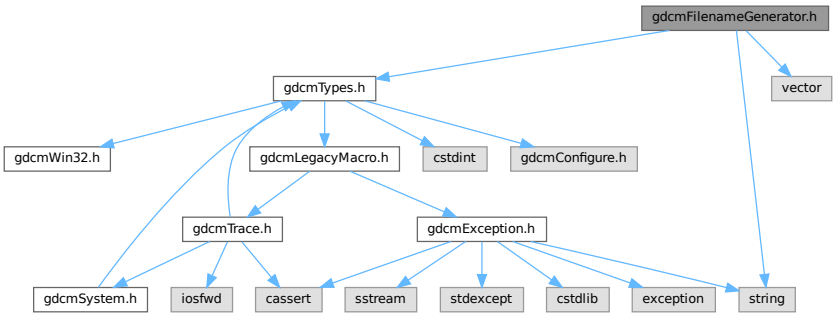
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILENAMEEVENT_H
#define GDCMFILENAMEEVENT_H

#include "gdcmEvent.h"
#include "gdcmTag.h"

namespace gdcm
{

class FileNameEvent : public AnyEvent
{
public:
```

```
  typedef FileNameEvent Self;
  typedef AnyEvent Superclass;
  FileNameEvent(const char *s = ""):m_FileName(s) {}
  ~FileNameEvent() override = default;

  FileNameEvent(const Self&s) : AnyEvent(s){}
  void operator=(const Self&) = delete;


  const char * GetEventName() const override { return "FileNameEvent"; }
  bool CheckEvent(const ::gdcm::Event* e) const override
    { return dynamic_cast<const Self*>(e) ? true : false; }
  ::gdcm::Event* MakeObject() const override
    { return new Self; }

  void SetFileName(const char *f) { m_FileName = f; }
  const char *GetFileName() const { return m_FileName.c_str(); }
private:
  std::string m_FileName;
};


} // end namespace gdcm

#endif //GDCMFILENAMEEVENT_H
```

11.37 gdcmFilenameGenerator.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
```

Include dependency graph for gdcmFilenameGenerator.h:



Classes

- class gdcm::FilenameGenerator

  FilenameGenerator.

Namespaces

- namespace gdcm

11.38 gdcmFilenameGenerator.h

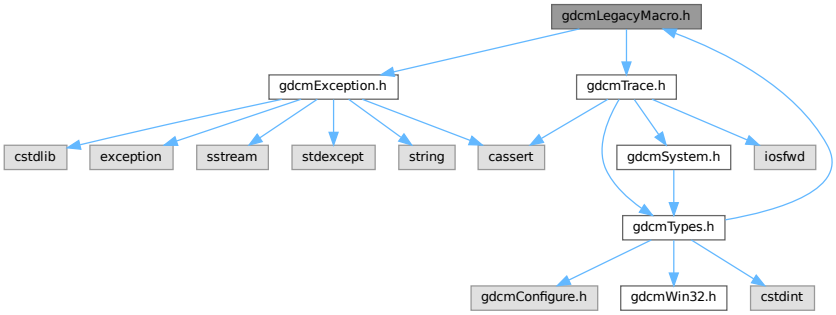
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILENAMEGENERATOR_H
#define GDCMFILENAMEGENERATOR_H

#include "gdcmTypes.h"
#include <string>
#include <vector>


namespace gdcm
{
class GDCM_EXPORT FilenameGenerator
{
public:
  FilenameGenerator():Pattern(),Prefix(),Filenames() {}
  ~FilenameGenerator() = default;
  // FIXME: already defines in gdcm::Directory
  typedef std::string FilenameType;
  typedef std::vector<FilenameType> FilenamesType;
  typedef FilenamesType::size_type  SizeType;

  void SetPattern(const char *pattern) { Pattern = pattern; }
  const char *GetPattern() const { return Pattern.c_str(); }

  void SetPrefix(const char *prefix) { Prefix = prefix; }
  const char *GetPrefix() const { return Prefix.c_str(); }

  bool Generate();

  void SetNumberOfFilenames(SizeType nfiles);
  SizeType GetNumberOfFilenames() const;

  const char * GetFilename(SizeType n) const;

  FilenamesType const & GetFilenames() const { assert( !Pattern.empty() ); return Filenames; }

private:
  FilenameType Pattern;
  FilenameType Prefix;
  FilenamesType Filenames;
};

} // end namespace gdcm

#endif //GDCMFILENAMEGENERATOR_H
```

11.39 gdcmLegacyMacro.h File Reference

```
#include "gdcmException.h"
#include "gdcmTrace.h"
```

Include dependency graph for gdcmLegacyMacro.h:



This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_LEGACY(method) method;
- #define GDCM_LEGACY_BODY(method, version) gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
- #define GDCM_LEGACY_REPLACED_BODY(method, version, replace) gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version. Use " #replace " instead.")
- #define GDCM_NOOP_STATEMENT static_assert(true, "")

11.39.1 Macro Definition Documentation

11.39.1.1 GDCM_LEGACY

```
#define GDCM_LEGACY(
            method ) method;
```

11.39.1.2 GDCM_LEGACY_BODY

```
#define GDCM_LEGACY_BODY(
            method,
            version )  gdcmWarningMacro(#method " was deprecated for " version " and will be
removed in a future version.")
```

11.39.1.3 GDCM_LEGACY_REPLACED_BODY

```
#define GDCM_LEGACY_REPLACED_BODY(
              method,
              version,
              replace )  gdcmWarningMacro(#method " was deprecated for " version " and will be
removed in a future version.  Use " #replace " instead.")
```

11.39.1.4 GDCM_NOOP_STATEMENT

```
#define GDCM_NOOP_STATEMENT static_assert(true, "")
```

The `static_assert(true, "")` idiom is commonly employed for C++11 or greater to ensure that it is compile-time only check that can not be part of the binary file. This allows a macro to be used anywhere that a statement is expected, and to enforce consistent use of ; after a macro. The static_assert is a constexpr that can be used in places where raw statements (i.e. 'do{} while(0)') are not allowed (i.e. after class member function definitions).

11.40 gdcmLegacyMacro.h

Go to the documentation of this file.

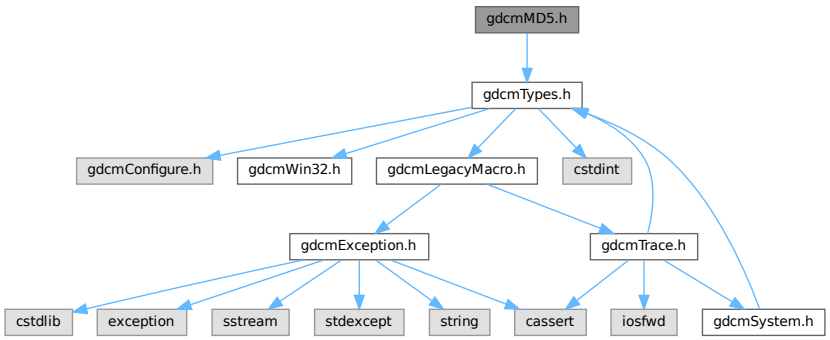
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMLEGACYMACRO_H
#define GDCMLEGACYMACRO_H

#if !defined(GDCMTYPES_H) && !defined(SWIG)
#error you need to include gdcmTypes.h instead
#endif

#include "gdcmException.h"

//-----------------------------------------------------------------------------
// Setup legacy code policy.

// Define GDCM_LEGACY macro to mark legacy methods where they are
// declared in their class.  Example usage:
//
//   // @deprecated Replaced by MyOtherMethod() as of GDCM 2.0.
//   GDCM_LEGACY(void MyMethod());
#if defined(GDCM_LEGACY_REMOVE)
# define GDCM_LEGACY(method)
#elif defined(GDCM_LEGACY_SILENT) || defined(SWIG)
  // Provide legacy methods with no warnings.
# define GDCM_LEGACY(method) method;
#else
  // Setup compile-time warnings for uses of deprecated methods if
  // possible on this compiler.
# if defined(__GNUC__) && !defined(__INTEL_COMPILER) && (__GNUC__ > 3 || (__GNUC__ == 3 && __GNUC_MINOR__
>= 1))
#  define GDCM_LEGACY(method) method __attribute__((deprecated));
# elif defined(_MSC_VER) && _MSC_VER >= 1300
#  define GDCM_LEGACY(method) __declspec(deprecated) method;
# else
```

```
#  define GDCM_LEGACY(method) method;
# endif
#endif

#  define GDCM_NOOP_STATEMENT static_assert(true, "")

// Macros to create runtime deprecation warning messages in function
// bodies.  Example usage:
//
//   #if !defined(GDCM_LEGACY_REMOVE)
//   void gdcm::MyClass::MyOldMethod()
//   {
//     GDCM_LEGACY_BODY(gdcm::MyClass::MyOldMethod, "GDCM 2.0");
//   }
//   #endif
//
//   #if !defined(GDCM_LEGACY_REMOVE)
//   void gdcm::MyClass::MyMethod()
//   {
//     GDCM_LEGACY_REPLACED_BODY(gdcm::MyClass::MyMethod, "GDCM 2.0",
//                               gdcm::MyClass::MyOtherMethod);
//   }
//   #endif
#if defined(GDCM_LEGACY_REMOVE) || defined(GDCM_LEGACY_SILENT)
# define GDCM_LEGACY_BODY(method, version)
# define GDCM_LEGACY_REPLACED_BODY(method, version, replace)
#else
# define GDCM_LEGACY_BODY(method, version) \
  gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
# define GDCM_LEGACY_REPLACED_BODY(method, version, replace) \
  gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.  Use
" #replace " instead.")
#endif

#include "gdcmTrace.h"

#endif // GDCMLEGACYMACRO_H
```

11.41 gdcmMD5.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmMD5.h:



Classes

- class gdcm::MD5

  Class for MD5.

Namespaces

- namespace gdcm

11.42 gdcmMD5.h

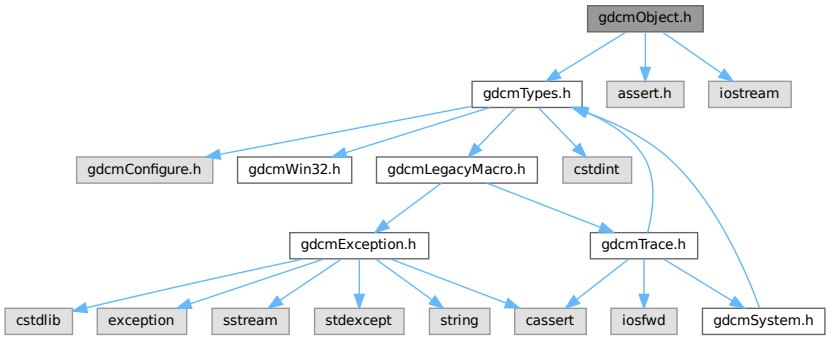
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMD5_H
#define GDCMMD5_H

#include "gdcmTypes.h"

namespace gdcm
{
//-----------------------------------------------------------------------------
class GDCM_EXPORT MD5
{
public :
  // Compute md5 from memory pointed by `pointer` of size `buf_len`
  static bool Compute(const char *buffer, size_t buf_len, char digest_str[33]);

  static bool ComputeFile(const char *filename, char digest_str[33]);
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMMD5_H
```

11.43 gdcmObject.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
#include <iostream>
```

Include dependency graph for gdcmObject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Object

  Object.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Object &obj)

11.44 gdcmObject.h

Go to the documentation of this file.

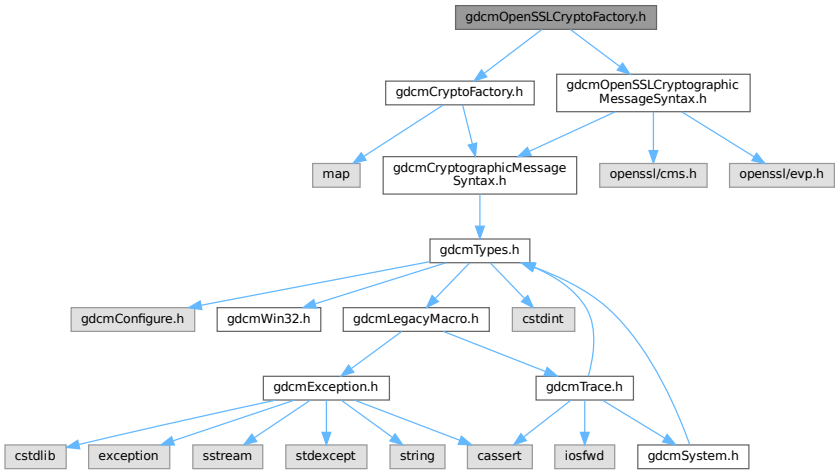
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMOBJECT_H
#define GDCMOBJECT_H

#include "gdcmTypes.h"

#include <assert.h>
#include <iostream> // grrrr

//namespace std { class ostream; }
namespace gdcm
{

template<class ObjectType> class SmartPointer;

class GDCM_EXPORT Object
{
  template <class ObjectType> friend class SmartPointer;
  friend std::ostream& operator«(std::ostream &os, const Object &obj);

public:
  Object():ReferenceCount(0) {}

  // Implementation note:
  // If I move ~Object in the protected section I can prevent people
  // from writing:
```

```
  // SmartPointer<Object> p = new Object;
  // delete p; // due to SmartPointer::operator ObjectType * () const
  // but on the other hand one could not define an Object on the stack
  // Object obj;
  // Furthermore it would not prevent anyone from doing:
  // class MyObject : public Object {};
  // SmartPointer<MyObject> o = new MyObject;
  // delete o; // grrrrrr
  virtual ~Object() {
    // If your debugger reach here it means you are doing something silly
    // like using SmartPointer on object allocated on the stack (vs heap)
    assert(ReferenceCount == 0);
    }

  // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.24
  // Set the ref count to 0
  // Do NOT copy the reference count !
  Object(const Object&):ReferenceCount(0){}
  void operator=(const Object&){}

  //static Object* New() { return new Object; }

protected:
  // For the purpose of the invasive SmartPointer implementation
  void Register() {
    ReferenceCount++;
    assert( ReferenceCount > 0 );
  }
  void UnRegister() {
    assert( ReferenceCount > 0 );
    ReferenceCount--;
    if(!ReferenceCount)
      {
      delete this;
      }
    }

public:
  // For dealing with printing of object and polymorphism
  virtual void Print(std::ostream &) const {}

private:
  long ReferenceCount;
};

//-----------------------------------------------------------------------------
// function do not carry vtable. Thus define in the base class the operator
// and use the member function ->Print() to call the appropriate function
// NOTE: All subclass of Object needs to implement the Print function
inline std::ostream& operator«(std::ostream &os, const Object &obj)
{
  obj.Print(os);
  return os;
}

} // end namespace gdcm

#endif //GDCMOBJECT_H
```

11.45 gdcmOpenSSLCryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLCryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLCryptoFactory.h:



Classes

- class gdcm::OpenSSLCryptoFactory

Namespaces

- namespace gdcm

11.46 gdcmOpenSSLCryptoFactory.h

Go to the documentation of this file.

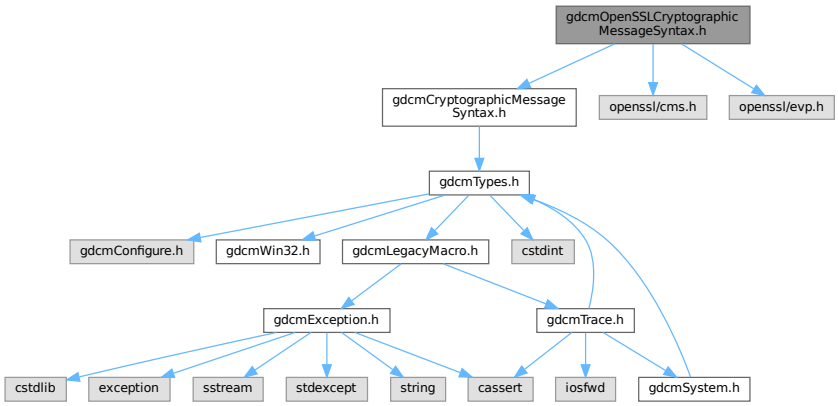
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMOPENSSLCRYPTOFACTORY_H
#define GDCMOPENSSLCRYPTOFACTORY_H

#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLCryptographicMessageSyntax.h"

namespace gdcm
{

class GDCM_EXPORT OpenSSLCryptoFactory : public CryptoFactory
{
public:
```

```
  OpenSSLCryptoFactory(CryptoLib id) : CryptoFactory(id)
  {
    gdcmDebugMacro( "OpenSSL Factory registered." );
  }

public:
  CryptographicMessageSyntax* CreateCMSProvider()
  {
    InitOpenSSL();
    return new OpenSSLCryptographicMessageSyntax();
  }

protected:
  void InitOpenSSL();

private:
  OpenSSLCryptoFactory(){}
};

} // end namespace gdcm

#endif //GDCMOPENSSLCRYPTOFACTORY_H
```

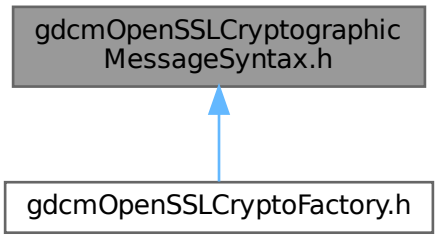
11.47 gdcmOpenSSLCryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <openssl/cms.h>
#include <openssl/evp.h>
```

Include dependency graph for gdcmOpenSSLCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLCryptographicMessageSyntax

Namespaces

- namespace gdcm

11.48 gdcmOpenSSLCryptographicMessageSyntax.h

Go to the documentation of this file.

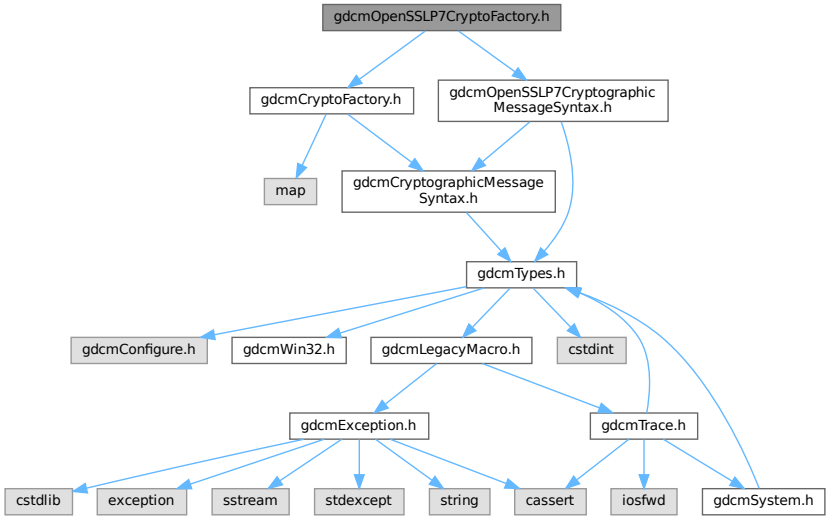
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <openssl/cms.h>
00019 #include <openssl/evp.h>
00020
00021 namespace gdcm
00022 {
00023
00024 class GDCM_EXPORT OpenSSLCryptographicMessageSyntax : public CryptographicMessageSyntax
00025 {
00026 public:
00027   OpenSSLCryptographicMessageSyntax();
00028   ~OpenSSLCryptographicMessageSyntax();
00029
00030   // X.509
00031   bool ParseCertificateFile( const char *filename );
```

```
  bool ParseKeyFile( const char *filename );

  // PBE
  bool SetPassword(const char * pass, size_t passLen);

  void SetCipherType(CipherTypes type);
  CipherTypes GetCipherType() const;
  bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
  bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;

private:
//#ifdef GDCM_HAVE_CMS_RECIPIENT_PASSWORD
//  ::stack_st_X509 *recips;
//#else
  STACK_OF(X509) *recips;
//#endif
  ::EVP_PKEY *pkey;
  const EVP_CIPHER *internalCipherType;
  char * password;
  size_t passwordLength;
  CipherTypes cipherType;

private:
  OpenSSLCryptographicMessageSyntax(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
  void operator=(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
  const EVP_CIPHER *CreateCipher( CryptographicMessageSyntax::CipherTypes ciphertype);

};

} // end namespace gdcm

#endif //GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
```

11.49 gdcmOpenSSLP7CryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLP7CryptoFactory.h:



Classes

- class gdcm::OpenSSLP7CryptoFactory

Namespaces

- namespace gdcm

11.50 gdcmOpenSSLP7CryptoFactory.h

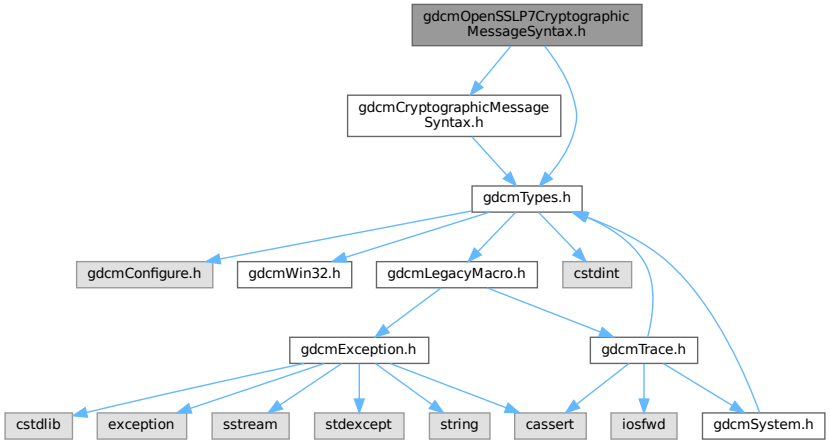
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMOPENSSLP7CRYPTOFACTORY_H
#define GDCMOPENSSLP7CRYPTOFACTORY_H

#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLP7CryptographicMessageSyntax.h"

namespace gdcm
{
class GDCM_EXPORT OpenSSLP7CryptoFactory : public CryptoFactory
{
public:
  OpenSSLP7CryptoFactory(CryptoLib id) : CryptoFactory(id)
  {
    gdcmDebugMacro( "OpenSSL (PKCS7) Factory registered." );
  }

public:
  CryptographicMessageSyntax* CreateCMSProvider()
  {
    return new OpenSSLP7CryptographicMessageSyntax();
  }

private:
  OpenSSLP7CryptoFactory(){}
};
}

#endif //GDCMOPENSSLP7CRYPTOFACTORY_H
```

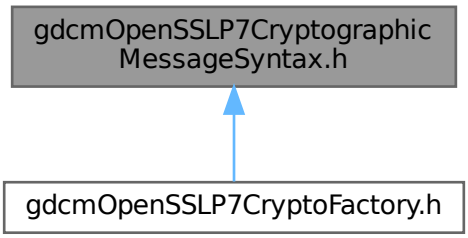
11.51 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include "gdcmTypes.h"
```

Include dependency graph for gdcmOpenSSLP7CryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLP7CryptographicMessageSyntax

Namespaces

- namespace gdcm

11.52 gdcmOpenSSLP7CryptographicMessageSyntax.h

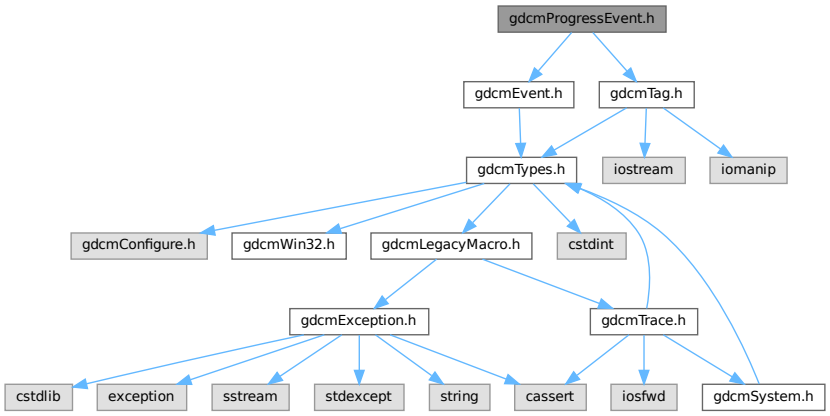
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
#define GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H

#include "gdcmCryptographicMessageSyntax.h"
#include "gdcmTypes.h"

namespace gdcm
{
class CryptographicMessageSyntaxInternals;
//-----------------------------------------------------------------------------

class GDCM_EXPORT OpenSSLP7CryptographicMessageSyntax : public CryptographicMessageSyntax
{
public:
  OpenSSLP7CryptographicMessageSyntax();
  ~OpenSSLP7CryptographicMessageSyntax();

    // X.509
  bool ParseCertificateFile( const char *filename );
  bool ParseKeyFile( const char *filename );

  // PBE
  bool SetPassword(const char * /*pass*/, size_t /*passLen*/)
  {
    gdcmWarningMacro( "Openssl using PKCS7 does not support Password Based Encryption." );
    return false;
  }

  void SetCipherType(CipherTypes type);
  CipherTypes GetCipherType() const;

  bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;

  bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;

private:
  CryptographicMessageSyntaxInternals *Internals;
private:
  OpenSSLP7CryptographicMessageSyntax(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
  void operator=(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
```

11.53 gdcmProgressEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmProgressEvent.h:



Classes

- class gdcm::ProgressEvent

  ProgressEvent.

Namespaces

- namespace gdcm

11.54 gdcmProgressEvent.h

Go to the documentation of this file.

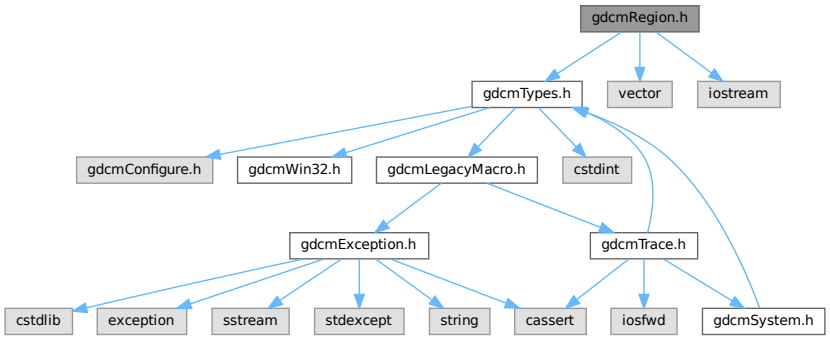
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPROGRESSEVENT_H
#define GDCMPROGRESSEVENT_H

#include "gdcmEvent.h"
#include "gdcmTag.h"

namespace gdcm
{

class ProgressEvent : public AnyEvent
{
public:
```

```
  typedef ProgressEvent Self;
  typedef AnyEvent Superclass;
  ProgressEvent(double p = 0):m_Progress(p) {}
  ~ProgressEvent() override = default;

  ProgressEvent(const Self&s) : AnyEvent(s){};
  void operator=(const Self&) = delete;

  const char * GetEventName() const override { return "ProgressEvent"; }
  bool CheckEvent(const ::gdcm::Event* e) const override
    { return dynamic_cast<const Self*>(e) ? true : false; }
  ::gdcm::Event* MakeObject() const override
    { return new Self; }

  void SetProgress(double p) { m_Progress = p; }
  double GetProgress() const { return m_Progress; }
private:
  double m_Progress;
};


} // end namespace gdcm

#endif //GDCMPROGRESSEVENT_H
```

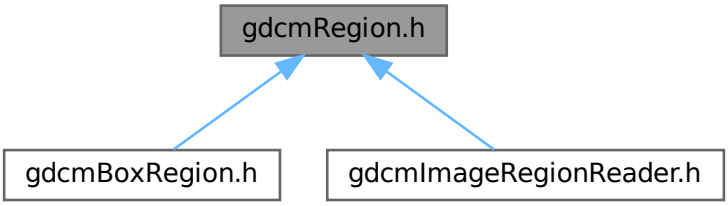
11.55 gdcmRegion.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <iostream>
```

Include dependency graph for gdcmRegion.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Region

  Class for manipulation region.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Region &r)

11.56 gdcmRegion.h

Go to the documentation of this file.

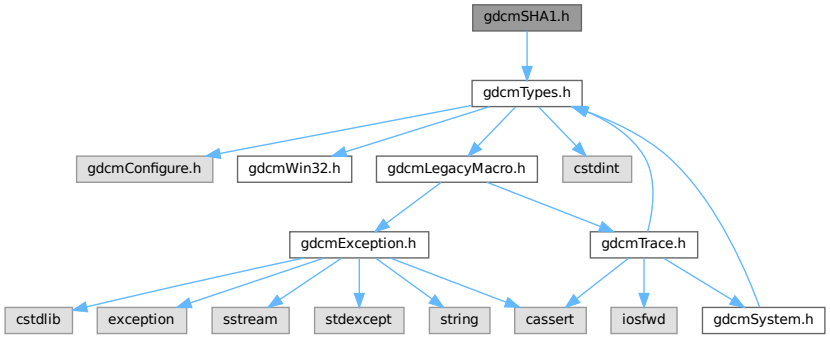
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMREGION_H
#define GDCMREGION_H

#include "gdcmTypes.h"
#include <vector>
#include <iostream>

namespace gdcm
{
class BoxRegion;
```

```
//-----------------------------------------------------------------------------
class GDCM_EXPORT Region
{
public :
  Region();
  virtual ~Region();

  virtual void Print(std::ostream &os = std::cout) const;

  virtual bool Empty() const = 0;

  virtual bool IsValid() const = 0;

  virtual size_t Area() const = 0;

  // implementation detail of heterogeneous container in C++
  virtual Region *Clone() const = 0;

  virtual BoxRegion ComputeBoundingBox() = 0;
private:
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Region&r)
{
  r.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMREGION_H
```

11.57 gdcmSHA1.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmSHA1.h:



Classes

- class gdcm::SHA1

  Class for SHA1.

Namespaces

- namespace gdcm

11.58 gdcmSHA1.h

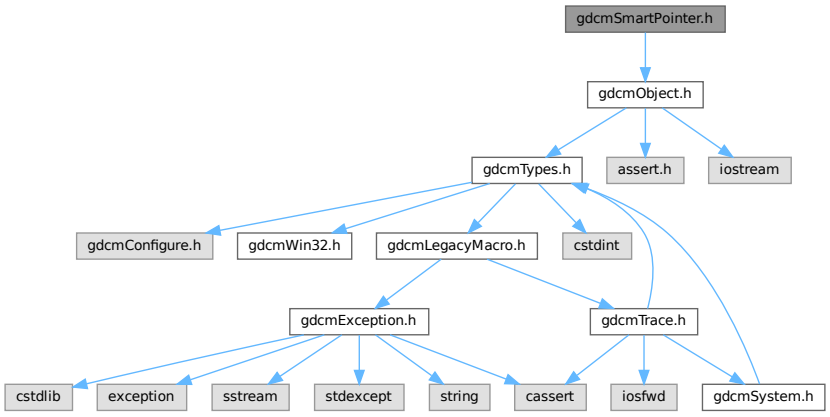
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSHA1_H
#define GDCMSHA1_H

#include "gdcmTypes.h"

namespace gdcm
{
//-----------------------------------------------------------------------------
class SHA1Internals;
class GDCM_EXPORT SHA1
{
public :
  SHA1();
  ~SHA1();
  SHA1(const SHA1&) = delete;
  void operator=(const SHA1&) = delete;

  static bool Compute(const char *buffer, unsigned long buf_len, char digest_str[20*2+1]);

  static bool ComputeFile(const char *filename, char digest_str[20*2+1]);

private:
  SHA1Internals *Internals;
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMSHA1_H
```

11.59 gdcmSmartPointer.h File Reference

`#include "gdcmObject.h"`

Include dependency graph for gdcmSmartPointer.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SmartPointer< ObjectType >

  Class for Smart Pointer.

Namespaces

- namespace gdcm

11.60 gdcmSmartPointer.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSMARTPOINTER_H
#define GDCMSMARTPOINTER_H

#include "gdcmObject.h"

namespace gdcm
{
template<class ObjectType>
class SmartPointer
{
public:
  SmartPointer():Pointer(nullptr) {}
  SmartPointer(const SmartPointer<ObjectType>& p):Pointer(p.Pointer)
    { Register(); }
  SmartPointer(ObjectType* p):Pointer(p)
    { Register(); }
  SmartPointer(ObjectType const & p)
    {
    Pointer = const_cast<ObjectType*>(&p);
    Register();
    }
  ~SmartPointer() {
    UnRegister();
    Pointer = nullptr;
  }

  ObjectType *operator -> () const
    { return Pointer; }

  ObjectType& operator * () const
    {
    assert( Pointer );
    return *Pointer;
```

```
    }

  operator ObjectType * () const
    { return Pointer; }

  SmartPointer &operator = (SmartPointer const &r)
    { return operator = (r.Pointer); }

  SmartPointer &operator = (ObjectType *r)
    {
    // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.22
    // DO NOT CHANGE THE ORDER OF THESE STATEMENTS!
    // (This order properly handles self-assignment)
    // (This order also properly handles recursion, e.g., if a ObjectType contains SmartPointer<ObjectType>s)
    if( Pointer != r )
      {
      ObjectType* old = Pointer;
      Pointer = r;
      Register();
      if ( old ) { old->UnRegister(); }
      }
    return *this;
    }

  SmartPointer &operator = (ObjectType const &r)
    {
    ObjectType* tmp = const_cast<ObjectType*>(&r);
    return operator = (tmp);
    }

  ObjectType *GetPointer() const
    { return Pointer; }

private:
  void Register()
    {
    if(Pointer) Pointer->Register();
    }

  void UnRegister()
    {
    if(Pointer) Pointer->UnRegister();
    }

  ObjectType* Pointer;
};

} // end namespace gdcm

#endif //GDCMSMARTPOINTER_H
```

11.61 gdcmStaticAssert.h File Reference

This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::static_assert_test< x >
- struct gdcm::STATIC_ASSERTION_FAILURE< true >

Namespaces

- namespace gdcm

Macros

- #define GDCM_DO_JOIN(X, Y) GDCM_DO_JOIN2(X,Y)
- #define GDCM_DO_JOIN2(X, Y) X##Y
- #define GDCM_JOIN(X, Y) GDCM_DO_JOIN(X, Y)
- #define GDCM_STATIC_ASSERT(B)

  *The GDCM_JOIN + **LINE** is needed to create a uniq identifier.*

11.61.1 Macro Definition Documentation

11.61.1.1 GDCM_DO_JOIN

```
#define GDCM_DO_JOIN(
              X,
              Y ) GDCM_DO_JOIN2(X,Y)
```

11.61.1.2 GDCM_DO_JOIN2

```
#define GDCM_DO_JOIN2(
              X,
              Y ) X##Y
```

11.61.1.3 GDCM_JOIN

```
#define GDCM_JOIN(
              X,
              Y ) GDCM_DO_JOIN( X, Y )
```

11.61.1.4 GDCM_STATIC_ASSERT

```
#define GDCM_STATIC_ASSERT(
              B )
```

Value:

```
typedef ::gdcm::static_assert_test<\
  sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
    GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
```

The GDCM_JOIN + **LINE** is needed to create a uniq identifier.

11.62 gdcmStaticAssert.h

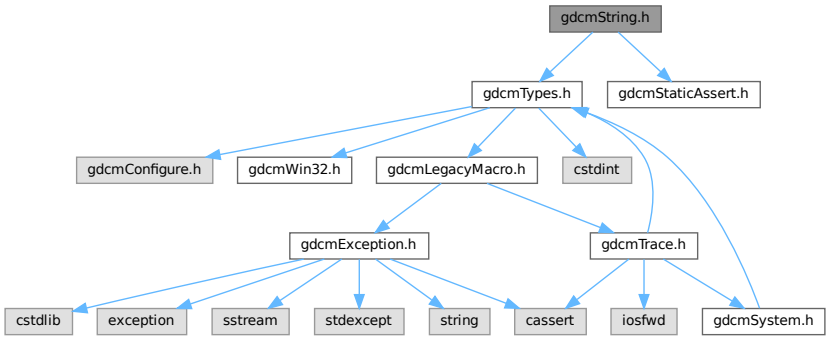
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTATICASSERT_H
#define GDCMSTATICASSERT_H


// the following was shamelessly borowed from BOOST static assert:
namespace gdcm
{
  template <bool x>
  struct STATIC_ASSERTION_FAILURE;

  template <>
  struct STATIC_ASSERTION_FAILURE<true> { enum { value = 1 }; };

  template <int x>
  struct static_assert_test {};
}

#define GDCM_JOIN( X, Y ) GDCM_DO_JOIN( X, Y )
#define GDCM_DO_JOIN( X, Y ) GDCM_DO_JOIN2(X,Y)
#define GDCM_DO_JOIN2( X, Y ) X##Y

#define GDCM_STATIC_ASSERT( B ) \
  typedef ::gdcm::static_assert_test<\
    sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
      GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)


/* Example of use:
 *
 * template <class T>
 * struct must_not_be_instantiated
 * {
 * // this will be triggered if this type is instantiated
 * GDCM_STATIC_ASSERT(sizeof(T) == 0);
 * };
 *
 */
#endif // GDCMSTATICASSERT_H
```

11.63 gdcmString.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStaticAssert.h"
```

Include dependency graph for gdcmString.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::String< TDelimiter, TMaxLength, TPadChar >

  String.

Namespaces

- namespace gdcm

Functions

- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & gdcm::operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)

11.64 gdcmString.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

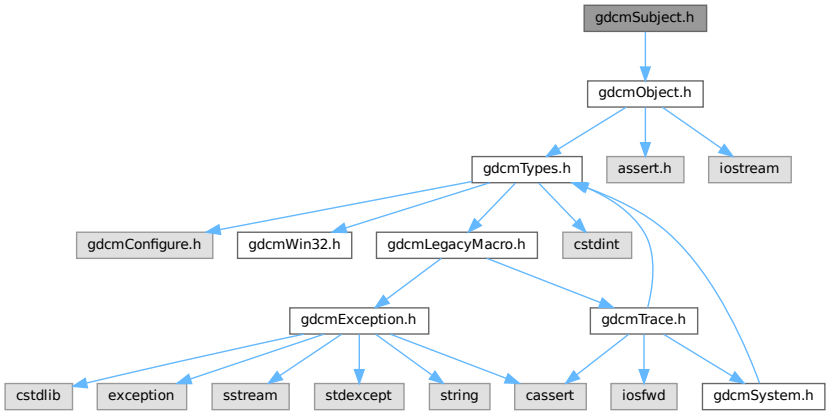
```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTRING_H
#define GDCMSTRING_H

#include "gdcmTypes.h"
#include "gdcmStaticAssert.h"

namespace gdcm
{

template <char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
class /*GDCM_EXPORT*/ String : public std::string /* PLEASE do not export me */
{
  // UI wants \0 for pad character, while ASCII ones wants space char... do not allow anything else
  GDCM_STATIC_ASSERT( TPadChar == ' ' || TPadChar == 0 );

public:
  // typedef are not inherited:
  typedef std::string::value_type             value_type;
  typedef std::string::pointer                pointer;
  typedef std::string::reference              reference;
  typedef std::string::const_reference        const_reference;
  typedef std::string::size_type              size_type;
  typedef std::string::difference_type        difference_type;
  typedef std::string::iterator               iterator;
  typedef std::string::const_iterator         const_iterator;
  typedef std::string::reverse_iterator       reverse_iterator;
  typedef std::string::const_reverse_iterator const_reverse_iterator;

  String(): std::string() {}
  String(const value_type* s): std::string(s)
  {
  if( size() % 2 )
    {
    push_back( TPadChar );
    }
  }
  String(const value_type* s, size_type n): std::string(s, n)
  {
  // We are being passed a const char* pointer, so s[n] == 0 (guaranteed!)
  if( n % 2 )
    {
    push_back( TPadChar );
    }
  }
  String(const std::string& s, size_type pos=0, size_type n=npos):
    std::string(s, pos, n)
  {
  // FIXME: some users might already have padded the string 's' with a trailing \0...
  if( size() % 2 )
    {
    push_back( TPadChar );
    }
  }

  operator const char *() const { return this->c_str(); }

  bool IsValid() const {
    // Check Length:
    size_type l = size();
    if( l > TMaxLength ) return false;
    return true;
  }

  gdcm::String<TDelimiter, TMaxLength, TPadChar> Truncate() const {
    if( IsValid() ) return *this;
    std::string str = *this; // copy
    str.resize( TMaxLength );
    return str;
  }

  std::string Trim() const {
    std::string str = *this; // copy
    std::string::size_type pos1 = str.find_first_not_of(' ');
    std::string::size_type pos2 = str.find_last_not_of(' ');
```

```
    str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
      (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
    return str;
  }

  static std::string Trim(const char *input) {
    if( !input ) return "";
    std::string str = input;
    std::string::size_type pos1 = str.find_first_not_of(' ');
    std::string::size_type pos2 = str.find_last_not_of(' ');
    str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
      (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
    return str;
  }
};
template <char TDelimiter, unsigned int TMaxLength, char TPadChar>
inline std::istream& operator»(std::istream &is, String<TDelimiter,TMaxLength,TPadChar> &ms)
{
  if(is)
    {
    std::getline(is, ms, TDelimiter);
    // no such thing as std::get where the delim char would be left, so I need to manually add it back...
    // hopefully this is the right thing to do (no overhead)
    if( !is.eof() ) is.putback( TDelimiter );
    }
  return is;
}
//template <char TDelimiter = EOF, unsigned int TMaxLength = 64, char TPadChar = ' '>
//String String::Trim() const
//{
//  String s;
//  return s;
//}

} // end namespace gdcm

#endif //GDCMSTRING_H
```

11.65 gdcmSubject.h File Reference

`#include "gdcmObject.h"`

Include dependency graph for gdcmSubject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Subject

  Subject.

Namespaces

- namespace gdcm

11.66 gdcmSubject.h

Go to the documentation of this file.

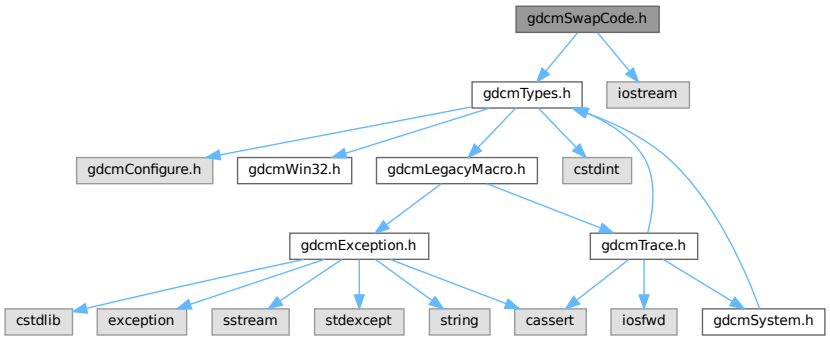
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSUBJECT_H
00015 #define GDCMSUBJECT_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022 class Command;
00023 class SubjectInternals;
00028 class GDCM_EXPORT Subject : public Object
00029 {
00030 public:
00031   Subject();
00032   ~Subject() override;
00033
00042   unsigned long AddObserver(const Event & event, Command *);
00043   unsigned long AddObserver(const Event & event, Command *) const;
00044
00050   Command* GetCommand(unsigned long tag);
00051
00053   void InvokeEvent( const Event & );
00054
00057   void InvokeEvent( const Event & ) const;
00058
00060   void RemoveObserver(unsigned long tag);
00061
00063   void RemoveAllObservers();
00064
00066   bool HasObserver( const Event & event ) const;
00067
00068 protected:
```

```
00069
00070 private:
00071   SubjectInternals *Internals;
00072 private:
00073 };
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMSUBJECT_H
```

11.67 gdcmSwapCode.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmSwapCode.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapCode

  SwapCode representation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const SwapCode &sc)

11.68 gdcmSwapCode.h

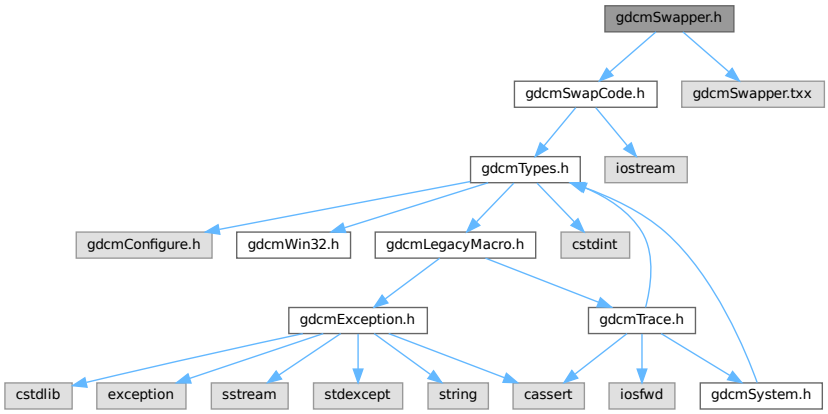
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSWAPCODE_H
#define GDCMSWAPCODE_H

#include "gdcmTypes.h"
#include <iostream>

namespace gdcm
{

class GDCM_EXPORT SwapCode
{
public:
  typedef enum {
    Unknown         = 0,
    LittleEndian    = 1234,
    BigEndian       = 4321,
    BadLittleEndian = 3412,
    BadBigEndian    = 2143
  } SwapCodeType;

  operator SwapCode::SwapCodeType() const { return SwapCodeValue; }
  SwapCode(SwapCodeType sc = Unknown):SwapCodeValue(sc) { }
  static const char* GetSwapCodeString(SwapCode const & sc);

  friend std::ostream& operator«(std::ostream& os, const SwapCode& sc);
protected:
  static int GetIndex(SwapCode const & sc);

private:
  SwapCodeType SwapCodeValue;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const SwapCode& sc)
{
  os « SwapCode::GetSwapCodeString(sc);
  return os;
}

} // end namespace gdcm

#endif //GDCMSWAPCODE_H
```

11.69 gdcmSwapper.h File Reference

```
#include "gdcmSwapCode.h"
#include "gdcmSwapper.txx"
```

Include dependency graph for gdcmSwapper.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapperDoOp
- class gdcm::SwapperNoOp

Namespaces

- namespace gdcm

11.70 gdcmSwapper.h

Go to the documentation of this file.

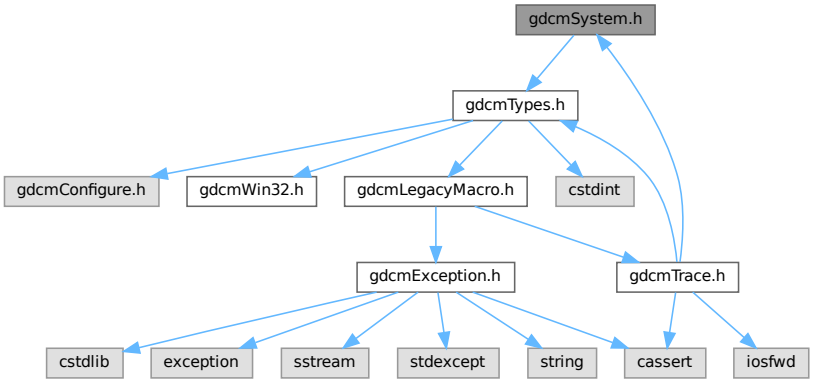
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSWAPPER_H
```

```
#define GDCMSWAPPER_H

#include "gdcmSwapCode.h"

namespace gdcm
{


#ifdef GDCM_WORDS_BIGENDIAN
class SwapperDoOp
{
public:
  template <typename T> static T Swap(T val) {return val;}
  template <typename T> static void SwapArray(T *, size_t ) {}
};

class SwapperNoOp
{
public:
  template <typename T> static T Swap(T val);
  template <typename T>
  static void SwapArray(T *array, size_t n)
  {
    // TODO: need to unroll loop:
    for(size_t i = 0; i < n; ++i)
    {
      array[i] = Swap<T>(array[i]);
    }
  }
};
#else
class SwapperNoOp
{
public:
  template <typename T> static T Swap(T val) {return val;}
  template <typename T> static void SwapArray(T *, size_t ) {}
};

class SwapperDoOp
{
public:
  template <typename T> static T Swap(T val);
  template <typename T>
  static void SwapArray(T *array, size_t n)
  {
    // TODO: need to unroll loop:
    for(size_t i = 0; i < n; ++i)
    {
      array[i] = Swap<T>(array[i]);
    }
  }
};
#endif


} // end namespace gdcm

#include "gdcmSwapper.txx"

#endif //GDCMSWAPPER_H
```

11.71 gdcmSystem.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmSystem.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::System

  Class to do system operation.

Namespaces

- namespace gdcm

11.72 gdcmSystem.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

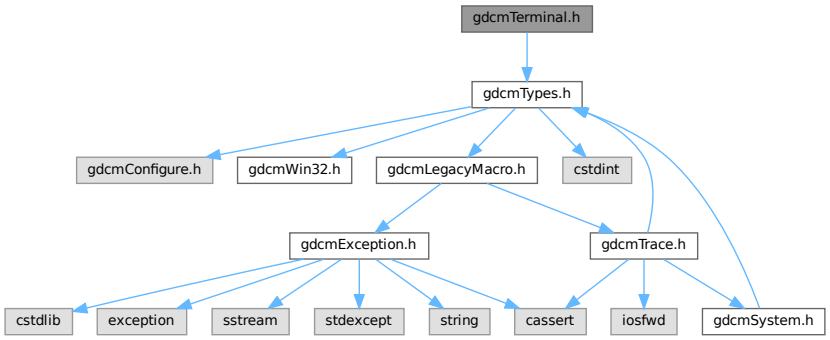
```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSYSTEM_H
#define GDCMSYSTEM_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT System
{
public:
  static bool MakeDirectory(const char *path);
  static bool FileExists(const char* filename);
  static bool FileIsDirectory(const char* name);
  static bool FileIsSymlink(const char* name);
  static bool RemoveFile(const char* source);
  static bool DeleteDirectory(const char *source);

  static std::wstring ConvertToUNC(const char *utf8path);

  static const char *GetLastSystemError();

  static size_t FileSize(const char* filename);

  static time_t FileTime(const char* filename);

  static const char *GetCurrentProcessFileName();

  static const char *GetCurrentModuleFileName();

  static const char *GetCurrentResourcesDirectory();

  // TODO some system calls
  // Chdir
  // copy a file

  static bool GetHostName(char hostname[255]);

  // In the following the size '22' is explicitly listed. You need to pass in
  // at least 22bytes of array. If the string is an output it will be
  // automatically padded ( array[21] == 0 ) for you.
  // Those functions: GetCurrentDateTime / FormatDateTime / ParseDateTime do
  // not return the &YYZZ part of the DT structure as defined in DICOM PS 3.5 -
  // 2008 In this case it is simple to split the date[22] into a DA and TM
  // structure

  static bool GetCurrentDateTime(char date[22]);

  static bool FormatDateTime(char date[22], time_t t, long milliseconds = 0);

  static bool ParseDateTime(time_t &timep, const char date[22]);

  static bool ParseDateTime(time_t &timep, long &milliseconds, const char date[22]);

  static const char *GetTimezoneOffsetFromUTC();

  static size_t EncodeBytes(char *out, const unsigned char *data, int size);

  static int StrCaseCmp(const char *s1, const char *s2);
  static int StrNCaseCmp(const char *s1, const char *s2, size_t n);

  static const char * GetCWD();

  static char *StrTokR(char *ptr, const char *sep, char **end);

  static char *StrSep(char **stringp, const char *delim);

  static const char *GetLocaleCharset();

/*
  static void SetArgv0(const char *);
  static const char* GetArgv0();
*/

protected:
  static bool GetPermissions(const char* file, unsigned short& mode);
  static bool SetPermissions(const char* file, unsigned short mode);

```

```
00146 private:
00147 };
00148
00149 } // end namespace gdcm
00150
00151 #endif //GDCMSYSTEM_H
```

11.73 gdcmTerminal.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmTerminal.h:



Namespaces

- namespace gdcm
- namespace gdcm::terminal

  Class for Terminal.

Enumerations

- enum gdcm::terminal::Attribute {
  gdcm::terminal::reset = 0 ,
  gdcm::terminal::bright = 1 ,
  gdcm::terminal::dim = 2 ,
  gdcm::terminal::underline = 3 ,
  gdcm::terminal::blink = 5 ,
  gdcm::terminal::reverse = 7 ,
  gdcm::terminal::hidden = 8 }
- enum gdcm::terminal::Color {
  gdcm::terminal::black = 0 ,
  gdcm::terminal::red ,
  gdcm::terminal::green ,
  gdcm::terminal::yellow ,
  gdcm::terminal::blue ,
  gdcm::terminal::magenta ,
  gdcm::terminal::cyan ,
  gdcm::terminal::white }

- enum gdcm::terminal::Mode {
  gdcm::terminal::CONSOLE = 0 ,
  gdcm::terminal::VT100 }

Functions

- GDCM_EXPORT std::string gdcm::terminal::setattribute (Attribute att)
- GDCM_EXPORT std::string gdcm::terminal::setbgcolor (Color c)
- GDCM_EXPORT std::string gdcm::terminal::setfgcolor (Color c)
- GDCM_EXPORT void gdcm::terminal::setmode (Mode m)

11.74 gdcmTerminal.h

Go to the documentation of this file.

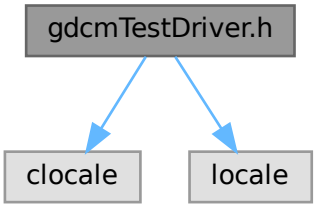
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTERMINAL_H
00015 #define GDCMTERMINAL_H
00016
00017 #include "gdcmTypes.h"
00018
00019
00020 namespace gdcm
00021 {
00028 //-----------------------------------------------------------------------------
00029
00030 namespace terminal
00031 {
00032   typedef enum
00033     {
00034     CONSOLE = 0,
00035     VT100
00036     } Mode;
00037   typedef enum
00038     {
00039     black = 0,
00040     red,
00041     green,
00042     yellow, // brown ??
00043     blue,
00044     magenta,
00045     cyan,
00046     white
00047     } Color;
00048   typedef enum
00049     {
00050     reset     = 0,
00051     bright    = 1, // bold
00052     dim       = 2,
00053     underline = 3,
00054     blink     = 5,
00055     reverse   = 7,
00056     hidden    = 8
00057     } Attribute;
00058   GDCM_EXPORT std::string setattribute( Attribute att );
00059   GDCM_EXPORT std::string setfgcolor( Color c );
00060   GDCM_EXPORT std::string setbgcolor( Color c );
```

```
  GDCM_EXPORT void setmode( Mode m);
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMTERMINAL_H
```

11.75 gdcmTestDriver.h File Reference

```
#include <clocale>
#include <locale>
```

Include dependency graph for gdcmTestDriver.h:



11.76 gdcmTestDriver.h

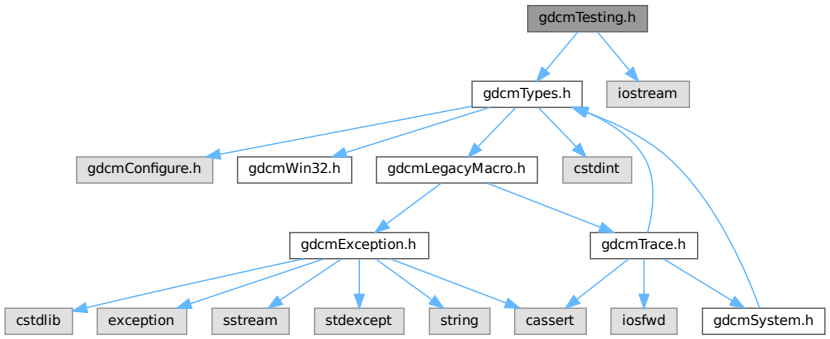
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This header is included by all the C++ test drivers in GDCM.
#ifndef GDCMTESTDRIVER_H
#define GDCMTESTDRIVER_H

// CREATE_TEST_SOURCELIST supports the flag EXTRA_INCLUDE but only one per call.
// So there is no way to specify we want to include two files... instead
// gather the #include in a single file and include that one...
#include <clocale> // C setlocale()
#include <locale> // C++ locale

#endif // GDCMTESTDRIVER_H
```

11.77 gdcmTesting.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmTesting.h:



Classes

- class gdcm::Testing

  class for testing

Namespaces

- namespace gdcm

11.78 gdcmTesting.h

Go to the documentation of this file.

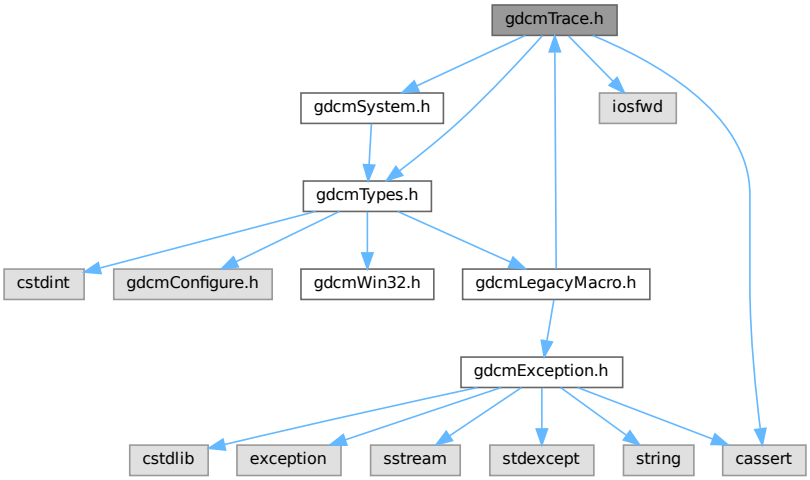
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTESTING_H
#define GDCMTESTING_H

#include "gdcmTypes.h"

#include <iostream>

namespace gdcm
```

```
{
//-----------------------------------------------------------------------------
class GDCM_EXPORT Testing
{
public :
  Testing() = default;
  ~Testing() = default;

  static bool ComputeMD5(const char *buffer, size_t buf_len,
    char digest_str[33]);
  static bool ComputeFileMD5(const char *filename, char digest_str[33]);

  void Print(std::ostream &os = std::cout);

  static const char * const * GetFileNames();
  static unsigned int GetNumberOfFileNames();
  static const char * GetFileName(unsigned int file);

  typedef const char* const (*MediaStorageDataFilesType)[2];
  static MediaStorageDataFilesType GetMediaStorageDataFiles();
  static unsigned int GetNumberOfMediaStorageDataFiles();
  static const char * const * GetMediaStorageDataFile(unsigned int file);
  static const char * GetMediaStorageFromFile(const char *filepath);

  typedef const char* const (*MD5DataImagesType)[2];
  static MD5DataImagesType GetMD5DataImages();
  static unsigned int GetNumberOfMD5DataImages();
  static const char * const * GetMD5DataImage(unsigned int file);
  static const char * GetMD5FromFile(const char *filepath);

  static const char * GetMD5FromBrokenFile(const char *filepath);

  static std::streamoff GetStreamOffsetFromFile(const char *filepath);

  static std::streamoff GetSelectedTagsOffsetFromFile(const char *filepath);

  static std::streamoff GetSelectedPrivateGroupOffsetFromFile(const char *filepath);

  static int GetLossyFlagFromFile(const char *filepath);

  static const char * GetDataRoot();

  static const char * GetDataExtraRoot();

  static const char * GetPixelSpacingDataRoot();

  static const char * GetTempDirectory(const char * subdir = nullptr);

  static const wchar_t *GetTempDirectoryW(const wchar_t * subdir = nullptr);

  static const char * GetTempFilename(const char *filename, const char * subdir = nullptr);

  static const wchar_t* GetTempFilenameW(const wchar_t *filename, const wchar_t* subdir = nullptr);

  static const char *GetSourceDirectory();
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMTESTING_H
```

11.79 gdcmTrace.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSystem.h"
#include <iosfwd>
#include <cassert>
```

Include dependency graph for gdcmTrace.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Trace

  Trace.

Namespaces

- namespace gdcm

Macros

- #define GDCM_FUNCTION "<unknown>"
- #define gdcmAssertAlwaysMacro(arg) gdcmAssertMacro(arg)

  AssertAlways.
- #define gdcmAssertMacro(arg)

  Assert.
- #define gdcmDebugMacro(msg)

  Debug.
- #define gdcmErrorMacro(msg)

  Error this is pretty bad, more than just warning It could mean lost of data, something not handle...
- #define gdcmWarningMacro(msg)

  Warning.

11.79.1 Macro Definition Documentation

11.79.1.1 GDCM_FUNCTION

```
#define GDCM_FUNCTION "<unknown>"
```

11.79.1.2 gdcmAssertAlwaysMacro

```
#define gdcmAssertAlwaysMacro(
            arg ) gdcmAssertMacro(arg)
```

AssertAlways.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

11.79.1.3 gdcmAssertMacro

```
#define gdcmAssertMacro(
            arg )
```

Value:

```
{                                                                   \
   if( !(arg) )                                                     \
   {                                                                \
   std::ostringstream osmacro;                                      \
   osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION                         \
           « "\n\n";                                                \
   std::ostream &_os = gdcm::Trace::GetErrorStream();               \
   _os « osmacro.str() « std::endl;                                \
   assert ( arg );                                                  \
   }                                                                \
}                                                                   \
GDCM_NOOP_STATEMENT
```

Assert.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

11.79.1.4 gdcmDebugMacro

```
#define gdcmDebugMacro(
            msg )
```

Value:

```
{                                                                   \
   if( gdcm::Trace::GetDebugFlag() )                                \
   {                                                                \
   std::ostringstream osmacro;                                      \
   osmacro « "Debug: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'                 \
           « "Last system error was: "                             \
           « gdcm::System::GetLastSystemError() « '\n' « msg;   \
   std::ostream &_os = gdcm::Trace::GetDebugStream();               \
   _os « osmacro.str() « "\n\n" « std::endl;                      \
   }                                                                \
}                                                                   \
GDCM_NOOP_STATEMENT
```

Debug.

Parameters

msg	message part

11.79.1.5 gdcmErrorMacro

```
#define gdcmErrorMacro(
               msg )
```

Value:

```
{                                                                   \
   if( gdcm::Trace::GetErrorFlag() )                                \
   {                                                                \
   std::ostringstream osmacro;                                      \
   osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'                 \
           « msg « "\n\n";                                         \
   std::ostream &_os = gdcm::Trace::GetErrorStream();               \
   _os « osmacro.str() « std::endl;                               \
   }                                                                \
}                                                                   \
GDCM_NOOP_STATEMENT
```

Error this is pretty bad, more than just warning It could mean lost of data, something not handle...

Parameters

msg	second message part

11.79.1.6 gdcmWarningMacro

```
#define gdcmWarningMacro(
               msg )
```

Value:

```
{                                                                   \
   if( gdcm::Trace::GetWarningFlag() )                              \
   {                                                                \
   std::ostringstream osmacro;                                      \
   osmacro « "Warning: In " __FILE__ ", line " « __LINE__        \
           « ", function " « GDCM_FUNCTION « "\n"                 \
           « msg « "\n\n";                                         \
```

```
   std::ostream &_os = gdcm::Trace::GetWarningStream();          \
   _os « osmacro.str() « std::endl;                            \
   }                                                              \
}                                                                 \
GDCM_NOOP_STATEMENT
```

Warning.

Parameters

msg	message part

11.80 gdcmTrace.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTRACE_H
#define GDCMTRACE_H

#include "gdcmTypes.h"
#include "gdcmSystem.h"

#include <iosfwd>
#include <cassert>

namespace gdcm
{

class GDCM_EXPORT Trace
{
public :
  Trace();
  ~Trace();

  static void SetStream(std::ostream &os);
  static std::ostream &GetStream();

  static void SetDebugStream(std::ostream &os);
  static std::ostream &GetDebugStream();

  static void SetWarningStream(std::ostream &os);
  static std::ostream &GetWarningStream();

  static void SetErrorStream(std::ostream &os);
  static std::ostream &GetErrorStream();

  static void SetStreamToFile( const char *filename );

  static void SetDebug(bool debug);
  static void DebugOn();
  static void DebugOff();
  static bool GetDebugFlag();

  static void SetWarning(bool debug);
  static void WarningOn();
  static void WarningOff();
  static bool GetWarningFlag();

```

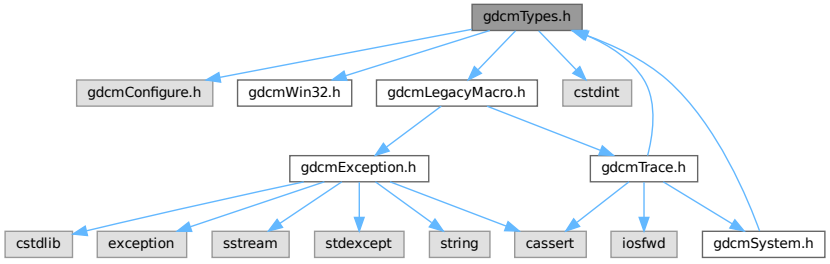
```
  static void SetError(bool debug);
  static void ErrorOn();
  static void ErrorOff();
  static bool GetErrorFlag();

protected:
private:
};

// Here we define function this is the only way to be able to pass
// stuff with indirection like:
// gdcmDebug( "my message:" « i « '\t' );
// You cannot use function unless you use vnsprintf ...

// __FUNCTION is not always defined by preprocessor
// In c++ we should use __PRETTY_FUNCTION__ instead...
#ifdef GDCM_CXX_HAS_FUNCTION
// Handle particular case for GNU C++ which also defines __PRETTY_FUNCTION__
// which is a lot nice in C++
#ifdef __BORLANDC__
#  define __FUNCTION__ __FUNC__
#endif
#ifdef __GNUC__
#  define GDCM_FUNCTION __PRETTY_FUNCTION__
#else
#  define GDCM_FUNCTION __FUNCTION__
#endif //__GNUC__
#else
#  define GDCM_FUNCTION "<unknown>"
#endif //GDCM_CXX_HAS_FUNCTION

#if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
#define gdcmDebugMacro(msg) GDCM_NOOP_STATEMENT
#else
#define gdcmDebugMacro(msg)                                          \
{                                                                    \
   if( gdcm::Trace::GetDebugFlag() )                                 \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Debug: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'               \
           « "Last system error was: "                            \
           « gdcm::System::GetLastSystemError() « '\n' « msg;  \
   std::ostream &_os = gdcm::Trace::GetDebugStream();                \
   _os « osmacro.str() « "\n\n" « std::endl;                    \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
#endif //NDEBUG

#if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
#define gdcmWarningMacro(msg) GDCM_NOOP_STATEMENT
#else
#define gdcmWarningMacro(msg)                                        \
{                                                                    \
   if( gdcm::Trace::GetWarningFlag() )                               \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Warning: In " __FILE__ ", line " « __LINE__       \
           « ", function " « GDCM_FUNCTION « "\n"               \
           « msg « "\n\n";                                        \
   std::ostream &_os = gdcm::Trace::GetWarningStream();              \
   _os « osmacro.str() « std::endl;                              \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
#endif //NDEBUG

#if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
#define gdcmErrorMacro(msg) GDCM_NOOP_STATEMENT
#else
#define gdcmErrorMacro(msg)                                          \
{                                                                    \
   if( gdcm::Trace::GetErrorFlag() )                                 \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'               \
           « msg « "\n\n";                                        \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                \
   _os « osmacro.str() « std::endl;                              \
```

```
   }                                                                    \
}                                                                       \
GDCM_NOOP_STATEMENT
#endif //NDEBUG

#if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
#define gdcmAssertMacro(arg) GDCM_NOOP_STATEMENT
#else
#define gdcmAssertMacro(arg)                                            \
{                                                                       \
   if( !(arg) )                                                         \
   {                                                                    \
   std::ostringstream osmacro;                                          \
   osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION                        \
           « "\n\n";                                                    \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                   \
   _os « osmacro.str() « std::endl;                                \
   assert ( arg );                                                      \
   }                                                                    \
}                                                                       \
GDCM_NOOP_STATEMENT
#endif //NDEBUG

#if defined(NDEBUG)
// User asked for release compilation, but still need to report
// if grave issue.
#define gdcmAssertAlwaysMacro(arg) \
{                                                                       \
   if( !(arg) )                                                         \
   {                                                                    \
   std::ostringstream osmacro;                                          \
   osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION                        \
           « "\n\n";                                                    \
   throw osmacro.str();                                                 \
   }                                                                    \
}                                                                       \
GDCM_NOOP_STATEMENT
#else
// Simply reproduce gdcmAssertMacro behavior:
#define gdcmAssertAlwaysMacro(arg) gdcmAssertMacro(arg)
#endif //NDEBUG

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMTRACE_H
```

11.81 gdcmTypes.h File Reference

```
#include "gdcmConfigure.h"
#include "gdcmWin32.h"
#include "gdcmLegacyMacro.h"
#include <cstdint>
```

Include dependency graph for gdcmTypes.h:



11.82 gdcmTypes.h

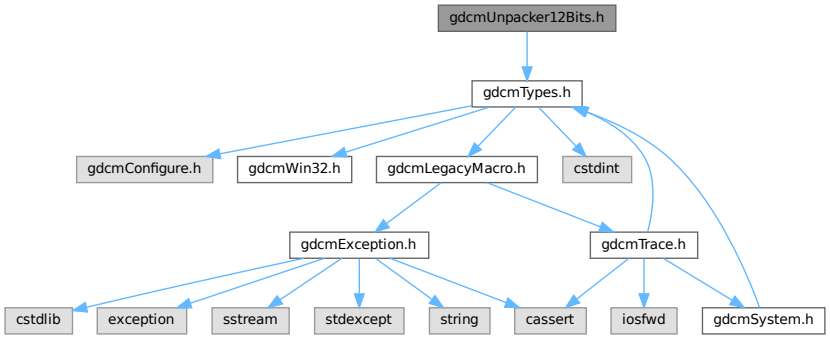
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTYPES_H
#define GDCMTYPES_H

#include "gdcmConfigure.h"
#include "gdcmWin32.h"
#include "gdcmLegacyMacro.h"

//-----------------------------------------------------------------------------
#include <cstdint>

//-----------------------------------------------------------------------------
#endif //GDCMTYPES_H
```

11.83 gdcmUnpacker12Bits.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmUnpacker12Bits.h:



Classes

- class gdcm::Unpacker12Bits

  Pack/Unpack 12 bits pixel into 16bits.

Namespaces

- namespace gdcm

11.84 gdcmUnpacker12Bits.h

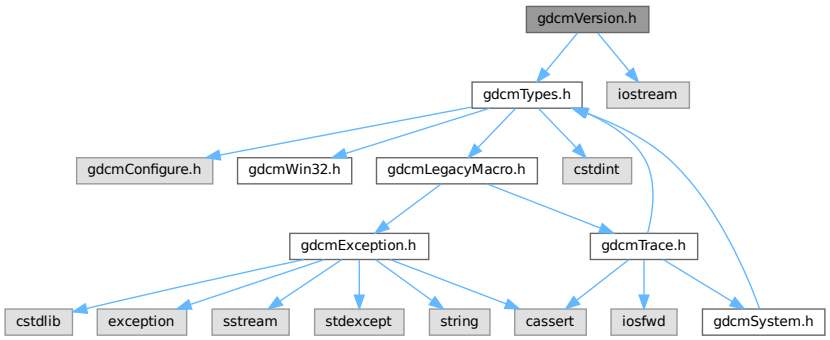
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUNPACKER12BITS_H
#define GDCMUNPACKER12BITS_H

#include "gdcmTypes.h"

namespace gdcm
{
class GDCM_EXPORT Unpacker12Bits
{
public:
  static bool Pack(char *out, const char *in, size_t n);

  static bool Unpack(char *out, const char *in, size_t n);
};

} // end namespace gdcm

#endif //GDCMUNPACKER12BITS_H
```

11.85 gdcmVersion.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVersion.h:



Classes

- class gdcm::Version

  major/minor and build version

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Version &v)

11.86 gdcmVersion.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMVERSION_H
#define GDCMVERSION_H

#include "gdcmTypes.h"
#include <iostream>

namespace gdcm
{
//-----------------------------------------------------------------------------
class GDCM_EXPORT Version
{
  friend std::ostream& operator«(std::ostream &_os, const Version &v);
public :
  static const char *GetVersion();
  static int GetMajorVersion();
  static int GetMinorVersion();
  static int GetBuildVersion();

  void Print(std::ostream &os = std::cout) const;

//protected:
  Version() = default;
  ~Version() = default;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Version &v)
{
  v.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMVERSION_H
```

11.87 gdcmWin32.h File Reference

This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_EXPORT

11.87.1 Macro Definition Documentation

11.87.1.1 GDCM_EXPORT

```
#define GDCM_EXPORT
```

11.88 gdcmWin32.h

Go to the documentation of this file.

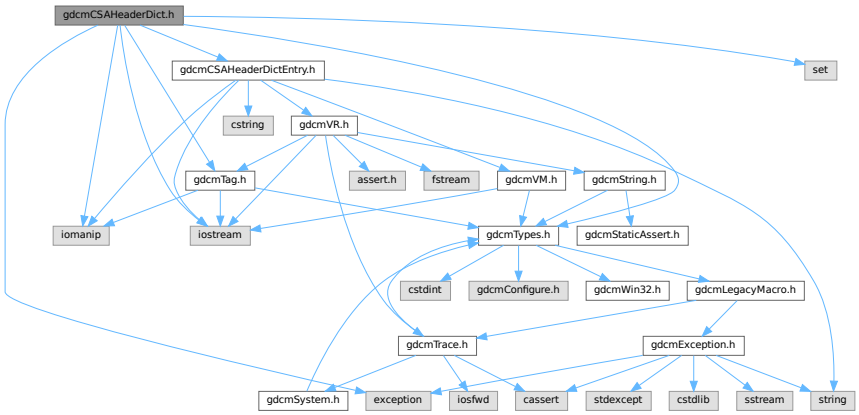
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMWIN32_H
#define GDCMWIN32_H

#if !defined(GDCMTYPES_H)
#error you need to include gdcmTypes.h instead
#endif
//-----------------------------------------------------------------------------
// http://gcc.gnu.org/wiki/Visibility
#if defined(_WIN32) && defined(GDCM_BUILD_SHARED_LIBS)
  #if (defined(gdcmCommon_EXPORTS) || defined(gdcmDICT_EXPORTS) || defined(gdcmDSED_EXPORTS) ||
defined(gdcmIOD_EXPORTS) || defined(gdcmMSFF_EXPORTS) || defined(gdcmMEXD_EXPORTS)||
defined(_gdcmswig_EXPORTS)) || defined(vtkgdcm_EXPORTS)
    #define GDCM_EXPORT __declspec( dllexport )
  #else
    #define GDCM_EXPORT __declspec( dllimport )
  #endif
#else
  #if __GNUC__ >= 4 && defined(GDCM_BUILD_SHARED_LIBS)
    #define GDCM_EXPORT __attribute__ ((visibility ("default")))
    #define GDCM_LOCAL  __attribute__ ((visibility ("hidden")))
  #else
    #define GDCM_EXPORT
  #endif
#endif

#if defined(GDCM_OVERRIDE_BROKEN_IMPLEMENTATION) && !defined(GDCM_FORCE_EXPORT)
#undef GDCM_EXPORT
#define GDCM_EXPORT
#endif

// In VTK 4.2 vtkWrapPython does not like anything other than VTK_*EXPORT
// [ 86%] Generating vtkGDCMImageReaderPython.cxx
// syntax error
// *** SYNTAX ERROR found in parsing the header file
/usr/local/src/gdcm2/tags/gdcm-2-0-11/Utilities/VTK/vtkGDCMImageReader.h before line 128***
// make[2]: *** [Utilities/VTK/vtkGDCMImageReaderPython.cxx] Error 1
// make[1]: *** [Utilities/VTK/CMakeFiles/vtkgdcmPythonD.dir/all] Error 2
// make: *** [all] Error 2

#if defined(VTK_MAJOR_VERSION) && ( VTK_MAJOR_VERSION == 4 )
```

```
#undef VTK_EXPORT
#define VTK_EXPORT GDCM_EXPORT
#endif

//-----------------------------------------------------------------------------
//This is needed when compiling in debug mode
#ifdef _MSC_VER
// to allow construct such as: std::numeric_limits<int>::max() we need the following:
// warning C4003: not enough actual parameters for macro 'max'
#ifndef NOMINMAX
  #define NOMINMAX
#endif
# pragma warning ( default : 4263 ) /* no override, call convention differs */
// 'identifier' : class 'type' needs to have dll-interface to be used by
// clients of class 'type2'
#pragma warning ( disable : 4251 )
// non dll-interface class 'type' used as base for dll-interface class 'type2'
#pragma warning ( disable : 4275 )
// 'identifier' : identifier was truncated to 'number' characters in the
// debug information
#pragma warning ( disable : 4786 )
//'identifier' : decorated name length exceeded, name was truncated
#pragma warning ( disable : 4503 )
#endif //_MSC_VER

//-----------------------------------------------------------------------------
#endif //GDCMWIN32_H
```

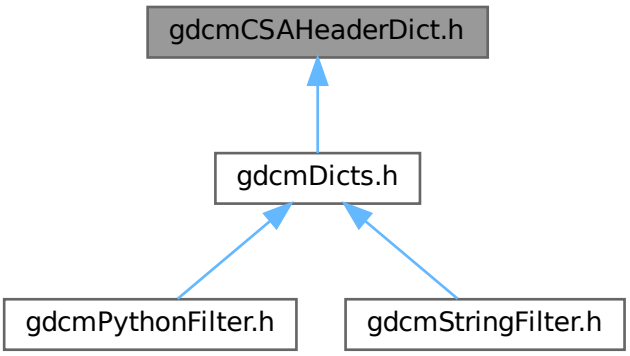
11.89 gdcmCSAHeaderDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmCSAHeaderDictEntry.h"
#include <iostream>
#include <iomanip>
#include <set>
#include <exception>
```

Include dependency graph for gdcmCSAHeaderDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class gdcm::CSAHeaderDictException

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDict &val)

11.90 gdcmCSAHeaderDict.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCSAHEADERDICT_H
```

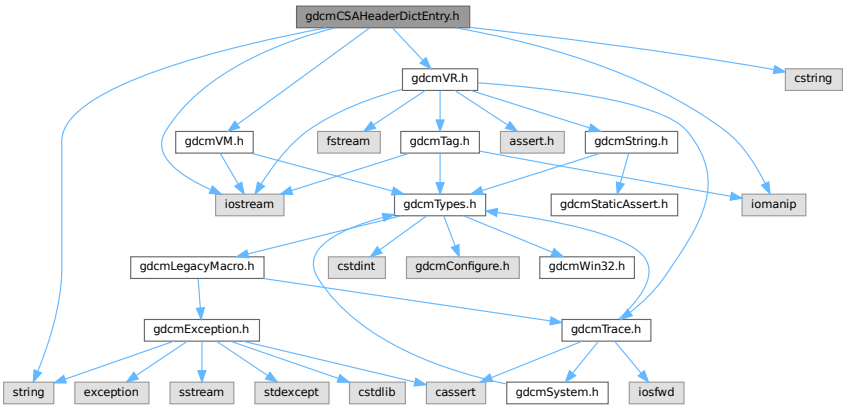
```
#define GDCMCSAHEADERDICT_H

#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmCSAHeaderDictEntry.h"

#include <iostream>
#include <iomanip>
#include <set>
#include <exception>

namespace gdcm
{

class GDCM_EXPORT CSAHeaderDictException : public std::exception {};

class GDCM_EXPORT CSAHeaderDict
{
public:
  typedef std::set<CSAHeaderDictEntry> MapCSAHeaderDictEntry;
  typedef MapCSAHeaderDictEntry::iterator Iterator;
  typedef MapCSAHeaderDictEntry::const_iterator ConstIterator;
  //static CSAHeaderDictEntry GroupLengthCSAHeaderDictEntry; // = CSAHeaderDictEntry("Group Length",VR::UL,VM::VM1);

  CSAHeaderDict():CSAHeaderDictInternal() {
    assert( CSAHeaderDictInternal.empty() );
  }
  CSAHeaderDict &operator=(const CSAHeaderDict &_val) = delete;
  CSAHeaderDict(const CSAHeaderDict &_val) = delete;

  friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDict &_val);

  ConstIterator Begin() const { return CSAHeaderDictInternal.begin(); }
  ConstIterator End() const { return CSAHeaderDictInternal.end(); }

  bool IsEmpty() const { return CSAHeaderDictInternal.empty(); }
  void AddCSAHeaderDictEntry(const CSAHeaderDictEntry &de)
    {
#ifndef NDEBUG
    MapCSAHeaderDictEntry::size_type s = CSAHeaderDictInternal.size();
#endif
    CSAHeaderDictInternal.insert( de );
    assert( s < CSAHeaderDictInternal.size() );
    }

  const CSAHeaderDictEntry &GetCSAHeaderDictEntry(const char *name) const
    {
    MapCSAHeaderDictEntry::const_iterator it = CSAHeaderDictInternal.find( name );
    if( it != CSAHeaderDictInternal.end() )
      {
      return *it;
      }
    throw CSAHeaderDictException();
    }

protected:
  friend class Dicts;
  void LoadDefault();

private:

  MapCSAHeaderDictEntry CSAHeaderDictInternal;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const CSAHeaderDict &val)
{
  CSAHeaderDict::MapCSAHeaderDictEntry::const_iterator it = val.CSAHeaderDictInternal.begin();
  for(;it != val.CSAHeaderDictInternal.end(); ++it)
    {
    const CSAHeaderDictEntry &de = *it;
    os « de « '\n';
    }


  return os;
}


} // end namespace gdcm

```

```
00098 #endif //GDCMCSAHEADERDICT_H
```

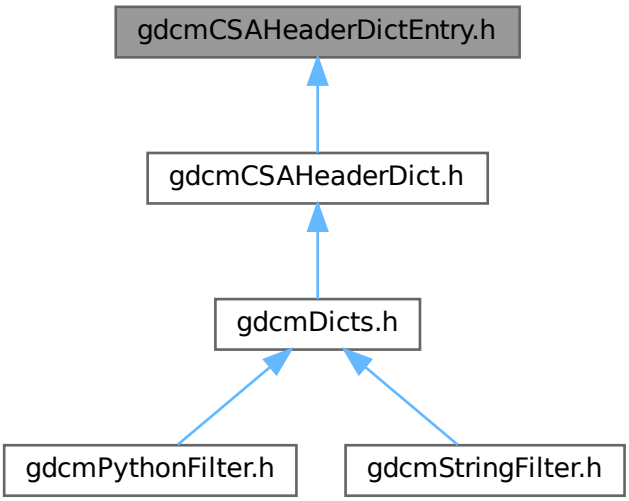
11.91 gdcmCSAHeaderDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
#include <cstring>
```

Include dependency graph for gdcmCSAHeaderDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDictEntry &val)

11.92 gdcmCSAHeaderDictEntry.h

Go to the documentation of this file.

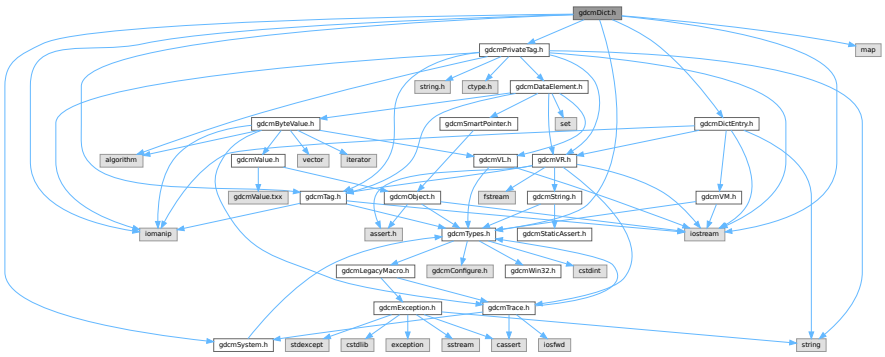
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
```

```
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCSAHEADERDICTENTRY_H
#define GDCMCSAHEADERDICTENTRY_H

#include "gdcmVR.h"
#include "gdcmVM.h"

#include <string>
#include <iostream>
#include <iomanip>

#include <cstring>

namespace gdcm
{
class GDCM_EXPORT CSAHeaderDictEntry
{
public:
  CSAHeaderDictEntry(const char *name = "", VR const &vr = VR::INVALID, VM const &vm = VM::VM0, const char *desc = ""):Name(name),ValueRepresentation(vr),ValueMultiplicity(vm),Description(desc) {
  }

  friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDictEntry &_val);

  const VR &GetVR() const { return ValueRepresentation; }
  void SetVR(const VR & vr) { ValueRepresentation = vr; }

  const VM &GetVM() const { return ValueMultiplicity; }
  void SetVM(VM const & vm) { ValueMultiplicity = vm; }

  const char *GetName() const { return Name.c_str(); }
  void SetName(const char* name) { Name = name; }

  const char *GetDescription() const { return Description.c_str(); }
  void SetDescription(const char* desc) { Description = desc; }

  bool operator<(const CSAHeaderDictEntry &entry) const
    {
    return strcmp(GetName(),entry.GetName()) < 0;
    }

private:
  std::string Name;
  VR ValueRepresentation;
  VM ValueMultiplicity;
  std::string Description;
  std::string Type; // TODO
};


//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const CSAHeaderDictEntry &val)
{
  if( val.Name.empty() )
    {
    os « "[No name]";
    }
  else
    {
    os « val.Name;
    }
  os « "\t" « val.ValueRepresentation « "\t" « val.ValueMultiplicity;
  if( !val.Description.empty() )
    {
    os « "\t" « val.Description;
    }
  return os;
}

} // end namespace gdcm

#endif //GDCMCSAHEADERDICTENTRY_H
```

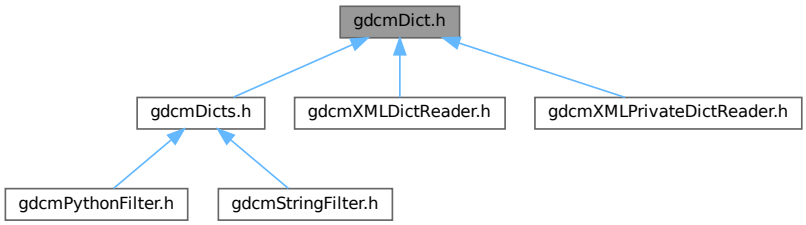
11.93 gdcmDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmDictEntry.h"
#include "gdcmSystem.h"
#include <iostream>
#include <iomanip>
#include <map>
```

Include dependency graph for gdcmDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dict

  Class to represent a map of DictEntry.
- class gdcm::PrivateDict

  Private Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dict &val)
- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateDict &val)

11.94 gdcmDict.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICT_H
#define GDCMDICT_H

#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmDictEntry.h"
#include "gdcmSystem.h"

#include <iostream>
#include <iomanip>
#include <map>

/*
 * FIXME / TODO
 * I need to seriously rewrite this mess. a class template should work for both a public
 * and a private dict
 */

namespace gdcm
{
// Data Element Tag
class GDCM_EXPORT Dict
{
public:
  typedef std::map<Tag, DictEntry> MapDictEntry;
  typedef MapDictEntry::iterator Iterator;
  typedef MapDictEntry::const_iterator ConstIterator;
  //static DictEntry GroupLengthDictEntry; // = DictEntry("Group Length",VR::UL,VM::VM1);

  Dict():DictInternal() {
    assert( DictInternal.empty() );
  }
  Dict &operator=(const Dict &_val) = delete;
  Dict(const Dict &_val) = delete;


  friend std::ostream& operator«(std::ostream& _os, const Dict &_val);

  ConstIterator Begin() const { return DictInternal.begin(); }
  ConstIterator End() const { return DictInternal.end(); }

  bool IsEmpty() const { return DictInternal.empty(); }
  void AddDictEntry(const Tag &tag, const DictEntry &de)
    {
#ifndef NDEBUG
    MapDictEntry::size_type s = DictInternal.size();
#endif
    DictInternal.insert(
      MapDictEntry::value_type(tag, de));
    assert( s < DictInternal.size() );
    }
```

```
00074
00075   const DictEntry &GetDictEntry(const Tag &tag) const
00076     {
00077     MapDictEntry::const_iterator it =
00078       DictInternal.find(tag);
00079     if (it == DictInternal.end())
00080       {
00081 #ifdef UNKNOWNPUBLICTAG
00082       // test.acr
00083       if( tag != Tag(0x28,0x15)
00084         && tag != Tag(0x28,0x16)
00085         && tag != Tag(0x28,0x199)
00086         // gdcmData/TheralysGDCM1.dcm
00087         && tag != Tag(0x20,0x1)
00088         // gdcmData/0019004_Baseline_IMG1.dcm
00089         && tag != Tag(0x8348,0x339)
00090         && tag != Tag(0xb5e8,0x338)
00091         // gdcmData/dicomdir_Acusson_WithPrivate_WithSR
00092         && tag != Tag(0x40,0xa125)
00093       )
00094         {
00095         assert( 0 && "Impossible" );
00096         }
00097 #endif
00098       it = DictInternal.find( Tag(0xffff,0xffff) );
00099       return it->second;
00100       }
00101     assert( DictInternal.count(tag) == 1 );
00102     return it->second;
00103     }
00104
00106   const char *GetKeywordFromTag(Tag const & tag) const
00107     {
00108     MapDictEntry::const_iterator it =
00109       DictInternal.find(tag);
00110     if (it == DictInternal.end())
00111       {
00112       return nullptr;
00113       }
00114     assert( DictInternal.count(tag) == 1 );
00115     return it->second.GetKeyword();
00116     }
00117
00122   const DictEntry &GetDictEntryByKeyword(const char *keyword, Tag & tag) const
00123     {
00124     MapDictEntry::const_iterator it =
00125       DictInternal.begin();
00126     if( keyword )
00127       {
00128       for(; it != DictInternal.end(); ++it)
00129         {
00130         if( strcmp( keyword, it->second.GetKeyword() ) == 0 )
00131           {
00132           // Found a match !
00133           tag = it->first;
00134           break;
00135           }
00136         }
00137       }
00138     else
00139       {
00140       it = DictInternal.end();
00141       }
00142     if (it == DictInternal.end())
00143       {
00144       tag = Tag(0xffff,0xffff);
00145       it = DictInternal.find( tag );
00146       return it->second;
00147       }
00148     assert( DictInternal.count(tag) == 1 );
00149     return it->second;
00150     }
00151
00155   const DictEntry &GetDictEntryByName(const char *name, Tag & tag) const
00156     {
00157     MapDictEntry::const_iterator it =
00158       DictInternal.begin();
00159     if( name )
00160       {
00161       for(; it != DictInternal.end(); ++it)
00162         {
```

```
        if( strcmp( name, it->second.GetName() ) == 0 )
          {
          // Found a match !
          tag = it->first;
          break;
          }
        }
      }
    else
      {
      it = DictInternal.end();
      }
    if (it == DictInternal.end())
      {
      tag = Tag(0xffff,0xffff);
      it = DictInternal.find( tag );
      return it->second;
      }
    assert( DictInternal.count(tag) == 1 );
    return it->second;
    }

protected:
  friend class Dicts;
  void LoadDefault();

private:
  MapDictEntry DictInternal;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const Dict &val)
{
  Dict::MapDictEntry::const_iterator it = val.DictInternal.begin();
  for(;it != val.DictInternal.end(); ++it)
    {
    const Tag &t = it->first;
    const DictEntry &de = it->second;
    os « t « " " « de « '\n';
    }

  return os;
}

// TODO
// For private dict, element < 0x10 should automatically defined:
// Name = "Private Creator"
// ValueRepresentation = LO
// ValueMultiplicity = 1
// Owner = ""

class GDCM_EXPORT PrivateDict
{
  typedef std::map<PrivateTag, DictEntry> MapDictEntry;
  friend std::ostream& operator«(std::ostream& os, const PrivateDict &val);
public:
  PrivateDict() = default;
  ~PrivateDict() = default;
  void AddDictEntry(const PrivateTag &tag, const DictEntry &de)
    {
#ifndef NDEBUG
    MapDictEntry::size_type s = DictInternal.size();
#endif
    DictInternal.insert(
      MapDictEntry::value_type(tag, de));
// The following code should only be used when manually constructing a Private.xml file by hand
// it will get rid of VR::UN duplicate (ie. if a VR != VR::Un can be found)
#if defined(NDEBUG) && 0
    if( s == DictInternal.size() )
      {
      MapDictEntry::iterator it =
        DictInternal.find(tag);
      assert( it != DictInternal.end() );
      DictEntry &duplicate = it->second;
      assert( de.GetVR() == VR::UN || duplicate.GetVR() == VR::UN );
      assert( de.GetVR() != duplicate.GetVR() );
      if( duplicate.GetVR() == VR::UN )
        {
        assert( de.GetVR() != VR::UN );
        duplicate.SetVR( de.GetVR() );
        duplicate.SetVM( de.GetVM() );
        assert( GetDictEntry(tag).GetVR() != VR::UN );
```

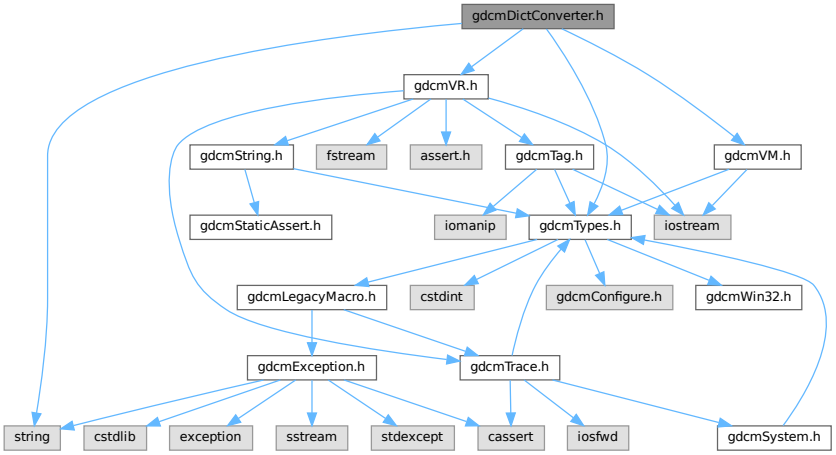
```
        assert( GetDictEntry(tag).GetVR() == de.GetVR() );
        assert( GetDictEntry(tag).GetVM() == de.GetVM() );
        }
      return;
      }
#endif
    assert( s < DictInternal.size() /*&& std::cout « tag « "," « de « std::endl*/ );
    }
  bool RemoveDictEntry(const PrivateTag &tag)
    {
    MapDictEntry::size_type s =
      DictInternal.erase(tag);
    assert( s == 1 || s == 0 );
    return s == 1;
    }
  bool FindDictEntry(const PrivateTag &tag) const
    {
    MapDictEntry::const_iterator it =
      DictInternal.find(tag);
    if (it == DictInternal.end())
      {
      return false;
      }
    return true;
    }
  const DictEntry &GetDictEntry(const PrivateTag &tag) const
    {
    // if 0x10 -> return Private Creator
    MapDictEntry::const_iterator it =
      DictInternal.find(tag);
    if (it == DictInternal.end())
      {
      //assert( 0 && "Impossible" );
      it = DictInternal.find( PrivateTag(0xffff,0xffff,"GDCM Private Sentinel" ) );
      assert (it != DictInternal.end());
      return it->second;
      }
    assert( DictInternal.count(tag) == 1 );
    return it->second;
    }


  void PrintXML() const
    {
    MapDictEntry::const_iterator it = DictInternal.begin();
    std::cout « "<dict edition=\"2008\">\n";
    for(;it != DictInternal.end(); ++it)
      {
      const PrivateTag &t = it->first;
      const DictEntry &de = it->second;
      std::cout « "  <entry group=\"" « std::hex « std::setw(4)
        « std::setfill('0') « t.GetGroup() « "\"" «
        " element=\"xx" « std::setw(2) « std::setfill('0')« t.GetElement() « "\"" « " vr=\""
        « de.GetVR() « "\" vm=\"" « de.GetVM() « "\" owner=\""
        « t.GetOwner();
      const char *name = de.GetName();
      if( *name == 0 )
        {
        std::cout « "\"/>\n";
        }
      else
        {
        std::cout « "\" name=\"" « de.GetName() « "\"/>\n";
        }
      }
    std::cout « "</dict>\n";
    }

  bool IsEmpty() const { return DictInternal.empty(); }
protected:
  friend class Dicts;
  void LoadDefault();

private:
  PrivateDict &operator=(const PrivateDict &_val) = delete;
  PrivateDict(const PrivateDict &_val) = delete;

  MapDictEntry DictInternal;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const PrivateDict &val)
```

```
{
  PrivateDict::MapDictEntry::const_iterator it = val.DictInternal.begin();
  for(;it != val.DictInternal.end(); ++it)
    {
    const PrivateTag &t = it->first;
    const DictEntry &de = it->second;
    os « t « " " « de « '\n';
    }

  return os;
}

} // end namespace gdcm

#endif //GDCMDICT_H
```

11.95 gdcmDictConverter.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
```

Include dependency graph for gdcmDictConverter.h:



Classes

- class gdcm::DictConverter

  Class to convert a .dic file into something else:

Namespaces

- namespace gdcm

11.96 gdcmDictConverter.h

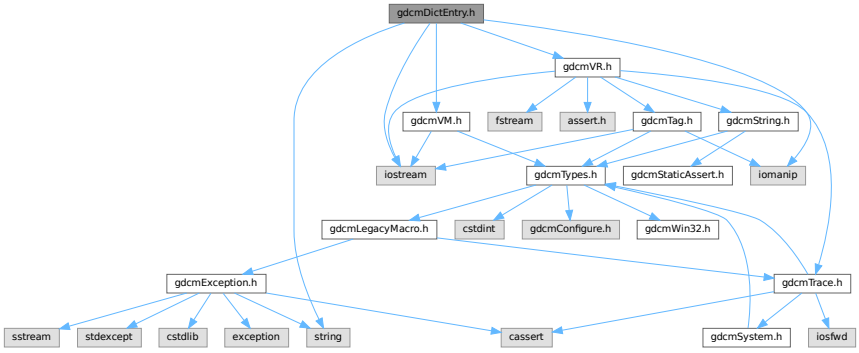
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMDICTCONVERTER_H
#define GDCMDICTCONVERTER_H

#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmVM.h"

#include <string>

namespace gdcm
{

class DictConverterInternal;
class GDCM_EXPORT DictConverter
{
public:
  DictConverter();
  ~DictConverter();
  void SetInputFileName(const char* filename);
  const std::string &GetInputFilename() const;
  void SetOutputFileName(const char* filename);
  const std::string &GetOutputFilename() const;

  int GetOutputType() const {
    return OutputType;
  }
  void SetOutputType(int type) {
    OutputType = type;
  }
  const std::string &GetDictName() const;
  void SetDictName(const char *name);

  void Convert();

  // Leaving them public for now. Not really user oriented but may be
  // useful
  static bool ReadVR(const char *raw, VR::VRType &type);
  static bool ReadVM(const char *raw, VM::VMType &type);
  static bool Readuint16(const char *raw, uint16_t &ov);

  enum OutputTypes {
    DICT_DEFAULT = 0,
    DICT_DEBUG,
    DICT_XML
  };

protected:
  void WriteHeader();
  void WriteFooter();
  bool ConvertToXML(const char *raw, std::string &cxx);
  bool ConvertToCXX(const char *raw, std::string &cxx);
  void AddGroupLength();

private:
  DictConverterInternal *Internal;

  int OutputType;
};

} // end namespace gdcm

#endif //GDCMDICTCONVERTER_H
```

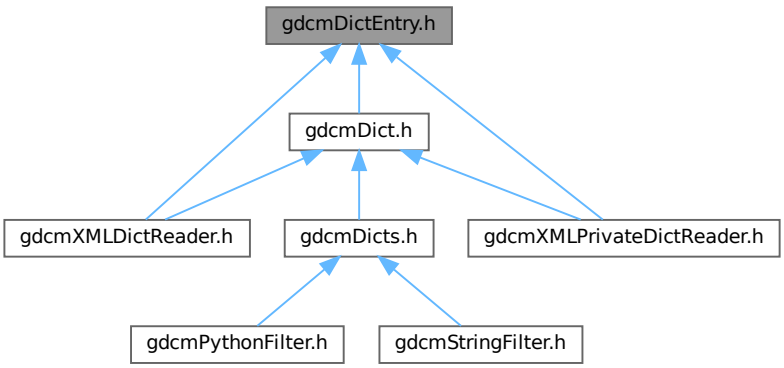
11.97 gdcmDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DictEntry &val)

11.98 gdcmDictEntry.h

Go to the documentation of this file.

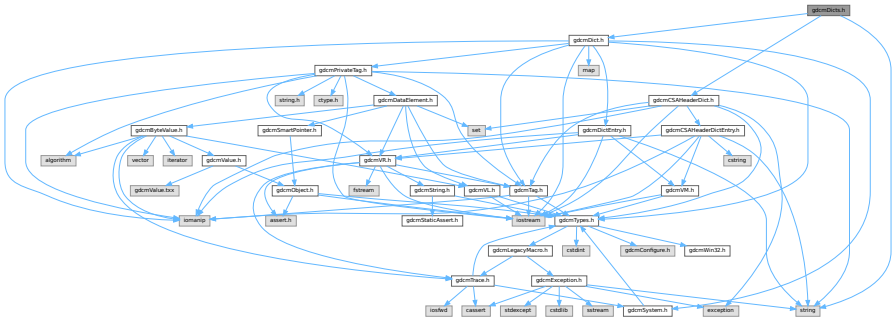
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICTENTRY_H
#define GDCMDICTENTRY_H

#include "gdcmVR.h"
#include "gdcmVM.h"

#include <string>
#include <iostream>
#include <iomanip>

namespace gdcm
{
class GDCM_EXPORT DictEntry
{
public:
  DictEntry(const char *name = "", const char *keyword = "", VR const &vr = VR::INVALID, VM const &vm = VM::VM0, bool ret = false):
    Name(name),
    Keyword(keyword),
    ValueRepresentation(vr),
    ValueMultiplicity(vm),
    Retired(ret),
    GroupXX(false),
    ElementXX(false)
  {
  }

  friend std::ostream& operator«(std::ostream& _os, const DictEntry &_val);

  const VR &GetVR() const { return ValueRepresentation; }
  void SetVR(const VR & vr) { ValueRepresentation = vr; }
//  bool IsValid() const { return ValueRepresentation != VR::VR_END; }
//    !Name.empty() /*&& ValueRepresentation && ValueMultiplicity*/; }

  const VM &GetVM() const { return ValueMultiplicity; }
  void SetVM(VM const & vm) { ValueMultiplicity = vm; }

  const char *GetName() const { return Name.c_str(); }
  void SetName(const char* name) { Name = name; }

  const char *GetKeyword() const { return Keyword.c_str(); }
  void SetKeyword(const char* keyword) { Keyword = keyword; }

  bool GetRetired() const { return Retired; }
  void SetRetired(bool retired) { Retired = retired; }

  // <entry group="50xx" element="0005" vr="US" vm="1" retired="true" version="3">
  void SetGroupXX(bool v) { GroupXX = v; }

  // <entry group="0020" element="31xx" vr="CS" vm="1-n" retired="true" version="2">
  void SetElementXX(bool v) { ElementXX = v; }

  bool IsUnique() const { return ElementXX == false && GroupXX == false; }

```

```
private:
  //
  friend class Dict;
  static bool CheckKeywordAgainstName(const char *name, const char *keyword);

private:
  std::string Name;
  std::string Keyword;
  VR ValueRepresentation;
  VM ValueMultiplicity;
  bool Retired : 1;
  bool GroupXX : 1;
  bool ElementXX : 1;
};

#if 0
class GDCM_EXPORT PrivateDictEntry : public DictEntry
{
public:
  PrivateDictEntry(const char *name = "", VR::VRType const &vr = VR::INVALID, VM::VMType const &vm =
    VM::VM0 , bool ret = false, const char *owner = ""):DictEntry(name,vr,vm,ret),Owner(owner) {}
  PrivateDictEntry(const char *name, const char *vr, const char *vm):DictEntry(name,vr,vm) {}

  const char *GetOwner() const { return Owner.c_str(); }
  void SetOwner(const char *owner) { Owner = owner; }

private:
  // SIEMENS MED, GEMS_PETD_01 ...
  std::string Owner;
};
#endif

//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const DictEntry &val)
{
  if( val.Name.empty() )
    {
    os « "[No name]";
    }
  else
    {
    os « val.Name;
    }
  if( val.Keyword.empty() )
    {
    os « "[No keyword]";
    }
  else
    {
    os « val.Keyword;
    }
  os « "\t" « val.ValueRepresentation « "\t" « val.ValueMultiplicity;
  if( val.Retired )
    {
    os « "\t(RET)";
    }
  return os;
}

} // end namespace gdcm

#endif //GDCMDICTENTRY_H
```

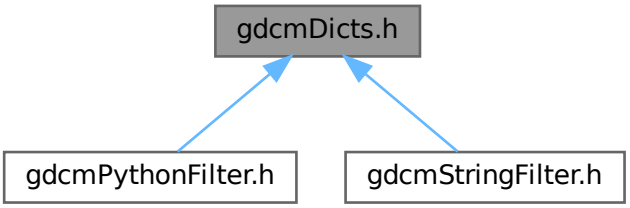
11.99 gdcmDicts.h File Reference

```
#include "gdcmDict.h"
#include "gdcmCSAHeaderDict.h"
#include <string>
```

Include dependency graph for gdcmDicts.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dicts

  Class to manipulate the sum of knowledge (all the dict user load)

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dicts &d)

11.100 gdcmDicts.h

Go to the documentation of this file.

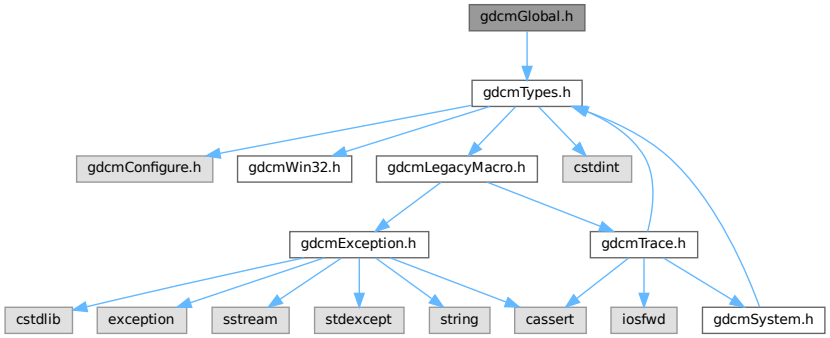
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICTS_H
#define GDCMDICTS_H

#include "gdcmDict.h"
#include "gdcmCSAHeaderDict.h"

#include <string>

namespace gdcm
{
class GDCM_EXPORT Dicts
{
  friend std::ostream& operator«(std::ostream &_os, const Dicts &d);
public:
  Dicts();
  ~Dicts();
  Dicts &operator=(const Dicts &_val) = delete;
  Dicts(const Dicts &_val) = delete;

  // DataSet::GetPrivateCreator
  const DictEntry &GetDictEntry(const Tag& tag, const char *owner = nullptr) const;

  const DictEntry &GetDictEntry(const PrivateTag& tag) const;

  //enum PublicTypes {
  //  DICOMV3_DICT,
  //  ACRNEMA_DICT,
  //  NIH_DICT
  //};
  const Dict &GetPublicDict() const;

  const PrivateDict &GetPrivateDict() const;
  PrivateDict &GetPrivateDict();

  const CSAHeaderDict &GetCSAHeaderDict() const;

  bool IsEmpty() const { return GetPublicDict().IsEmpty(); }

protected:
  typedef enum {
    PHILIPS,
    GEMS,
    SIEMENS
  //  ...
  } ConstructorType;
  static const char *GetConstructorString(ConstructorType type);

  friend class Global;
  void LoadDefaults();

private:
  // Public dict:
  Dict PublicDict;

  // Private Dicts:
  PrivateDict ShadowDict;

  CSAHeaderDict CSADict;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Dicts &d)
{
  (void)d;
```

```
  return os;
}


} // end namespace gdcm

#endif //GDCMDICTS_H
```

11.101 gdcmGlobal.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmGlobal.h:



Classes

- class gdcm::Global

  Global.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Global &g)

Variables

- static Global gdcm::GlobalInstance

11.102 gdcmGlobal.h

Go to the documentation of this file.

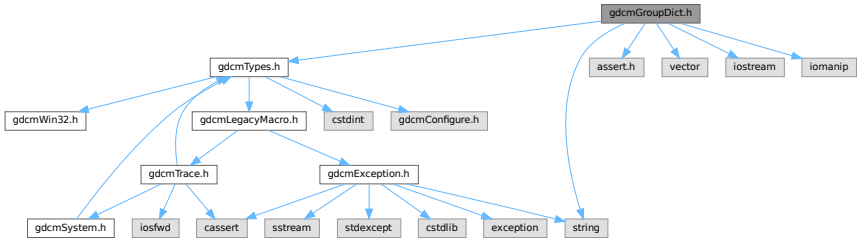
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// Implementation detail was shamelessly borowed from the VTK excellent
// implementation of debug leak manager singleton:
/*=========================================================================

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkDebugLeaks.cxx,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMGLOBAL_H
#define GDCMGLOBAL_H

#include "gdcmTypes.h"

namespace gdcm
{
class GlobalInternal;
class Dicts;
class Defs;
class GDCM_EXPORT Global // why expose the symbol I think I only need to expose the instance...
{
  friend std::ostream& operator<<(std::ostream &_os, const Global &g);
public:
  Global();
  ~Global();
  Global &operator=(const Global &_val) = delete;
  Global(const Global &_val) = delete;

  Dicts const &GetDicts() const;
  Dicts &GetDicts();

  Defs const &GetDefs() const;

  static Global& GetInstance();

  bool LoadResourcesFiles();

  bool Append(const char *path);

  bool Prepend(const char *path);

protected:
  const char *Locate(const char *resfile) const;

private:
  // PIMPL:
  // but we could have also directly exposed a Dicts *Internals;
  static GlobalInternal *Internals;
};
//----------------------------------------------------------------------------
inline std::ostream& operator<<(std::ostream &os, const Global &g)
{
  (void)g;
  return os;
}

```

```
// This instance will show up in any translation unit that uses
// Global or that has a singleton.  It will make sure
// Global is initialized before it is used and is the last
// static object destroyed.
static Global GlobalInstance;

} // end namespace gdcm

#endif //GDCMGLOBAL_H
```

11.103 gdcmGroupDict.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
#include <vector>
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmGroupDict.h:



Classes

- class gdcm::GroupDict

  Class to represent the mapping from group number to its abbreviation and name.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const GroupDict &_val)

11.104 gdcmGroupDict.h

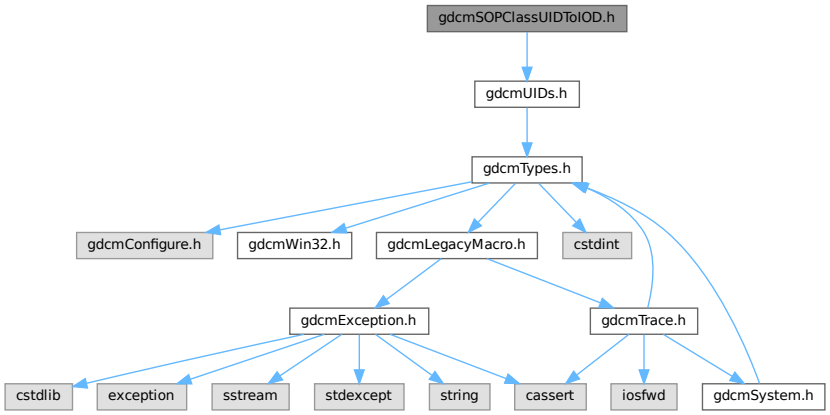
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMGROUPDICT_H
#define GDCMGROUPDICT_H

#include "gdcmTypes.h"

#include <assert.h>
#include <vector>
#include <string>
#include <iostream>
#include <iomanip>

namespace gdcm
{
class GDCM_EXPORT GroupDict
{
public:
  typedef std::vector<std::string> GroupStringVector;
  GroupDict() { FillDefaultGroupName(); }
  ~GroupDict() = default;

  friend std::ostream& operator«(std::ostream& _os, const GroupDict &_val);

  size_t Size() const
    {
    assert( Names.size() == Abbreviations.size() );
    return Names.size(); }

  std::string const &GetAbbreviation(uint16_t num) const;

  std::string const &GetName(uint16_t num) const;

protected:
  void Add(std::string const &abbreviation, std::string const &name);
  void Insert(uint16_t num, std::string const &abbreviation, std::string const &name);

private:
  // Generated implementation, see gdcmDefaultGroupNames
  void FillDefaultGroupName();

  GroupDict &operator=(const GroupDict &_val); // purposely not implemented
  GroupDict(const GroupDict &_val); // purposely not implemented

  GroupStringVector Abbreviations;
  GroupStringVector Names;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const GroupDict &_val)
{
  size_t size = _val.Size();
  for(size_t i=0; i<size; ++i)
    {
    _os « std::hex « std::setw(4) « std::setfill( '0' ) « i « ","
      « _val.GetAbbreviation((uint16_t)i) « "," « _val.GetName((uint16_t)i) « "\n";
    }
  return _os;
}

} // end namespace gdcm

#endif //GDCMGROUPDICT_H
```

11.105 gdcmSOPClassUIDToIOD.h File Reference

`#include "gdcmUIDs.h"`

Include dependency graph for gdcmSOPClassUIDToIOD.h:



Classes

- class gdcm::SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.

Namespaces

- namespace gdcm

11.106 gdcmSOPClassUIDToIOD.h

Go to the documentation of this file.

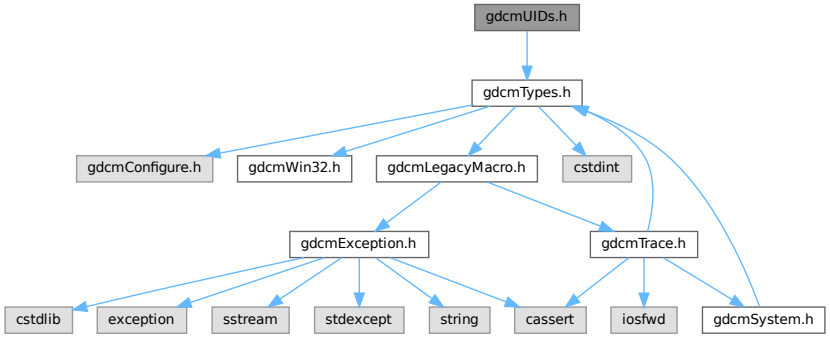
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMSOPCLASSUIDTOIOD_H
#define GDCMSOPCLASSUIDTOIOD_H

#include "gdcmUIDs.h"

```

```
00020 namespace gdcm
00021 {
00022
00028 class GDCM_EXPORT SOPClassUIDToIOD
00029 {
00030 public:
00033   static const char *GetIOD(UIDs const & uid);
00034
00036   static unsigned int GetNumberOfSOPClassToIOD();
00037
00038   typedef const char* const (SOPClassUIDToIODType)[2];
00039   static SOPClassUIDToIODType* GetSOPClassUIDToIODs();
00040
00041   static SOPClassUIDToIODType& GetSOPClassUIDToIOD(unsigned int i);
00042
00043   static const char *GetSOPClassUIDFromIOD(const char *iod);
00044   static const char *GetIODFromSOPClassUID(const char *sopclassuid);
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMSOPCLASSUIDTOIOD_H
```

11.107 gdcmUIDs.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmUIDs.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::UIDs

  all known uids

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UIDs &uid)

11.108 gdcmUIDs.h

Go to the documentation of this file.

```
// GENERATED FILE DO NOT EDIT
// $ xsltproc UIDToC++.xsl Part6.xml > gdcmUIDs.h

/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMUIDS_H
#define GDCMUIDS_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT UIDs
{
public:
  typedef enum {
uid_1_2_840_10008_1_1 = 1, // Verification SOP Class
uid_1_2_840_10008_1_2 = 2, // Implicit VR Little Endian: Default Transfer Syntax for DICOM
uid_1_2_840_10008_1_2_1 = 3, // Explicit VR Little Endian
uid_1_2_840_10008_1_2_1_99 = 4, // Deflated Explicit VR Little Endian
uid_1_2_840_10008_1_2_2 = 5, // Explicit VR Big Endian
uid_1_2_840_10008_1_2_4_50 = 6, // JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression
uid_1_2_840_10008_1_2_4_51 = 7, // JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)
uid_1_2_840_10008_1_2_4_52 = 8, // JPEG Extended (Process 3 & 5)
uid_1_2_840_10008_1_2_4_53 = 9, // JPEG Spectral Selection, Non-Hierarchical (Process 6 & 8)
uid_1_2_840_10008_1_2_4_54 = 10, // JPEG Spectral Selection, Non-Hierarchical (Process 7 & 9)
uid_1_2_840_10008_1_2_4_55 = 11, // JPEG Full Progression, Non-Hierarchical (Process 10 & 12)
uid_1_2_840_10008_1_2_4_56 = 12, // JPEG Full Progression, Non-Hierarchical (Process 11 & 13)
uid_1_2_840_10008_1_2_4_57 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
uid_1_2_840_10008_1_2_4_58 = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
uid_1_2_840_10008_1_2_4_59 = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
uid_1_2_840_10008_1_2_4_60 = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
uid_1_2_840_10008_1_2_4_61 = 17, // JPEG Spectral Selection, Hierarchical (Process 20 & 22)
uid_1_2_840_10008_1_2_4_62 = 18, // JPEG Spectral Selection, Hierarchical (Process 21 & 23)
uid_1_2_840_10008_1_2_4_63 = 19, // JPEG Full Progression, Hierarchical (Process 24 & 26)
uid_1_2_840_10008_1_2_4_64 = 20, // JPEG Full Progression, Hierarchical (Process 25 & 27)
uid_1_2_840_10008_1_2_4_65 = 21, // JPEG Lossless, Hierarchical (Process 28)
uid_1_2_840_10008_1_2_4_66 = 22, // JPEG Lossless, Hierarchical (Process 29)
uid_1_2_840_10008_1_2_4_70 = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression
uid_1_2_840_10008_1_2_4_80 = 24, // JPEG-LS Lossless Image Compression
uid_1_2_840_10008_1_2_4_81 = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
uid_1_2_840_10008_1_2_4_90 = 26, // JPEG 2000 Image Compression (Lossless Only)
```

```
uid_1_2_840_10008_1_2_4_91 = 27, // JPEG 2000 Image Compression
uid_1_2_840_10008_1_2_4_92 = 28, // JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)
uid_1_2_840_10008_1_2_4_93 = 29, // JPEG 2000 Part 2 Multi-component Image Compression
uid_1_2_840_10008_1_2_4_94 = 30, // JPIP Referenced
uid_1_2_840_10008_1_2_4_95 = 31, // JPIP Referenced Deflate
uid_1_2_840_10008_1_2_4_100 = 32, // MPEG2 Main Profile @ Main Level
uid_1_2_840_10008_1_2_5 = 33, // RLE Lossless
uid_1_2_840_10008_1_2_6_1 = 34, // RFC 2557 MIME encapsulation
uid_1_2_840_10008_1_2_6_2 = 35, // XML Encoding
uid_1_2_840_10008_1_3_10 = 36, // Media Storage Directory Storage
uid_1_2_840_10008_1_4_1_1 = 37, // Talairach Brain Atlas Frame of Reference
uid_1_2_840_10008_1_4_1_2 = 38, // SPM2 T1 Frame of Reference
uid_1_2_840_10008_1_4_1_3 = 39, // SPM2 T2 Frame of Reference
uid_1_2_840_10008_1_4_1_4 = 40, // SPM2 PD Frame of Reference
uid_1_2_840_10008_1_4_1_5 = 41, // SPM2 EPI Frame of Reference
uid_1_2_840_10008_1_4_1_6 = 42, // SPM2 FIL T1 Frame of Reference
uid_1_2_840_10008_1_4_1_7 = 43, // SPM2 PET Frame of Reference
uid_1_2_840_10008_1_4_1_8 = 44, // SPM2 TRANSM Frame of Reference
uid_1_2_840_10008_1_4_1_9 = 45, // SPM2 SPECT Frame of Reference
uid_1_2_840_10008_1_4_1_10 = 46, // SPM2 GRAY Frame of Reference
uid_1_2_840_10008_1_4_1_11 = 47, // SPM2 WHITE Frame of Reference
uid_1_2_840_10008_1_4_1_12 = 48, // SPM2 CSF Frame of Reference
uid_1_2_840_10008_1_4_1_13 = 49, // SPM2 BRAINMASK Frame of Reference
uid_1_2_840_10008_1_4_1_14 = 50, // SPM2 AVG305T1 Frame of Reference
uid_1_2_840_10008_1_4_1_15 = 51, // SPM2 AVG152T1 Frame of Reference
uid_1_2_840_10008_1_4_1_16 = 52, // SPM2 AVG152T2 Frame of Reference
uid_1_2_840_10008_1_4_1_17 = 53, // SPM2 AVG152PD Frame of Reference
uid_1_2_840_10008_1_4_1_18 = 54, // SPM2 SINGLESUBJT1 Frame of Reference
uid_1_2_840_10008_1_4_2_1 = 55, // ICBM 452 T1 Frame of Reference
uid_1_2_840_10008_1_4_2_2 = 56, // ICBM Single Subject MRI Frame of Reference
uid_1_2_840_10008_1_9 = 57, // Basic Study Content Notification SOP Class
uid_1_2_840_10008_1_20_1 = 58, // Storage Commitment Push Model SOP Class
uid_1_2_840_10008_1_20_1_1 = 59, // Storage Commitment Push Model SOP Instance
uid_1_2_840_10008_1_20_2 = 60, // Storage Commitment Pull Model SOP Class
uid_1_2_840_10008_1_20_2_1 = 61, // Storage Commitment Pull Model SOP Instance
uid_1_2_840_10008_1_40 = 62, // Procedural Event Logging SOP Class
uid_1_2_840_10008_1_40_1 = 63, // Procedural Event Logging SOP Instance
uid_1_2_840_10008_1_42 = 64, // Substance Administration Logging SOP Class
uid_1_2_840_10008_1_42_1 = 65, // Substance Administration Logging SOP Instance
uid_1_2_840_10008_2_6_1 = 66, // DICOM UID Registry
uid_1_2_840_10008_2_16_4 = 67, // DICOM Controlled Terminology
uid_1_2_840_10008_3_1_1_1 = 68, // DICOM Application Context Name
uid_1_2_840_10008_3_1_2_1_1 = 69, // Detached Patient Management SOP Class
uid_1_2_840_10008_3_1_2_1_4 = 70, // Detached Patient Management Meta SOP Class
uid_1_2_840_10008_3_1_2_2_1 = 71, // Detached Visit Management SOP Class
uid_1_2_840_10008_3_1_2_3_1 = 72, // Detached Study Management SOP Class
uid_1_2_840_10008_3_1_2_3_2 = 73, // Study Component Management SOP Class
uid_1_2_840_10008_3_1_2_3_3 = 74, // Modality Performed Procedure Step SOP Class
uid_1_2_840_10008_3_1_2_3_4 = 75, // Modality Performed Procedure Step Retrieve SOP Class
uid_1_2_840_10008_3_1_2_3_5 = 76, // Modality Performed Procedure Step Notification SOP Class
uid_1_2_840_10008_3_1_2_5_1 = 77, // Detached Results Management SOP Class
uid_1_2_840_10008_3_1_2_5_4 = 78, // Detached Results Management Meta SOP Class
uid_1_2_840_10008_3_1_2_5_5 = 79, // Detached Study Management Meta SOP Class
uid_1_2_840_10008_3_1_2_6_1 = 80, // Detached Interpretation Management SOP Class
uid_1_2_840_10008_4_2 = 81, // Storage Service Class
uid_1_2_840_10008_5_1_1_1 = 82, // Basic Film Session SOP Class
uid_1_2_840_10008_5_1_1_2 = 83, // Basic Film Box SOP Class
uid_1_2_840_10008_5_1_1_4 = 84, // Basic Grayscale Image Box SOP Class
uid_1_2_840_10008_5_1_1_4_1 = 85, // Basic Color Image Box SOP Class
uid_1_2_840_10008_5_1_1_4_2 = 86, // Referenced Image Box SOP Class
uid_1_2_840_10008_5_1_1_9 = 87, // Basic Grayscale Print Management Meta SOP Class
uid_1_2_840_10008_5_1_1_9_1 = 88, // Referenced Grayscale Print Management Meta SOP Class
uid_1_2_840_10008_5_1_1_14 = 89, // Print Job SOP Class
uid_1_2_840_10008_5_1_1_15 = 90, // Basic Annotation Box SOP Class
uid_1_2_840_10008_5_1_1_16 = 91, // Printer SOP Class
uid_1_2_840_10008_5_1_1_16_376 = 92, // Printer Configuration Retrieval SOP Class
uid_1_2_840_10008_5_1_1_17 = 93, // Printer SOP Instance
uid_1_2_840_10008_5_1_1_17_376 = 94, // Printer Configuration Retrieval SOP Instance
uid_1_2_840_10008_5_1_1_18 = 95, // Basic Color Print Management Meta SOP Class
uid_1_2_840_10008_5_1_1_18_1 = 96, // Referenced Color Print Management Meta SOP Class
uid_1_2_840_10008_5_1_1_22 = 97, // VOI LUT Box SOP Class
uid_1_2_840_10008_5_1_1_23 = 98, // Presentation LUT SOP Class
uid_1_2_840_10008_5_1_1_24 = 99, // Image Overlay Box SOP Class
uid_1_2_840_10008_5_1_1_24_1 = 100, // Basic Print Image Overlay Box SOP Class
uid_1_2_840_10008_5_1_1_25 = 101, // Print Queue SOP Instance
uid_1_2_840_10008_5_1_1_26 = 102, // Print Queue Management SOP Class
uid_1_2_840_10008_5_1_1_27 = 103, // Stored Print Storage SOP Class
uid_1_2_840_10008_5_1_1_29 = 104, // Hardcopy Grayscale Image Storage SOP Class
uid_1_2_840_10008_5_1_1_30 = 105, // Hardcopy Color Image Storage SOP Class
uid_1_2_840_10008_5_1_1_31 = 106, // Pull Print Request SOP Class
uid_1_2_840_10008_5_1_1_32 = 107, // Pull Stored Print Management Meta SOP Class
```

```
uid_1_2_840_10008_5_1_1_33 = 108, // Media Creation Management SOP Class UID
uid_1_2_840_10008_5_1_4_1_1_1 = 109, // Computed Radiography Image Storage
uid_1_2_840_10008_5_1_4_1_1_1_1 = 110, // Digital X-Ray Image Storage - For Presentation
uid_1_2_840_10008_5_1_4_1_1_1_1_1 = 111, // Digital X-Ray Image Storage - For Processing
uid_1_2_840_10008_5_1_4_1_1_1_2 = 112, // Digital Mammography X-Ray Image Storage - For Presentation
uid_1_2_840_10008_5_1_4_1_1_1_2_1 = 113, // Digital Mammography X-Ray Image Storage - For Processing
uid_1_2_840_10008_5_1_4_1_1_1_3 = 114, // Digital Intra-oral X-Ray Image Storage - For Presentation
uid_1_2_840_10008_5_1_4_1_1_1_3_1 = 115, // Digital Intra-oral X-Ray Image Storage - For Processing
uid_1_2_840_10008_5_1_4_1_1_2 = 116, // CT Image Storage
uid_1_2_840_10008_5_1_4_1_1_2_1 = 117, // Enhanced CT Image Storage
uid_1_2_840_10008_5_1_4_1_1_3 = 118, // Ultrasound Multi-frame Image Storage
uid_1_2_840_10008_5_1_4_1_1_3_1 = 119, // Ultrasound Multi-frame Image Storage
uid_1_2_840_10008_5_1_4_1_1_4 = 120, // MR Image Storage
uid_1_2_840_10008_5_1_4_1_1_4_1 = 121, // Enhanced MR Image Storage
uid_1_2_840_10008_5_1_4_1_1_4_2 = 122, // MR Spectroscopy Storage
uid_1_2_840_10008_5_1_4_1_1_5 = 123, // Nuclear Medicine Image Storage
uid_1_2_840_10008_5_1_4_1_1_6 = 124, // Ultrasound Image Storage
uid_1_2_840_10008_5_1_4_1_1_6_1 = 125, // Ultrasound Image Storage
uid_1_2_840_10008_5_1_4_1_1_7 = 126, // Secondary Capture Image Storage
uid_1_2_840_10008_5_1_4_1_1_7_1 = 127, // Multi-frame Single Bit Secondary Capture Image Storage
uid_1_2_840_10008_5_1_4_1_1_7_2 = 128, // Multi-frame Grayscale Byte Secondary Capture Image Storage
uid_1_2_840_10008_5_1_4_1_1_7_3 = 129, // Multi-frame Grayscale Word Secondary Capture Image Storage
uid_1_2_840_10008_5_1_4_1_1_7_4 = 130, // Multi-frame True Color Secondary Capture Image Storage
uid_1_2_840_10008_5_1_4_1_1_8 = 131, // Standalone Overlay Storage
uid_1_2_840_10008_5_1_4_1_1_9 = 132, // Standalone Curve Storage
uid_1_2_840_10008_5_1_4_1_1_9_1 = 133, // Waveform Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_9_1_1 = 134, // 12-lead ECG Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_9_1_2 = 135, // General ECG Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_9_1_3 = 136, // Ambulatory ECG Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_9_2_1 = 137, // Hemodynamic Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_9_3_1 = 138, // Cardiac Electrophysiology Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_9_4_1 = 139, // Basic Voice Audio Waveform Storage
uid_1_2_840_10008_5_1_4_1_1_10 = 140, // Standalone Modality LUT Storage
uid_1_2_840_10008_5_1_4_1_1_11 = 141, // Standalone VOI LUT Storage
uid_1_2_840_10008_5_1_4_1_1_11_1 = 142, // Grayscale Softcopy Presentation State Storage SOP Class
uid_1_2_840_10008_5_1_4_1_1_11_2 = 143, // Color Softcopy Presentation State Storage SOP Class
uid_1_2_840_10008_5_1_4_1_1_11_3 = 144, // Pseudo-Color Softcopy Presentation State Storage SOP Class
uid_1_2_840_10008_5_1_4_1_1_11_4 = 145, // Blending Softcopy Presentation State Storage SOP Class
uid_1_2_840_10008_5_1_4_1_1_12_1 = 146, // X-Ray Angiographic Image Storage
uid_1_2_840_10008_5_1_4_1_1_12_1_1 = 147, // Enhanced XA Image Storage
uid_1_2_840_10008_5_1_4_1_1_12_2 = 148, // X-Ray Radiofluoroscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_12_2_1 = 149, // Enhanced XRF Image Storage
uid_1_2_840_10008_5_1_4_1_1_13_1_1 = 150, // X-Ray 3D Angiographic Image Storage
uid_1_2_840_10008_5_1_4_1_1_13_1_2 = 151, // X-Ray 3D Craniofacial Image Storage
uid_1_2_840_10008_5_1_4_1_1_12_3 = 152, // X-Ray Angiographic Bi-Plane Image Storage
uid_1_2_840_10008_5_1_4_1_1_20 = 153, // Nuclear Medicine Image Storage
uid_1_2_840_10008_5_1_4_1_1_66 = 154, // Raw Data Storage
uid_1_2_840_10008_5_1_4_1_1_66_1 = 155, // Spatial Registration Storage
uid_1_2_840_10008_5_1_4_1_1_66_2 = 156, // Spatial Fiducials Storage
uid_1_2_840_10008_5_1_4_1_1_66_3 = 157, // Deformable Spatial Registration Storage
uid_1_2_840_10008_5_1_4_1_1_66_4 = 158, // Segmentation Storage
uid_1_2_840_10008_5_1_4_1_1_67 = 159, // Real World Value Mapping Storage
uid_1_2_840_10008_5_1_4_1_1_77_1 = 160, // VL Image Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_77_2 = 161, // VL Multi-frame Image Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_77_1_1 = 162, // VL Endoscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1 = 163, // Video Endoscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_2 = 164, // VL Microscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1 = 165, // Video Microscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_3 = 166, // VL Slide-Coordinates Microscopic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_4 = 167, // VL Photographic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1 = 168, // Video Photographic Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1 = 169, // Ophthalmic Photography 8 Bit Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2 = 170, // Ophthalmic Photography 16 Bit Image Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3 = 171, // Stereometric Relationship Storage
uid_1_2_840_10008_5_1_4_1_1_77_1_5_4 = 172, // Ophthalmic Tomography Image Storage
uid_1_2_840_10008_5_1_4_1_1_88_1 = 173, // Text SR Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_88_2 = 174, // Audio SR Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_88_3 = 175, // Detail SR Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_88_4 = 176, // Comprehensive SR Storage - Trial
uid_1_2_840_10008_5_1_4_1_1_88_11 = 177, // Basic Text SR Storage
uid_1_2_840_10008_5_1_4_1_1_88_22 = 178, // Enhanced SR Storage
uid_1_2_840_10008_5_1_4_1_1_88_33 = 179, // Comprehensive SR Storage
uid_1_2_840_10008_5_1_4_1_1_88_40 = 180, // Procedure Log Storage
uid_1_2_840_10008_5_1_4_1_1_88_50 = 181, // Mammography CAD SR Storage
uid_1_2_840_10008_5_1_4_1_1_88_59 = 182, // Key Object Selection Document Storage
uid_1_2_840_10008_5_1_4_1_1_88_65 = 183, // Chest CAD SR Storage
uid_1_2_840_10008_5_1_4_1_1_88_67 = 184, // X-Ray Radiation Dose SR Storage
uid_1_2_840_10008_5_1_4_1_1_104_1 = 185, // Encapsulated PDF Storage
uid_1_2_840_10008_5_1_4_1_1_104_2 = 186, // Encapsulated CDA Storage
uid_1_2_840_10008_5_1_4_1_1_128 = 187, // Positron Emission Tomography Image Storage
uid_1_2_840_10008_5_1_4_1_1_129 = 188, // Standalone PET Curve Storage
```

```
uid_1_2_840_10008_5_1_4_1_1_481_1 = 189, // RT Image Storage
uid_1_2_840_10008_5_1_4_1_1_481_2 = 190, // RT Dose Storage
uid_1_2_840_10008_5_1_4_1_1_481_3 = 191, // RT Structure Set Storage
uid_1_2_840_10008_5_1_4_1_1_481_4 = 192, // RT Beams Treatment Record Storage
uid_1_2_840_10008_5_1_4_1_1_481_5 = 193, // RT Plan Storage
uid_1_2_840_10008_5_1_4_1_1_481_6 = 194, // RT Brachy Treatment Record Storage
uid_1_2_840_10008_5_1_4_1_1_481_7 = 195, // RT Treatment Summary Record Storage
uid_1_2_840_10008_5_1_4_1_1_481_8 = 196, // RT Ion Plan Storage
uid_1_2_840_10008_5_1_4_1_1_481_9 = 197, // RT Ion Beams Treatment Record Storage
uid_1_2_840_10008_5_1_4_1_2_1_1 = 198, // Patient Root Query/Retrieve Information Model - FIND
uid_1_2_840_10008_5_1_4_1_2_1_2 = 199, // Patient Root Query/Retrieve Information Model - MOVE
uid_1_2_840_10008_5_1_4_1_2_1_3 = 200, // Patient Root Query/Retrieve Information Model - GET
uid_1_2_840_10008_5_1_4_1_2_2_1 = 201, // Study Root Query/Retrieve Information Model - FIND
uid_1_2_840_10008_5_1_4_1_2_2_2 = 202, // Study Root Query/Retrieve Information Model - MOVE
uid_1_2_840_10008_5_1_4_1_2_2_3 = 203, // Study Root Query/Retrieve Information Model - GET
uid_1_2_840_10008_5_1_4_1_2_3_1 = 204, // Patient/Study Only Query/Retrieve Information Model - FIND
uid_1_2_840_10008_5_1_4_1_2_3_2 = 205, // Patient/Study Only Query/Retrieve Information Model - MOVE
uid_1_2_840_10008_5_1_4_1_2_3_3 = 206, // Patient/Study Only Query/Retrieve Information Model - GET
uid_1_2_840_10008_5_1_4_31 = 207, // Modality Worklist Information Model - FIND
uid_1_2_840_10008_5_1_4_32_1 = 208, // General Purpose Worklist Information Model - FIND
uid_1_2_840_10008_5_1_4_32_2 = 209, // General Purpose Scheduled Procedure Step SOP Class
uid_1_2_840_10008_5_1_4_32_3 = 210, // General Purpose Performed Procedure Step SOP Class
uid_1_2_840_10008_5_1_4_32 = 211, // General Purpose Worklist Management Meta SOP Class
uid_1_2_840_10008_5_1_4_33 = 212, // Instance Availability Notification SOP Class
uid_1_2_840_10008_5_1_4_34_1 = 213, // RT Beams Delivery Instruction Storage (Supplement 74 Frozen Draft)
uid_1_2_840_10008_5_1_4_34_2 = 214, // RT Conventional Machine Verification (Supplement 74 Frozen Draft)
uid_1_2_840_10008_5_1_4_34_3 = 215, // RT Ion Machine Verification (Supplement 74 Frozen Draft)
uid_1_2_840_10008_5_1_4_34_4 = 216, // Unified Worklist and Procedure Step Service Class
uid_1_2_840_10008_5_1_4_34_4_1 = 217, // Unified Procedure Step - Push SOP Class
uid_1_2_840_10008_5_1_4_34_4_2 = 218, // Unified Procedure Step - Watch SOP Class
uid_1_2_840_10008_5_1_4_34_4_3 = 219, // Unified Procedure Step - Pull SOP Class
uid_1_2_840_10008_5_1_4_34_4_4 = 220, // Unified Procedure Step - Event SOP Class
uid_1_2_840_10008_5_1_4_34_5 = 221, // Unified Worklist and Procedure Step SOP Instance
uid_1_2_840_10008_5_1_4_37_1 = 222, // General Relevant Patient Information Query
uid_1_2_840_10008_5_1_4_37_2 = 223, // Breast Imaging Relevant Patient Information Query
uid_1_2_840_10008_5_1_4_37_3 = 224, // Cardiac Relevant Patient Information Query
uid_1_2_840_10008_5_1_4_38_1 = 225, // Hanging Protocol Storage
uid_1_2_840_10008_5_1_4_38_2 = 226, // Hanging Protocol Information Model - FIND
uid_1_2_840_10008_5_1_4_38_3 = 227, // Hanging Protocol Information Model - MOVE
uid_1_2_840_10008_5_1_4_41 = 228, // Product Characteristics Query SOP Class
uid_1_2_840_10008_5_1_4_42 = 229, // Substance Approval Query SOP Class
uid_1_2_840_10008_15_0_3_1 = 230, // dicomDeviceName
uid_1_2_840_10008_15_0_3_2 = 231, // dicomDescription
uid_1_2_840_10008_15_0_3_3 = 232, // dicomManufacturer
uid_1_2_840_10008_15_0_3_4 = 233, // dicomManufacturerModelName
uid_1_2_840_10008_15_0_3_5 = 234, // dicomSoftwareVersion
uid_1_2_840_10008_15_0_3_6 = 235, // dicomVendorData
uid_1_2_840_10008_15_0_3_7 = 236, // dicomAETitle
uid_1_2_840_10008_15_0_3_8 = 237, // dicomNetworkConnectionReference
uid_1_2_840_10008_15_0_3_9 = 238, // dicomApplicationCluster
uid_1_2_840_10008_15_0_3_10 = 239, // dicomAssociationInitiator
uid_1_2_840_10008_15_0_3_11 = 240, // dicomAssociationAcceptor
uid_1_2_840_10008_15_0_3_12 = 241, // dicomHostname
uid_1_2_840_10008_15_0_3_13 = 242, // dicomPort
uid_1_2_840_10008_15_0_3_14 = 243, // dicomSOPClass
uid_1_2_840_10008_15_0_3_15 = 244, // dicomTransferRole
uid_1_2_840_10008_15_0_3_16 = 245, // dicomTransferSyntax
uid_1_2_840_10008_15_0_3_17 = 246, // dicomPrimaryDeviceType
uid_1_2_840_10008_15_0_3_18 = 247, // dicomRelatedDeviceReference
uid_1_2_840_10008_15_0_3_19 = 248, // dicomPreferredCalledAETitle
uid_1_2_840_10008_15_0_3_20 = 249, // dicomTLSCyphersuite
uid_1_2_840_10008_15_0_3_21 = 250, // dicomAuthorizedNodeCertificateReference
uid_1_2_840_10008_15_0_3_22 = 251, // dicomThisNodeCertificateReference
uid_1_2_840_10008_15_0_3_23 = 252, // dicomInstalled
uid_1_2_840_10008_15_0_3_24 = 253, // dicomStationName
uid_1_2_840_10008_15_0_3_25 = 254, // dicomDeviceSerialNumber
uid_1_2_840_10008_15_0_3_26 = 255, // dicomInstitutionName
uid_1_2_840_10008_15_0_3_27 = 256, // dicomInstitutionAddress
uid_1_2_840_10008_15_0_3_28 = 257, // dicomInstitutionDepartmentName
uid_1_2_840_10008_15_0_3_29 = 258, // dicomIssuerOfPatientID
uid_1_2_840_10008_15_0_3_30 = 259, // dicomPreferredCallingAETitle
uid_1_2_840_10008_15_0_3_31 = 260, // dicomSupportedCharacterSet
uid_1_2_840_10008_15_0_4_1 = 261, // dicomConfigurationRoot
uid_1_2_840_10008_15_0_4_2 = 262, // dicomDevicesRoot
uid_1_2_840_10008_15_0_4_3 = 263, // dicomUniqueAETitlesRegistryRoot
uid_1_2_840_10008_15_0_4_4 = 264, // dicomDevice
uid_1_2_840_10008_15_0_4_5 = 265, // dicomNetworkAE
uid_1_2_840_10008_15_0_4_6 = 266, // dicomNetworkConnection
uid_1_2_840_10008_15_0_4_7 = 267, // dicomUniqueAETitle
uid_1_2_840_10008_15_0_4_8 = 268, // dicomTransferCapability
//
```

```
uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269, // VL Whole Slide Microscopy
uid_1_2_840_10008_5_1_4_1_1_6_2    = 270, // Enhanced US Volume Storage
uid_1_2_840_10008_5_1_4_1_1_66_5   = 271, // Surface Segmentation Storage
uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272, // Breast Tomosynthesis Image Storage
uid_1_2_840_10008_5_1_4_1_1_2_2    = 273, // Legacy Converted Enhanced CT
uid_1_2_840_10008_5_1_4_1_1_4_4    = 274, // Legacy Converted Enhanced MR
uid_1_2_840_10008_5_1_4_1_1_128_1  = 275, // Legacy Converted Enhanced PET
uid_1_2_840_10008_1_2_4_101        = 276, // MPEG2 Main Profile High Level
uid_1_2_840_10008_1_2_4_102        = 277, // MPEG-4 AVC/H.264 High Profile Lev. 4.1
uid_1_2_840_10008_1_2_4_103        = 278, // MPEG-4 AVC/H.264 BD-comp High Profile Lev. 4.1

//
// 2019b
//
uid_1_2_840_10008_1_5_2              = 279,
uid_1_2_840_10008_1_5_3              = 280,
uid_1_2_840_10008_1_5_4              = 281,
uid_1_2_840_10008_1_5_5              = 282,
uid_1_2_840_10008_1_5_6              = 283,
uid_1_2_840_10008_1_5_7              = 284,
uid_1_2_840_10008_1_5_8              = 285,
uid_1_2_840_10008_1_20               = 286,
uid_1_2_840_10008_2_16_5             = 287,
uid_1_2_840_10008_2_16_6             = 288,
uid_1_2_840_10008_2_16_7             = 289,
uid_1_2_840_10008_2_16_8             = 290,
uid_1_2_840_10008_2_16_9             = 291,
uid_1_2_840_10008_2_16_10            = 292,
uid_1_2_840_10008_2_16_11            = 293,
uid_1_2_840_10008_2_16_12            = 294,
uid_1_2_840_10008_2_16_13            = 295,
uid_1_2_840_10008_2_16_14            = 296,
uid_1_2_840_10008_5_1_1_40           = 297,
uid_1_2_840_10008_5_1_1_40_1         = 298,
uid_1_2_840_10008_5_1_4_1_1_9_4_2    = 299,
uid_1_2_840_10008_5_1_4_1_1_9_5_1    = 300,
uid_1_2_840_10008_5_1_4_1_1_9_6_1    = 301,
uid_1_2_840_10008_5_1_4_1_1_11_5     = 302,
uid_1_2_840_10008_5_1_4_1_1_11_6     = 303,
uid_1_2_840_10008_1_2_4_104          = 304,
uid_1_2_840_10008_1_2_4_105          = 305,
uid_1_2_840_10008_1_2_4_106          = 306,
uid_1_2_840_10008_1_2_4_107          = 307,
uid_1_2_840_10008_1_2_4_108          = 308,
uid_1_2_840_10008_1_5_1              = 309,
uid_1_2_840_10008_5_1_4_1_1_11_7     = 310,
uid_1_2_840_10008_5_1_4_1_1_11_8     = 311,
uid_1_2_840_10008_5_1_4_1_1_11_9     = 312,
uid_1_2_840_10008_5_1_4_1_1_11_10    = 313,
uid_1_2_840_10008_5_1_4_1_1_11_11    = 314,
uid_1_2_840_10008_5_1_4_1_1_12_77    = 315,
uid_1_2_840_10008_5_1_4_1_1_13_1_4   = 316,
uid_1_2_840_10008_5_1_4_1_1_13_1_5   = 317,
uid_1_2_840_10008_5_1_4_1_1_14_1     = 318,
uid_1_2_840_10008_5_1_4_1_1_14_2     = 319,
uid_1_2_840_10008_5_1_4_1_1_30       = 320,
uid_1_2_840_10008_5_1_4_1_1_40       = 321,
uid_1_2_840_10008_5_1_4_1_1_66_6     = 322,
uid_1_2_840_10008_5_1_4_1_1_68_1     = 323,
uid_1_2_840_10008_5_1_4_1_1_68_2     = 324,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328,
uid_1_2_840_10008_5_1_4_1_1_78_1     = 329,
uid_1_2_840_10008_5_1_4_1_1_78_2     = 330,
uid_1_2_840_10008_5_1_4_1_1_78_3     = 331,
uid_1_2_840_10008_5_1_4_1_1_78_4     = 332,
uid_1_2_840_10008_5_1_4_1_1_78_5     = 333,
uid_1_2_840_10008_5_1_4_1_1_78_6     = 334,
uid_1_2_840_10008_5_1_4_1_1_78_7     = 335,
uid_1_2_840_10008_5_1_4_1_1_78_8     = 336,
uid_1_2_840_10008_5_1_4_1_1_79_1     = 337,
uid_1_2_840_10008_5_1_4_1_1_80_1     = 338,
uid_1_2_840_10008_5_1_4_1_1_81_1     = 339,
uid_1_2_840_10008_5_1_4_1_1_82_1     = 340,
uid_1_2_840_10008_5_1_4_1_1_88_34    = 341,
uid_1_2_840_10008_5_1_4_1_1_88_35    = 342,
uid_1_2_840_10008_5_1_4_1_1_88_68    = 343,
uid_1_2_840_10008_5_1_4_1_1_88_69    = 344,
uid_1_2_840_10008_5_1_4_1_1_88_70    = 345,
```

```
uid_1_2_840_10008_5_1_4_1_1_88_71    = 346,
uid_1_2_840_10008_5_1_4_1_1_88_72    = 347,
uid_1_2_840_10008_5_1_4_1_1_88_73    = 348,
uid_1_2_840_10008_5_1_4_1_1_88_74    = 349,
uid_1_2_840_10008_5_1_4_1_1_88_75    = 350,
uid_1_2_840_10008_5_1_4_1_1_90_1     = 351,
uid_1_2_840_10008_5_1_4_1_1_104_3    = 352,
uid_1_2_840_10008_5_1_4_1_1_130      = 353,
uid_1_2_840_10008_5_1_4_1_1_131      = 354,
uid_1_2_840_10008_5_1_4_1_1_200_1    = 355,
uid_1_2_840_10008_5_1_4_1_1_200_2    = 356,
uid_1_2_840_10008_5_1_4_1_1_200_3    = 357,
uid_1_2_840_10008_5_1_4_1_1_200_4    = 358,
uid_1_2_840_10008_5_1_4_1_1_200_5    = 359,
uid_1_2_840_10008_5_1_4_1_1_200_6    = 360,
uid_1_2_840_10008_5_1_4_1_1_481_10   = 361,
uid_1_2_840_10008_5_1_4_1_1_481_11   = 362,
uid_1_2_840_10008_5_1_4_1_1_501_1    = 363,
uid_1_2_840_10008_5_1_4_1_1_501_2_1  = 364,
uid_1_2_840_10008_5_1_4_1_1_501_2_2  = 365,
uid_1_2_840_10008_5_1_4_1_1_501_3    = 366,
uid_1_2_840_10008_5_1_4_1_1_501_4    = 367,
uid_1_2_840_10008_5_1_4_1_1_501_5    = 368,
uid_1_2_840_10008_5_1_4_1_1_501_6    = 369,
uid_1_2_840_10008_5_1_4_1_1_601_1    = 370,
uid_1_2_840_10008_5_1_4_1_1_601_2    = 371,
uid_1_2_840_10008_5_1_4_1_2_4_2      = 372,
uid_1_2_840_10008_5_1_4_1_2_4_3      = 373,
uid_1_2_840_10008_5_1_4_1_2_5_3      = 374,
uid_1_2_840_10008_5_1_4_20_1         = 375,
uid_1_2_840_10008_5_1_4_20_2         = 376,
uid_1_2_840_10008_5_1_4_20_3         = 377,
uid_1_2_840_10008_5_1_4_34_5_1       = 378,
uid_1_2_840_10008_5_1_4_34_6         = 379,
uid_1_2_840_10008_5_1_4_34_6_1       = 380,
uid_1_2_840_10008_5_1_4_34_6_2       = 381,
uid_1_2_840_10008_5_1_4_34_6_3       = 382,
uid_1_2_840_10008_5_1_4_34_6_4       = 383,
uid_1_2_840_10008_5_1_4_34_7         = 384,
uid_1_2_840_10008_5_1_4_34_8         = 385,
uid_1_2_840_10008_5_1_4_34_9         = 386,
uid_1_2_840_10008_5_1_4_34_10        = 387,
uid_1_2_840_10008_5_1_4_38_4         = 388,
uid_1_2_840_10008_5_1_4_39_1         = 389,
uid_1_2_840_10008_5_1_4_39_2         = 390,
uid_1_2_840_10008_5_1_4_39_3         = 391,
uid_1_2_840_10008_5_1_4_39_4         = 392,
uid_1_2_840_10008_5_1_4_43_1         = 393,
uid_1_2_840_10008_5_1_4_43_2         = 394,
uid_1_2_840_10008_5_1_4_43_3         = 395,
uid_1_2_840_10008_5_1_4_43_4         = 396,
uid_1_2_840_10008_5_1_4_44_1         = 397,
uid_1_2_840_10008_5_1_4_44_2         = 398,
uid_1_2_840_10008_5_1_4_44_3         = 399,
uid_1_2_840_10008_5_1_4_44_4         = 400,
uid_1_2_840_10008_5_1_4_45_1         = 401,
uid_1_2_840_10008_5_1_4_45_2         = 402,
uid_1_2_840_10008_5_1_4_45_3         = 403,
uid_1_2_840_10008_5_1_4_45_4         = 404,
uid_1_2_840_10008_7_1_1              = 405,
uid_1_2_840_10008_7_1_2              = 406,
uid_1_2_840_10008_8_1_1              = 407,
uid_1_2_840_10008_5_1_4_1_1_4_3      = 408,
uid_1_2_840_10008_15_1_1             = 409
//
//

//
// Optionally private UIDs
//
#if 0
uid_1_2_840_113619_4_2,
uid_1_2_840_113619_4_3,
uid_1_3_12_2_1107_5_9_1,
uid_1_2_840_113619_4_26,
uid_1_2_840_113619_4_30,
uid_2_16_840_1_113709_1_5_1,
uid_2_16_840_1_113709_1_2_2,
uid_1_2_840_113543_6_6_1_3_10002,
uid_1_2_392_200036_9116_7_8_1_1_1,
uid_1_2_392_200036_9125_1_1_2,
```

```
uid_1_2_840_113619_4_27,
uid_1_3_46_670589_11_0_0_12_1,
uid_1_3_46_670589_11_0_0_12_2,
uid_1_3_46_670589_11_0_0_12_4,
uid_1_3_46_670589_2_3_1_1,
uid_1_3_46_670589_2_4_1_1,
uid_1_3_46_670589_2_5_1_1,
uid_1_3_46_670589_5_0_1,
uid_1_3_46_670589_5_0_1_1,
uid_1_3_46_670589_5_0_10,
uid_1_3_46_670589_5_0_11,
uid_1_3_46_670589_5_0_11_1,
uid_1_3_46_670589_5_0_12,
uid_1_3_46_670589_5_0_13,
uid_1_3_46_670589_5_0_14,
uid_1_3_46_670589_5_0_2,
uid_1_3_46_670589_5_0_2_1,
uid_1_3_46_670589_5_0_3,
uid_1_3_46_670589_5_0_3_1,
uid_1_3_46_670589_5_0_4,
uid_1_3_46_670589_5_0_7,
uid_1_3_46_670589_5_0_8,
uid_1_3_46_670589_5_0_9,
uid_1_2_752_24_3_7_6,
uid_1_2_752_24_3_7_7,
uid_1_2_840_113619_5_2,
uid_1_3_46_670589_33_1_4_1
#endif
//
//

} TSType;
  typedef enum {
VerificationSOPClass = 1, // Verification SOP Class
ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2, // Implicit VR Little Endian: Default Transfer Syntax for DICOM
ExplicitVRLittleEndian = 3, // Explicit VR Little Endian
DeflatedExplicitVRLittleEndian = 4, // Deflated Explicit VR Little Endian
ExplicitVRBigEndian = 5, // Explicit VR Big Endian
JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6, // JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression
JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7, // JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)
JPEGExtendedProcess35Retired = 8, // JPEG Extended (Process 3 & 5)
JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9, // JPEG Spectral Selection, Non-Hierarchical (Process 6 & 8)
JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10, // JPEG Spectral Selection, Non-Hierarchical (Process 7 & 9)
JPEGFullProgressionNonHierarchicalProcess1012Retired = 11, // JPEG Full Progression, Non-Hierarchical (Process 10 & 12)
JPEGFullProgressionNonHierarchicalProcess1113Retired = 12, // JPEG Full Progression, Non-Hierarchical (Process 11 & 13)
JPEGLosslessNonHierarchicalProcess14 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
JPEGLosslessNonHierarchicalProcess15Retired = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
JPEGExtendedHierarchicalProcess1618Retired = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
JPEGExtendedHierarchicalProcess1719Retired = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
JPEGSpectralSelectionHierarchicalProcess2022Retired = 17, // JPEG Spectral Selection, Hierarchical (Process 20 & 22)
JPEGSpectralSelectionHierarchicalProcess2123Retired = 18, // JPEG Spectral Selection, Hierarchical (Process 21 & 23)
JPEGFullProgressionHierarchicalProcess2426Retired = 19, // JPEG Full Progression, Hierarchical (Process 24 & 26)
JPEGFullProgressionHierarchicalProcess2527Retired = 20, // JPEG Full Progression, Hierarchical (Process 25 & 27)
JPEGLosslessHierarchicalProcess28Retired = 21, // JPEG Lossless, Hierarchical (Process 28)
JPEGLosslessHierarchicalProcess29Retired = 22, // JPEG Lossless, Hierarchical (Process 29)
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompression = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression
JPEGLSLosslessImageCompression = 24, // JPEG-LS Lossless Image Compression
JPEGLSLossyNearLosslessImageCompression = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
JPEG2000ImageCompressionLosslessOnly = 26, // JPEG 2000 Image Compression (Lossless Only)
JPEG2000ImageCompression = 27, // JPEG 2000 Image Compression
JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28, // JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)
JPEG2000Part2MulticomponentImageCompression = 29, // JPEG 2000 Part 2 Multi-component Image Compression
JPIPReferenced = 30, // JPIP Referenced
JPIPReferencedDeflate = 31, // JPIP Referenced Deflate
MPEG2MainProfileMainLevel = 32, // MPEG2 Main Profile @ Main Level
RLELossless = 33, // RLE Lossless
```

```
RFC2557MIMEencapsulation = 34, // RFC 2557 MIME encapsulation
XMLEncoding = 35, // XML Encoding
MediaStorageDirectoryStorage = 36, // Media Storage Directory Storage
TalairachBrainAtlasFrameofReference = 37, // Talairach Brain Atlas Frame of Reference
SPM2T1FrameofReference = 38, // SPM2 T1 Frame of Reference
SPM2T2FrameofReference = 39, // SPM2 T2 Frame of Reference
SPM2PDFrameofReference = 40, // SPM2 PD Frame of Reference
SPM2EPIFrameofReference = 41, // SPM2 EPI Frame of Reference
SPM2FILT1FrameofReference = 42, // SPM2 FIL T1 Frame of Reference
SPM2PETFrameofReference = 43, // SPM2 PET Frame of Reference
SPM2TRANSMFrameofReference = 44, // SPM2 TRANSM Frame of Reference
SPM2SPECTFrameofReference = 45, // SPM2 SPECT Frame of Reference
SPM2GRAYFrameofReference = 46, // SPM2 GRAY Frame of Reference
SPM2WHITEFrameofReference = 47, // SPM2 WHITE Frame of Reference
SPM2CSFFrameofReference = 48, // SPM2 CSF Frame of Reference
SPM2BRAINMASKFrameofReference = 49, // SPM2 BRAINMASK Frame of Reference
SPM2AVG305T1FrameofReference = 50, // SPM2 AVG305T1 Frame of Reference
SPM2AVG152T1FrameofReference = 51, // SPM2 AVG152T1 Frame of Reference
SPM2AVG152T2FrameofReference = 52, // SPM2 AVG152T2 Frame of Reference
SPM2AVG152PDFrameofReference = 53, // SPM2 AVG152PD Frame of Reference
SPM2SINGLESUBJT1FrameofReference = 54, // SPM2 SINGLESUBJT1 Frame of Reference
ICBM452T1FrameofReference = 55, // ICBM 452 T1 Frame of Reference
ICBMSingleSubjectMRIFrameofReference = 56, // ICBM Single Subject MRI Frame of Reference
BasicStudyContentNotificationSOPClassRetired = 57, // Basic Study Content Notification SOP Class
StorageCommitmentPushModelSOPClass = 58, // Storage Commitment Push Model SOP Class
StorageCommitmentPushModelSOPInstance = 59, // Storage Commitment Push Model SOP Instance
StorageCommitmentPullModelSOPClassRetired = 60, // Storage Commitment Pull Model SOP Class
StorageCommitmentPullModelSOPInstanceRetired = 61, // Storage Commitment Pull Model SOP Instance
ProceduralEventLoggingSOPClass = 62, // Procedural Event Logging SOP Class
ProceduralEventLoggingSOPInstance = 63, // Procedural Event Logging SOP Instance
SubstanceAdministrationLoggingSOPClass = 64, // Substance Administration Logging SOP Class
SubstanceAdministrationLoggingSOPInstance = 65, // Substance Administration Logging SOP Instance
DICOMUIDRegistry = 66, // DICOM UID Registry
DICOMControlledTerminology = 67, // DICOM Controlled Terminology
DICOMApplicationContextName = 68, // DICOM Application Context Name
DetachedPatientManagementSOPClassRetired = 69, // Detached Patient Management SOP Class
DetachedPatientManagementMetaSOPClassRetired = 70, // Detached Patient Management Meta SOP Class
DetachedVisitManagementSOPClassRetired = 71, // Detached Visit Management SOP Class
DetachedStudyManagementSOPClassRetired = 72, // Detached Study Management SOP Class
StudyComponentManagementSOPClassRetired = 73, // Study Component Management SOP Class
ModalityPerformedProcedureStepSOPClass = 74, // Modality Performed Procedure Step SOP Class
ModalityPerformedProcedureStepRetrieveSOPClass = 75, // Modality Performed Procedure Step Retrieve SOP
    Class
ModalityPerformedProcedureStepNotificationSOPClass = 76, // Modality Performed Procedure Step Notification
    SOP Class
DetachedResultsManagementSOPClassRetired = 77, // Detached Results Management SOP Class
DetachedResultsManagementMetaSOPClassRetired = 78, // Detached Results Management Meta SOP Class
DetachedStudyManagementMetaSOPClassRetired = 79, // Detached Study Management Meta SOP Class
DetachedInterpretationManagementSOPClassRetired = 80, // Detached Interpretation Management SOP Class
StorageServiceClass = 81, // Storage Service Class
BasicFilmSessionSOPClass = 82, // Basic Film Session SOP Class
BasicFilmBoxSOPClass = 83, // Basic Film Box SOP Class
BasicGrayscaleImageBoxSOPClass = 84, // Basic Grayscale Image Box SOP Class
BasicColorImageBoxSOPClass = 85, // Basic Color Image Box SOP Class
ReferencedImageBoxSOPClassRetired = 86, // Referenced Image Box SOP Class
BasicGrayscalePrintManagementMetaSOPClass = 87, // Basic Grayscale Print Management Meta SOP Class
ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88, // Referenced Grayscale Print Management Meta
    SOP Class
PrintJobSOPClass = 89, // Print Job SOP Class
BasicAnnotationBoxSOPClass = 90, // Basic Annotation Box SOP Class
PrinterSOPClass = 91, // Printer SOP Class
PrinterConfigurationRetrievalSOPClass = 92, // Printer Configuration Retrieval SOP Class
PrinterSOPInstance = 93, // Printer SOP Instance
PrinterConfigurationRetrievalSOPInstance = 94, // Printer Configuration Retrieval SOP Instance
BasicColorPrintManagementMetaSOPClass = 95, // Basic Color Print Management Meta SOP Class
ReferencedColorPrintManagementMetaSOPClassRetired = 96, // Referenced Color Print Management Meta SOP
    Class
VOILUTBoxSOPClass = 97, // VOI LUT Box SOP Class
PresentationLUTSOPClass = 98, // Presentation LUT SOP Class
ImageOverlayBoxSOPClassRetired = 99, // Image Overlay Box SOP Class
BasicPrintImageOverlayBoxSOPClassRetired = 100, // Basic Print Image Overlay Box SOP Class
PrintQueueSOPInstanceRetired = 101, // Print Queue SOP Instance
PrintQueueManagementSOPClassRetired = 102, // Print Queue Management SOP Class
StoredPrintStorageSOPClassRetired = 103, // Stored Print Storage SOP Class
HardcopyGrayscaleImageStorageSOPClassRetired = 104, // Hardcopy Grayscale Image Storage SOP Class
HardcopyColorImageStorageSOPClassRetired = 105, // Hardcopy Color Image Storage SOP Class
PullPrintRequestSOPClassRetired = 106, // Pull Print Request SOP Class
PullStoredPrintManagementMetaSOPClassRetired = 107, // Pull Stored Print Management Meta SOP Class
MediaCreationManagementSOPClassUID = 108, // Media Creation Management SOP Class UID
ComputedRadiographyImageStorage = 109, // Computed Radiography Image Storage
DigitalXRayImageStorageForPresentation = 110, // Digital X-Ray Image Storage - For Presentation
```

```
DigitalXRayImageStorageForProcessing = 111, // Digital X-Ray Image Storage - For Processing
DigitalMammographyXRayImageStorageForPresentation = 112, // Digital Mammography X-Ray Image Storage - For Presentation
DigitalMammographyXRayImageStorageForProcessing = 113, // Digital Mammography X-Ray Image Storage - For Processing
DigitalIntraoralXRayImageStorageForPresentation = 114, // Digital Intra-oral X-Ray Image Storage - For Presentation
DigitalIntraoralXRayImageStorageForProcessing = 115, // Digital Intra-oral X-Ray Image Storage - For Processing
CTImageStorage = 116, // CT Image Storage
EnhancedCTImageStorage = 117, // Enhanced CT Image Storage
UltrasoundMultiframeImageStorageRetired = 118, // Ultrasound Multi-frame Image Storage
UltrasoundMultiframeImageStorage = 119, // Ultrasound Multi-frame Image Storage
MRImageStorage = 120, // MR Image Storage
EnhancedMRImageStorage = 121, // Enhanced MR Image Storage
MRSpectroscopyStorage = 122, // MR Spectroscopy Storage
NuclearMedicineImageStorageRetired = 123, // Nuclear Medicine Image Storage
UltrasoundImageStorageRetired = 124, // Ultrasound Image Storage
UltrasoundImageStorage = 125, // Ultrasound Image Storage
SecondaryCaptureImageStorage = 126, // Secondary Capture Image Storage
MultiframeSingleBitSecondaryCaptureImageStorage = 127, // Multi-frame Single Bit Secondary Capture Image Storage
MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128, // Multi-frame Grayscale Byte Secondary Capture Image Storage
MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129, // Multi-frame Grayscale Word Secondary Capture Image Storage
MultiframeTrueColorSecondaryCaptureImageStorage = 130, // Multi-frame True Color Secondary Capture Image Storage
StandaloneOverlayStorageRetired = 131, // Standalone Overlay Storage
StandaloneCurveStorageRetired = 132, // Standalone Curve Storage
WaveformStorageTrialRetired = 133, // Waveform Storage - Trial
ECG12leadWaveformStorage = 134, // 12-lead ECG Waveform Storage
GeneralECGWaveformStorage = 135, // General ECG Waveform Storage
AmbulatoryECGWaveformStorage = 136, // Ambulatory ECG Waveform Storage
HemodynamicWaveformStorage = 137, // Hemodynamic Waveform Storage
CardiacElectrophysiologyWaveformStorage = 138, // Cardiac Electrophysiology Waveform Storage
BasicVoiceAudioWaveformStorage = 139, // Basic Voice Audio Waveform Storage
StandaloneModalityLUTStorageRetired = 140, // Standalone Modality LUT Storage
StandaloneVOILUTStorageRetired = 141, // Standalone VOI LUT Storage
GrayscaleSoftcopyPresentationStateStorageSOPClass = 142, // Grayscale Softcopy Presentation State Storage SOP Class
ColorSoftcopyPresentationStateStorageSOPClass = 143, // Color Softcopy Presentation State Storage SOP Class
PseudoColorSoftcopyPresentationStateStorageSOPClass = 144, // Pseudo-Color Softcopy Presentation State Storage SOP Class
BlendingSoftcopyPresentationStateStorageSOPClass = 145, // Blending Softcopy Presentation State Storage SOP Class
XRayAngiographicImageStorage = 146, // X-Ray Angiographic Image Storage
EnhancedXAImageStorage = 147, // Enhanced XA Image Storage
XRayRadiofluoroscopicImageStorage = 148, // X-Ray Radiofluoroscopic Image Storage
EnhancedXRFImageStorage = 149, // Enhanced XRF Image Storage
XRay3DAngiographicImageStorage = 150, // X-Ray 3D Angiographic Image Storage
XRay3DCraniofacialImageStorage = 151, // X-Ray 3D Craniofacial Image Storage
XRayAngiographicBiPlaneImageStorageRetired = 152, // X-Ray Angiographic Bi-Plane Image Storage
NuclearMedicineImageStorage = 153, // Nuclear Medicine Image Storage
RawDataStorage = 154, // Raw Data Storage
SpatialRegistrationStorage = 155, // Spatial Registration Storage
SpatialFiducialsStorage = 156, // Spatial Fiducials Storage
DeformableSpatialRegistrationStorage = 157, // Deformable Spatial Registration Storage
SegmentationStorage = 158, // Segmentation Storage
RealWorldValueMappingStorage = 159, // Real World Value Mapping Storage
VLImageStorageTrialRetired = 160, // VL Image Storage - Trial
VLMultiframeImageStorageTrialRetired = 161, // VL Multi-frame Image Storage - Trial
VLEndoscopicImageStorage = 162, // VL Endoscopic Image Storage
VideoEndoscopicImageStorage = 163, // Video Endoscopic Image Storage
VLMicroscopicImageStorage = 164, // VL Microscopic Image Storage
VideoMicroscopicImageStorage = 165, // Video Microscopic Image Storage
VLSlideCoordinatesMicroscopicImageStorage = 166, // VL Slide-Coordinates Microscopic Image Storage
VLPhotographicImageStorage = 167, // VL Photographic Image Storage
VideoPhotographicImageStorage = 168, // Video Photographic Image Storage
OphthalmicPhotography8BitImageStorage = 169, // Ophthalmic Photography 8 Bit Image Storage
OphthalmicPhotography16BitImageStorage = 170, // Ophthalmic Photography 16 Bit Image Storage
StereometricRelationshipStorage = 171, // Stereometric Relationship Storage
OphthalmicTomographyImageStorage = 172, // Ophthalmic Tomography Image Storage
TextSRStorageTrialRetired = 173, // Text SR Storage - Trial
AudioSRStorageTrialRetired = 174, // Audio SR Storage - Trial
DetailSRStorageTrialRetired = 175, // Detail SR Storage - Trial
ComprehensiveSRStorageTrialRetired = 176, // Comprehensive SR Storage - Trial
BasicTextSRStorage = 177, // Basic Text SR Storage
EnhancedSRStorage = 178, // Enhanced SR Storage
ComprehensiveSRStorage = 179, // Comprehensive SR Storage
```

```
ProcedureLogStorage = 180, // Procedure Log Storage
MammographyCADSRStorage = 181, // Mammography CAD SR Storage
KeyObjectSelectionDocumentStorage = 182, // Key Object Selection Document Storage
ChestCADSRStorage = 183, // Chest CAD SR Storage
XRayRadiationDoseSRStorage = 184, // X-Ray Radiation Dose SR Storage
EncapsulatedPDFStorage = 185, // Encapsulated PDF Storage
EncapsulatedCDAStorage = 186, // Encapsulated CDA Storage
PositronEmissionTomographyImageStorage = 187, // Positron Emission Tomography Image Storage
StandalonePETCurveStorageRetired = 188, // Standalone PET Curve Storage
RTImageStorage = 189, // RT Image Storage
RTDoseStorage = 190, // RT Dose Storage
RTStructureSetStorage = 191, // RT Structure Set Storage
RTBeamsTreatmentRecordStorage = 192, // RT Beams Treatment Record Storage
RTPlanStorage = 193, // RT Plan Storage
RTBrachyTreatmentRecordStorage = 194, // RT Brachy Treatment Record Storage
RTTreatmentSummaryRecordStorage = 195, // RT Treatment Summary Record Storage
RTIonPlanStorage = 196, // RT Ion Plan Storage
RTIonBeamsTreatmentRecordStorage = 197, // RT Ion Beams Treatment Record Storage
PatientRootQueryRetrieveInformationModelFIND = 198, // Patient Root Query/Retrieve Information Model - FIND
PatientRootQueryRetrieveInformationModelMOVE = 199, // Patient Root Query/Retrieve Information Model - MOVE
PatientRootQueryRetrieveInformationModelGET = 200, // Patient Root Query/Retrieve Information Model - GET
StudyRootQueryRetrieveInformationModelFIND = 201, // Study Root Query/Retrieve Information Model - FIND
StudyRootQueryRetrieveInformationModelMOVE = 202, // Study Root Query/Retrieve Information Model - MOVE
StudyRootQueryRetrieveInformationModelGET = 203, // Study Root Query/Retrieve Information Model - GET
PatientStudyOnlyQueryRetrieveInformationModelFINDRetired = 204, // Patient/Study Only Query/Retrieve Information Model - FIND
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205, // Patient/Study Only Query/Retrieve Information Model - MOVE
PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206, // Patient/Study Only Query/Retrieve Information Model - GET
ModalityWorklistInformationModelFIND = 207, // Modality Worklist Information Model - FIND
GeneralPurposeWorklistInformationModelFIND = 208, // General Purpose Worklist Information Model - FIND
GeneralPurposeScheduledProcedureStepSOPClass = 209, // General Purpose Scheduled Procedure Step SOP Class
GeneralPurposePerformedProcedureStepSOPClass = 210, // General Purpose Performed Procedure Step SOP Class
GeneralPurposeWorklistManagementMetaSOPClass = 211, // General Purpose Worklist Management Meta SOP Class
InstanceAvailabilityNotificationSOPClass = 212, // Instance Availability Notification SOP Class
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213, // RT Beams Delivery Instruction Storage (Supplement 74 Frozen Draft)
RTConventionalMachineVerificationSupplement74FrozenDraft = 214, // RT Conventional Machine Verification (Supplement 74 Frozen Draft)
RTIonMachineVerificationSupplement74FrozenDraft = 215, // RT Ion Machine Verification (Supplement 74 Frozen Draft)
UnifiedWorklistandProcedureStepServiceClass = 216, // Unified Worklist and Procedure Step Service Class
UnifiedProcedureStepPushSOPClass = 217, // Unified Procedure Step - Push SOP Class
UnifiedProcedureStepWatchSOPClass = 218, // Unified Procedure Step - Watch SOP Class
UnifiedProcedureStepPullSOPClass = 219, // Unified Procedure Step - Pull SOP Class
UnifiedProcedureStepEventSOPClass = 220, // Unified Procedure Step - Event SOP Class
UnifiedWorklistandProcedureStepSOPInstance = 221, // Unified Worklist and Procedure Step SOP Instance
GeneralRelevantPatientInformationQuery = 222, // General Relevant Patient Information Query
BreastImagingRelevantPatientInformationQuery = 223, // Breast Imaging Relevant Patient Information Query
CardiacRelevantPatientInformationQuery = 224, // Cardiac Relevant Patient Information Query
HangingProtocolStorage = 225, // Hanging Protocol Storage
HangingProtocolInformationModelFIND = 226, // Hanging Protocol Information Model - FIND
HangingProtocolInformationModelMOVE = 227, // Hanging Protocol Information Model - MOVE
ProductCharacteristicsQuerySOPClass = 228, // Product Characteristics Query SOP Class
SubstanceApprovalQuerySOPClass = 229, // Substance Approval Query SOP Class
dicomDeviceName = 230, // dicomDeviceName
dicomDescription = 231, // dicomDescription
dicomManufacturer = 232, // dicomManufacturer
dicomManufacturerModelName = 233, // dicomManufacturerModelName
dicomSoftwareVersion = 234, // dicomSoftwareVersion
dicomVendorData = 235, // dicomVendorData
dicomAETitle = 236, // dicomAETitle
dicomNetworkConnectionReference = 237, // dicomNetworkConnectionReference
dicomApplicationCluster = 238, // dicomApplicationCluster
dicomAssociationInitiator = 239, // dicomAssociationInitiator
dicomAssociationAcceptor = 240, // dicomAssociationAcceptor
dicomHostname = 241, // dicomHostname
dicomPort = 242, // dicomPort
dicomSOPClass = 243, // dicomSOPClass
dicomTransferRole = 244, // dicomTransferRole
dicomTransferSyntax = 245, // dicomTransferSyntax
dicomPrimaryDeviceType = 246, // dicomPrimaryDeviceType
dicomRelatedDeviceReference = 247, // dicomRelatedDeviceReference
dicomPreferredCalledAETitle = 248, // dicomPreferredCalledAETitle
dicomTLSCyphersuite = 249, // dicomTLSCyphersuite
dicomAuthorizedNodeCertificateReference = 250, // dicomAuthorizedNodeCertificateReference
dicomThisNodeCertificateReference = 251, // dicomThisNodeCertificateReference
dicomInstalled = 252, // dicomInstalled
```

```
dicomStationName = 253, // dicomStationName
dicomDeviceSerialNumber = 254, // dicomDeviceSerialNumber
dicomInstitutionName = 255, // dicomInstitutionName
dicomInstitutionAddress = 256, // dicomInstitutionAddress
dicomInstitutionDepartmentName = 257, // dicomInstitutionDepartmentName
dicomIssuerOfPatientID = 258, // dicomIssuerOfPatientID
dicomPreferredCallingAETitle = 259, // dicomPreferredCallingAETitle
dicomSupportedCharacterSet = 260, // dicomSupportedCharacterSet
dicomConfigurationRoot = 261, // dicomConfigurationRoot
dicomDevicesRoot = 262, // dicomDevicesRoot
dicomUniqueAETitlesRegistryRoot = 263, // dicomUniqueAETitlesRegistryRoot
dicomDevice = 264, // dicomDevice
dicomNetworkAE = 265, // dicomNetworkAE
dicomNetworkConnection = 266, // dicomNetworkConnection
dicomUniqueAETitle = 267, // dicomUniqueAETitle
dicomTransferCapability = 268, // dicomTransferCapability
//
VLWholeSlideMicroscopyImageStorage           = 269,
EnhancedUSVolumeStorage                      = 270,
SurfaceSegmentationStorage                   = 271,
BreastTomosynthesisImageStorage              = 272,
LegacyConvertedEnhancedCTImageStorage        = 273,
LegacyConvertedEnhancedMRImageStorage        = 274,
LegacyConvertedEnhancedPETImageStorage       = 275,
MPEG2MainProfileHighLevel                    = 276,
MPEG4AVCH_264HighProfileLevel4_1             = 277,
MPEG4AVCH_264BDcompatibleHighProfileLevel4_1 = 278,

//
// 2019b
//
PETColorPaletteSOPInstance                                        = 279,
HotMetalBlueColorPaletteSOPInstance                               = 280,
PET20StepColorPaletteSOPInstance                                  = 281,
SpringColorPaletteSOPInstance                                     = 282,
SummerColorPaletteSOPInstance                                     = 283,
FallColorPaletteSOPInstance                                       = 284,
WinterColorPaletteSOPInstance                                     = 285,
Papyrus3ImplicitVRLittleEndian                                    = 286,
AdultMouseAnatomyOntology                                         = 287,
UberonOntology                                                    = 288,
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN  = 289,
MouseGenomeInitiativeMGI                                          = 290,
PubChemCompoundCID                                                = 291,
ICD11                                                             = 292,
NewYorkUniversityMelanomaClinicalCooperativeGroup                 = 293,
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide    = 294,
ImageBiomarkerStandardisationInitiative                           = 295,
RadiomicsOntology                                                 = 296,
DisplaySystemSOPClass                                             = 297,
DisplaySystemSOPInstance                                          = 298,
GeneralAudioWaveformStorage                                       = 299,
ArterialPulseWaveformStorage                                      = 300,
RespiratoryWaveformStorage                                        = 301,
XAXRFGrayscaleSoftcopyPresentationStateStorage                    = 302,
GrayscalePlanarMPRVolumetricPresentationStateStorage              = 303,
MPEG4AVCH_264HighProfileLevel4_2For2DVideo                        = 304,
MPEG4AVCH_264HighProfileLevel4_2For3DVideo                        = 305,
MPEG4AVCH_264StereoHighProfileLevel4_2                            = 306,
HEVCH_265MainProfileLevel5_1                                      = 307,
HEVCH_265Main10ProfileLevel5_1                                    = 308,
HotIronColorPaletteSOPInstance                                    = 309,
CompositingPlanarMPRVolumetricPresentationStateStorage            = 310,
AdvancedBlendingPresentationStateStorage                          = 311,
VolumeRenderingVolumetricPresentationStateStorage                 = 312,
SegmentedVolumeRenderingVolumetricPresentationStateStorage        = 313,
MultipleVolumeRenderingVolumetricPresentationStateStorage         = 314,
Null0                                                             = 315,
BreastProjectionXRayImageStorageForPresentation                   = 316,
BreastProjectionXRayImageStorageForProcessing                     = 317,
IntravascularOpticalCoherenceTomographyImageStorageForPresentation = 318,
IntravascularOpticalCoherenceTomographyImageStorageForProcessing  = 319,
ParametricMapStorage                                              = 320,
Null1                                                             = 321,
TractographyResultsStorage                                        = 322,
SurfaceScanMeshStorage                                            = 323,
SurfaceScanPointCloudStorage                                      = 324,
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage = 325,
WideFieldOphthalmicPhotography3DCoordinatesImageStorage           = 326,
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage            = 327,
OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage    = 328,
```

```
LensometryMeasurementsStorage                                    = 329,
AutorefractionMeasurementsStorage                                = 330,
KeratometryMeasurementsStorage                                   = 331,
SubjectiveRefractionMeasurementsStorage                          = 332,
VisualAcuityMeasurementsStorage                                  = 333,
SpectaclePrescriptionReportStorage                               = 334,
OphthalmicAxialMeasurementsStorage                               = 335,
IntraocularLensCalculationsStorage                               = 336,
MacularGridThicknessandVolumeReportStorage                       = 337,
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage          = 338,
OphthalmicThicknessMapStorage                                    = 339,
CornealTopographyMapStorage                                      = 340,
Comprehensive3DSRStorage                                         = 341,
ExtensibleSRStorage                                              = 342,
RadiopharmaceuticalRadiationDoseSRStorage                        = 343,
ColonCADSRStorage                                                = 344,
ImplantationPlanSRStorage                                        = 345,
AcquisitionContextSRStorage                                      = 346,
SimplifiedAdultEchoSRStorage                                     = 347,
PatientRadiationDoseSRStorage                                    = 348,
PlannedImagingAgentAdministrationSRStorage                       = 349,
PerformedImagingAgentAdministrationSRStorage                     = 350,
ContentAssessmentResultsStorage                                  = 351,
EncapsulatedSTLStorage                                           = 352,
EnhancedPETImageStorage                                          = 353,
BasicStructuredDisplayStorage                                    = 354,
CTDefinedProcedureProtocolStorage                                = 355,
CTPerformedProcedureProtocolStorage                              = 356,
ProtocolApprovalStorage                                          = 357,
ProtocolApprovalInformationModelFIND                             = 358,
ProtocolApprovalInformationModelMOVE                             = 359,
ProtocolApprovalInformationModelGET                              = 360,
RTPhysicianIntentStorage                                         = 361,
RTSegmentAnnotationStorage                                       = 362,
DICOSCTImageStorage                                              = 363,
DICOSDigitalXRayImageStorageForPresentation                      = 364,
DICOSDigitalXRayImageStorageForProcessing                        = 365,
DICOSThreatDetectionReportStorage                                = 366,
DICOS2DAITStorage                                                = 367,
DICOS3DAITStorage                                                = 368,
DICOSQuadrupoleResonanceQRStorage                                = 369,
EddyCurrentImageStorage                                          = 370,
EddyCurrentMultiframeImageStorage                                = 371,
CompositeInstanceRootRetrieveMOVE                                = 372,
CompositeInstanceRootRetrieveGET                                 = 373,
CompositeInstanceRetrieveWithoutBulkDataGET                      = 374,
DefinedProcedureProtocolInformationModelFIND                     = 375,
DefinedProcedureProtocolInformationModelMOVE                     = 376,
DefinedProcedureProtocolInformationModelGET                      = 377,
UPSFilteredGlobalSubscriptionSOPInstance                         = 378,
UnifiedWorklistandProcedureStepServiceClass1                     = 379,
UnifiedProcedureStepPushSOPClass1                                = 380,
UnifiedProcedureStepWatchSOPClass1                               = 381,
UnifiedProcedureStepPullSOPClass1                                = 382,
UnifiedProcedureStepEventSOPClass1                               = 383,
RTBeamsDeliveryInstructionStorage                                = 384,
RTConventionalMachineVerification                                = 385,
RTIonMachineVerification                                         = 386,
RTBrachyApplicationSetupDeliveryInstructionStorage               = 387,
HangingProtocolInformationModelGET                               = 388,
ColorPaletteStorage                                              = 389,
ColorPaletteQueryRetrieveInformationModelFIND                    = 390,
ColorPaletteQueryRetrieveInformationModelMOVE                    = 391,
ColorPaletteQueryRetrieveInformationModelGET                     = 392,
GenericImplantTemplateStorage                                    = 393,
GenericImplantTemplateInformationModelFIND                       = 394,
GenericImplantTemplateInformationModelMOVE                       = 395,
GenericImplantTemplateInformationModelGET                        = 396,
ImplantAssemblyTemplateStorage                                   = 397,
ImplantAssemblyTemplateInformationModelFIND                      = 398,
ImplantAssemblyTemplateInformationModelMOVE                      = 399,
ImplantAssemblyTemplateInformationModelGET                       = 400,
ImplantTemplateGroupStorage                                      = 401,
ImplantTemplateGroupInformationModelFIND                         = 402,
ImplantTemplateGroupInformationModelMOVE                         = 403,
ImplantTemplateGroupInformationModelGET                          = 404,
NativeDICOMModel                                                 = 405,
AbstractMultiDimensionalImageModel                               = 406,
DICOMContentMappingResource                                      = 407,
EnhancedMRColorImageStorage                                      = 408,
UniversalCoordinatedTime                                         = 409
```

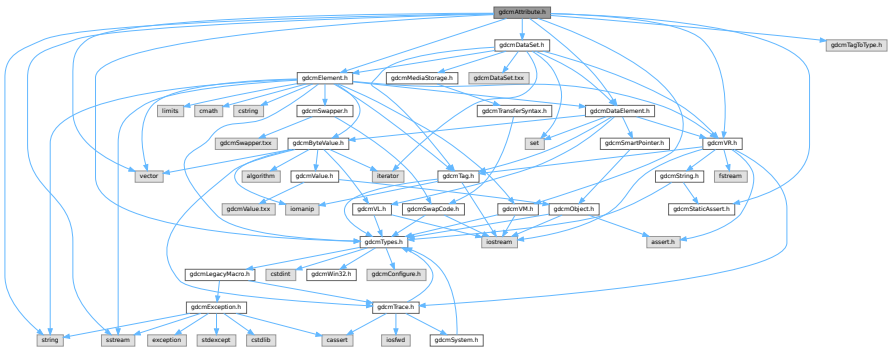
```
//
//

//
// Optionally private UIDs
//
#if 0
Private_1_2_840_113619_4_2,
Private_1_2_840_113619_4_3,
Private_1_3_12_2_1107_5_9_1,
Private_1_2_840_113619_4_26,
Private_1_2_840_113619_4_30,
Private_2_16_840_1_113709_1_5_1,
Private_2_16_840_1_113709_1_2_2,
Private_1_2_840_113543_6_6_1_3_10002,
Private_1_2_392_200036_9116_7_8_1_1_1,
Private_1_2_392_200036_9125_1_1_2,
Private_1_2_840_113619_4_27,
Private_1_3_46_670589_11_0_0_12_1,
Private_1_3_46_670589_11_0_0_12_2,
Private_1_3_46_670589_11_0_0_12_4,
Private_1_3_46_670589_2_3_1_1,
Private_1_3_46_670589_2_4_1_1,
Private_1_3_46_670589_2_5_1_1,
Private_1_3_46_670589_5_0_1,
Private_1_3_46_670589_5_0_1_1,
Private_1_3_46_670589_5_0_10,
Private_1_3_46_670589_5_0_11,
Private_1_3_46_670589_5_0_11_1,
Private_1_3_46_670589_5_0_12,
Private_1_3_46_670589_5_0_13,
Private_1_3_46_670589_5_0_14,
Private_1_3_46_670589_5_0_2,
Private_1_3_46_670589_5_0_2_1,
Private_1_3_46_670589_5_0_3,
Private_1_3_46_670589_5_0_3_1,
Private_1_3_46_670589_5_0_4,
Private_1_3_46_670589_5_0_7,
Private_1_3_46_670589_5_0_8,
Private_1_3_46_670589_5_0_9,
Private_1_2_752_24_3_7_6,
Private_1_2_752_24_3_7_7,
Private_1_2_840_113619_5_2,
Private_1_3_46_670589_33_1_4_1
#endif
//
//

} TSName;


  typedef const char* const (*TransferSyntaxStringsType)[2];
  static TransferSyntaxStringsType GetTransferSyntaxStrings();
  static const char * const *GetTransferSyntaxString(unsigned int ts);
  static unsigned int GetNumberOfTransferSyntaxStrings();


  // TODO: Because I would like a dual signature for TSType and TSName, C++ won't let me do it...
  static const char* GetUIDString(/*TSType*/ unsigned int ts);
  static const char* GetUIDName(/*TSType*/ unsigned int ts);

  bool SetFromUID(const char *str);

  const char *GetName() const;

  const char *GetString() const;

  operator TSType () const { return TSField; }

private:
  TSType TSField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const UIDs &uid)
{
  _os « uid.GetString() « " -> " « uid.GetName();
  return _os;

}

} // end namespace gdcm
```

```
01007
01008 #endif //GDCMUIDS_H
```

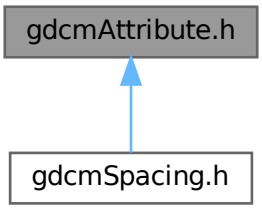
11.109 gdcmAttribute.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTagToType.h"
#include "gdcmVM.h"
#include "gdcmElement.h"
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmStaticAssert.h"
#include <string>
#include <vector>
#include <sstream>
```

Include dependency graph for gdcmAttribute.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Attribute< Group, Element, TVR, TVM >

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class gdcm::Attribute< Group, Element, TVR, VM::VM1 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_n >
- class gdcm::VRVLSize< 0 >
- class gdcm::VRVLSize< 1 >

Namespaces

- namespace gdcm

11.110 gdcmAttribute.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMATTRIBUTE_H
#define GDCMATTRIBUTE_H

#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTagToType.h"
#include "gdcmVM.h"
#include "gdcmElement.h"
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmStaticAssert.h"

#include <string>
#include <vector>
#include <sstream>

namespace gdcm_ns
{

struct void_;

// Declaration, also serve as forward declaration
template<int T> class VRVLSize;

// Implementation when VL is coded on 16 bits:
template<> class VRVLSize<0> {
public:
```

```
00041   static inline uint16_t Read(std::istream &_is) {
00042     uint16_t l;
00043     _is.read((char*)&l, 2);
00044     return l;
00045     }
00046
00047   static inline void Write(std::ostream &os)  { (void)os;
00048     }
00049 };
00050 // Implementation when VL is coded on 32 bits:
00051 template<> class VRVLSize<1> {
00052 public:
00053   static inline uint32_t Read(std::istream &_is) {
00054     char dummy[2];
00055     _is.read(dummy, 2);
00056
00057     uint32_t l;
00058     _is.read((char*)&l, 4);
00059     return l;
00060     }
00061
00062   static inline void Write(std::ostream &os)  { (void)os;
00063     }
00064 };
00065
00081 template<uint16_t Group, uint16_t Element,
00082    long long TVR = TagToType<Group, Element>::VRType, // can the user override this value ?
00083    int TVM = TagToType<Group, Element>::VMType // can the user override this value ?
00084    /*typename SQAttribute = void_*/ > // if only I had variadic template...
00085 class Attribute
00086 {
00087 public:
00088   typedef typename VRToType<TVR>::Type ArrayType;
00089   enum { VMType = VMToLength<TVM>::Length };
00090   ArrayType Internal[VMToLength<TVM>::Length];
00091
00092   // Make sure that user specified VR/VM are compatible with the public dictionary:
00093   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00094   GDCM_STATIC_ASSERT( ((VM::VMType)TVM & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00095   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TVM == VM::VM1) )
00096                      || !((VR::VRType)TVR & VR::VR_VM1) ) );
00097
00098   static Tag GetTag() { return Tag(Group,Element); }
00099   static VR  GetVR()  { return (VR::VRType)TVR; }
00100   static VM  GetVM()  { return (VM::VMType)TVM; }
00101
00102   // The following two methods do make sense only in case of public element,
00103   // when the template is intanciated with private element the VR/VM are simply
00104   // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
00105   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00106   static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }
00107
00108   // Some extra dummy checks:
00109   // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.
00110
00111   unsigned int GetNumberOfValues() const {
00112     return VMToLength<TVM>::Length;
00113   }
00114   // Implementation of Print is common to all Mode (ASCII/Binary)
00115   // TODO: Can we print a \ when in ASCII...well I don't think so
00116   // it would mean we used a bad VM then, right ?
00117   void Print(std::ostream &os) const {
00118     os « GetTag() « " ";
00119     os « TagToType<Group,Element>::GetVRString()  « " ";
00120     os « TagToType<Group,Element>::GetVMString()  « " ";
00121     os « Internal[0]; // VM is at least guarantee to be one
00122     for(unsigned int i=1; i<GetNumberOfValues(); ++i)
00123       os « "," « Internal[i];
00124     }
00125
00126   // copy:
00127   //ArrayType GetValue(unsigned int idx = 0) {
00128   //  assert( idx < GetNumberOfValues() );
00129   //  return Internal[idx];
00130   //}
00131   //ArrayType operator[] (unsigned int idx) {
00132   //  return GetValue(idx);
00133   //}
00134   // FIXME: is this always a good idea ?
00135   // I do not think so, I prefer operator
00136   //operator ArrayType () const { return Internal[0]; }
```

```
  bool operator==(const Attribute &att) const
    {
    return std::equal(Internal, Internal+GetNumberOfValues(),
      att.GetValues());
    }
  bool operator!=(const Attribute &att) const
    {
    return !std::equal(Internal, Internal+GetNumberOfValues(),
      att.GetValues());
    }
  bool operator<(const Attribute &att) const
    {
    return std::lexicographical_compare(Internal, Internal+GetNumberOfValues(),
      att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
    }

  ArrayType &GetValue(unsigned int idx = 0) {
    assert( idx < GetNumberOfValues() );
    return Internal[idx];
  }
  ArrayType & operator[] (unsigned int idx) {
    return GetValue(idx);
  }
  // const reference
  ArrayType const &GetValue(unsigned int idx = 0) const {
    assert( idx < GetNumberOfValues() );
    return Internal[idx];
  }
  ArrayType const & operator[] (unsigned int idx) const {
    return GetValue(idx);
  }
  void SetValue(ArrayType v, unsigned int idx = 0) {
    assert( idx < GetNumberOfValues() );
    Internal[idx] = v;
  }
  void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
    assert( array && numel && numel == GetNumberOfValues() );
    // std::copy is smarted than a memcpy, and will call memcpy when POD type
    std::copy(array, array+numel, Internal);
  }
  const ArrayType* GetValues() const {
    return Internal;
  }

  // API to talk to the run-time layer: gdcm::DataElement
  DataElement GetAsDataElement() const {
    DataElement ret( GetTag() );
    std::ostringstream os;
    // os.imbue(std::locale::classic()); // This is not required AFAIK
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetNumberOfValues(),os);
    ret.SetVR( GetVR() );
    assert( ret.GetVR() != VR::SQ );
    if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
      {
      if( GetVR() != VR::UI )
        {
        if( os.str().size() % 2 )
          {
          os « " ";
          }
        }
      }
    VL::Type osStrSize = (VL::Type)os.str().size();
    ret.SetByteValue( os.str().c_str(), osStrSize );
    return ret;
  }

  void SetFromDataElement(DataElement const &de) {
    // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I should be ok:
    assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
    assert( GetVR() != VR::INVALID );
    assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of VR::INVALID cannot use the & operator
    if( de.IsEmpty() ) return;
    const ByteValue *bv = de.GetByteValue();
#ifdef GDCM_WORDS_BIGENDIAN
    if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
#else
```

```
    if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
#endif
      {
      SetByteValue(bv);
      }
    else
      {
      SetByteValueNoSwap(bv);
      }
  }
  void Set(DataSet const &ds) {
    SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
  }
  void SetFromDataSet(DataSet const &ds) {
    if( ds.FindDataElement( Tag(Group,Element) ) &&
      !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
      {
      SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
      }
  }
protected:
  void SetByteValueNoSwap(const ByteValue *bv) {
    if( !bv ) return; // That would be bad...
    assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
    //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
    //  {
    //  // always do a copy !
    //  SetValues(bv->GetPointer(), bv->GetLength());
    //  }
    //else
      {
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
        GetNumberOfValues(),ss);
      }
  }
  void SetByteValue(const ByteValue *bv) {
    if( !bv ) return; // That would be bad...
    assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
    //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
    //  {
    //  // always do a copy !
    //  SetValues(bv->GetPointer(), bv->GetLength());
    //  }
    //else
      {
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
        GetNumberOfValues(),ss);
      }
  }
#if 0 // TODO  FIXME the implicit way:
  // explicit:
  void Read(std::istream &_is) {
    const uint16_t cref[] = { Group, Element };
    uint16_t c[2];
    _is.read((char*)&c, sizeof(c));
    assert( c[0] == cref[0] && c[1] == cref[1] );
    char vr[2];
    _is.read(vr, 2); // Check consistency ?
    const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
    uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
    l /= sizeof( typename VRToType<TVR>::Type );
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      l,_is);
  }
  void Write(std::ostream &_os) const {
    uint16_t c[] = { Group, Element };
    _os.write((char*)&c, 4);
    uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
    _os.write((char*)&l, 4);
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }
  void Read(std::istream &_is) {
    uint16_t cref[] = { Group, Element };
    uint16_t c[2];
```

```
    _is.read((char*)&c, 4);
    const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
    uint32_t l;
    _is.read((char*)&l, 4);
    l /= sizeof( typename VRToType<TVR>::Type );
     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      l,_is);
    }
  void Write(std::ostream &_os) const {
    uint16_t c[] = { Group, Element };
    _os.write((char*)&c, 4);
    uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
    _os.write((char*)&l, 4);
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }
#endif

};

template<uint16_t Group, uint16_t Element, long long TVR >
class Attribute<Group,Element,TVR,VM::VM1>
{
public:
  typedef typename VRToType<TVR>::Type ArrayType;
  enum { VMType = VMToLength<VM::VM1>::Length };
  //ArrayType Internal[VMToLength<TVM>::Length];
  ArrayType Internal;
  GDCM_STATIC_ASSERT( VMToLength<VM::VM1>::Length == 1 );

  // Make sure that user specified VR/VM are compatible with the public dictionary:
  GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
  GDCM_STATIC_ASSERT( ((VM::VMType)VM::VM1 & (VM::VMType)(TagToType<Group, Element>::VMType)) );
  GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)VM::VM1 == VM::VM1) )
                    || !((VR::VRType)TVR & VR::VR_VM1) ) );

  static Tag GetTag() { return Tag(Group,Element); }
  static VR  GetVR()  { return (VR::VRType)TVR; }
  static VM  GetVM()  { return (VM::VMType)VM::VM1; }

  // The following two methods do make sense only in case of public element,
  // when the template is intanciated with private element the VR/VM are simply
  // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
  static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
  static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }

  // Some extra dummy checks:
  // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.

  unsigned int GetNumberOfValues() const {
    return VMToLength<VM::VM1>::Length;
  }
  // Implementation of Print is common to all Mode (ASCII/Binary)
  // TODO: Can we print a \ when in ASCII...well I don't think so
  // it would mean we used a bad VM then, right ?
  void Print(std::ostream &os) const {
    os « GetTag() « " ";
    os « TagToType<Group,Element>::GetVRString()  « " ";
    os « TagToType<Group,Element>::GetVMString()  « " ";
    os « Internal; // VM is at least guarantee to be one
  }
  // copy:
  //ArrayType GetValue(unsigned int idx = 0) {
  //  assert( idx < GetNumberOfValues() );
  //  return Internal[idx];
  //}
  //ArrayType operator[] (unsigned int idx) {
  //  return GetValue(idx);
  //}
  // FIXME: is this always a good idea ?
  // I do not think so, I prefer operator
  //operator ArrayType () const { return Internal[0]; }

  bool operator==(const Attribute &att) const
    {
    return std::equal(&Internal, &Internal+GetNumberOfValues(),
      att.GetValues());
    }
  bool operator!=(const Attribute &att) const
    {
    return !std::equal(&Internal, &Internal+GetNumberOfValues(),
```

```
      att.GetValues());
    }
  bool operator<(const Attribute &att) const
    {
    return std::lexicographical_compare(&Internal, &Internal+GetNumberOfValues(),
      att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
    }

  ArrayType &GetValue() {
//    assert( idx < GetNumberOfValues() );
    return Internal;
  }
//  ArrayType & operator[] (unsigned int idx) {
//    return GetValue(idx);
//  }
  // const reference
  ArrayType const &GetValue() const {
    //assert( idx < GetNumberOfValues() );
    return Internal;
  }
  //ArrayType const & operator[] () const {
  //  return GetValue();
  //}
  void SetValue(ArrayType v) {
//    assert( idx < GetNumberOfValues() );
    Internal = v;
  }
/*  void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
    assert( array && numel && numel == GetNumberOfValues() );
    // std::copy is smarted than a memcpy, and will call memcpy when POD type
    std::copy(array, array+numel, Internal);
  }
*/

  // FIXME Should we remove this function ?
  const ArrayType* GetValues() const {
    return &Internal;
  }

  // API to talk to the run-time layer: gdcm::DataElement
  DataElement GetAsDataElement() const {
    DataElement ret( Tag(Group,Element) );
    std::ostringstream os;
    // os.imbue(std::locale::classic()); // This is not required AFAIK
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(&Internal,
      GetNumberOfValues(),os);
    ret.SetVR( GetVR() );
    assert( ret.GetVR() != VR::SQ );
    if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
      {
      if( GetVR() != VR::UI )
        {
        if( os.str().size() % 2 )
          {
          os « " ";
          }
        }
      }
    VL::Type osStrSize = (VL::Type)os.str().size();
    ret.SetByteValue( os.str().c_str(), osStrSize );
    return ret;
  }

  void SetFromDataElement(DataElement const &de) {
    // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I should be ok:
    assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
    assert( GetVR() != VR::INVALID );
    assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of VR::INVALID cannot use the & operator
    if( de.IsEmpty() ) return;
    const ByteValue *bv = de.GetByteValue();
#ifdef GDCM_WORDS_BIGENDIAN
    if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
#else
    if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
#endif
      {
      SetByteValue(bv);
      }
    else
```

```
      {
      SetByteValueNoSwap(bv);
      }
  }
  void Set(DataSet const &ds) {
    SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
  }
  void SetFromDataSet(DataSet const &ds) {
    if( ds.FindDataElement( Tag(Group,Element) ) &&
      !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
      {
      SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
      }
  }
protected:
  void SetByteValueNoSwap(const ByteValue *bv) {
    if( !bv ) return; // That would be bad...
    assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
    //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
    //  {
    //  // always do a copy !
    //  SetValues(bv->GetPointer(), bv->GetLength());
    //  }
    //else
      {
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(&Internal,
        GetNumberOfValues(),ss);
      }
  }
  void SetByteValue(const ByteValue *bv) {
    if( !bv ) return; // That would be bad...
    assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
    //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
    //  {
    //  // always do a copy !
    //  SetValues(bv->GetPointer(), bv->GetLength());
    //  }
    //else
      {
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(&Internal,
        GetNumberOfValues(),ss);
      }
  }
#if 0 // TODO  FIXME the implicit way:
  // explicit:
  void Read(std::istream &_is) {
    const uint16_t cref[] = { Group, Element };
    uint16_t c[2];
    _is.read((char*)&c, sizeof(c));
    assert( c[0] == cref[0] && c[1] == cref[1] );
    char vr[2];
    _is.read(vr, 2); // Check consistency ?
    const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
    uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
    l /= sizeof( typename VRToType<TVR>::Type );
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      l,_is);
  }
  void Write(std::ostream &_os) const {
    uint16_t c[] = { Group, Element };
    _os.write((char*)&c, 4);
    uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
    _os.write((char*)&l, 4);
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }
  void Read(std::istream &_is) {
    uint16_t cref[] = { Group, Element };
    uint16_t c[2];
    _is.read((char*)&c, 4);
    const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
    uint32_t l;
    _is.read((char*)&l, 4);
    l /= sizeof( typename VRToType<TVR>::Type );
     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
```

```
      l,_is);
    }
  void Write(std::ostream &_os) const {
    uint16_t c[] = { Group, Element };
    _os.write((char*)&c, 4);
    uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
    _os.write((char*)&l, 4);
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }
#endif

};

// No need to repeat default template arg, since primary template
// will be used to generate the default arguments
template<uint16_t Group, uint16_t Element, long long TVR >
class Attribute<Group,Element,TVR,VM::VM1_n>
{
public:
  typedef typename VRToType<TVR>::Type ArrayType;

  // Make sure that user specified VR/VM are compatible with the public dictionary:
  GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
  GDCM_STATIC_ASSERT( (VM::VM1_n & (VM::VMType)(TagToType<Group, Element>::VMType)) );
  GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TagToType<Group,Element>::VMType ==
VM::VM1) )
                    || !((VR::VRType)TVR & VR::VR_VM1) ) );

  static Tag GetTag() { return Tag(Group,Element); }
  static VR  GetVR()  { return (VR::VRType)TVR; }
  static VM  GetVM()  { return VM::VM1_n; }

  static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
  static VM  GetDictVM() { return GetVM(); }

  // This the way to prevent default initialization
  explicit Attribute() { Internal=nullptr; Length=0; Own = true; }
  ~Attribute() {
    if( Own ) {
      delete[] Internal;
    }
    Internal = nullptr; // paranoid
  }

  unsigned int GetNumberOfValues() const { return Length; }

  void SetNumberOfValues(unsigned int numel)
    {
    SetValues(nullptr, numel, true);
    }

  const ArrayType* GetValues() const {
    return Internal;
  }
  void Print(std::ostream &os) const {
    os « GetTag() « " ";
    os « GetVR()  « " ";
    os « GetVM()  « " ";
    os « Internal[0]; // VM is at least guarantee to be one
    for(unsigned int i=1; i<GetNumberOfValues(); ++i)
      os « "," « Internal[i];
    }
  ArrayType &GetValue(unsigned int idx = 0) {
    assert( idx < GetNumberOfValues() );
    return Internal[idx];
  }
  ArrayType &operator[] (unsigned int idx) {
    return GetValue(idx);
  }
  // const reference
  ArrayType const &GetValue(unsigned int idx = 0) const {
    assert( idx < GetNumberOfValues() );
    return Internal[idx];
  }
  ArrayType const & operator[] (unsigned int idx) const {
    return GetValue(idx);
  }
  void SetValue(unsigned int idx, ArrayType v) {
    assert( idx < GetNumberOfValues() );
    Internal[idx] = v;
```

```
  }
  void SetValue(ArrayType v) { SetValue(0, v); }

  void SetValues(const ArrayType *array, unsigned int numel, bool own = false)
    {
    if( Internal ) // were we used before ?
      {
      // yes !
      if( Own ) delete[] Internal;
      Internal = nullptr;
      }
    Own = own;
    Length = numel;
    assert( Internal == nullptr );
    if( own ) // make a copy:
      {
      Internal = new ArrayType[numel];
      if( array && numel )
        std::copy(array, array+numel, Internal);
      }
    else // pass pointer
      {
      Internal = const_cast<ArrayType*>(array);
      }
    // postcondition
    assert( numel == GetNumberOfValues() );
    }

  DataElement GetAsDataElement() const {
    DataElement ret( GetTag() );
    std::ostringstream os;
    if( Internal )
      {
      EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
        GetNumberOfValues(),os);
      if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
        {
        if( GetVR() != VR::UI )
          {
          if( os.str().size() % 2 )
            {
            os « " ";
            }
          }
        }
      }
    ret.SetVR( GetVR() );
    assert( ret.GetVR() != VR::SQ );
    VL::Type osStrSize = (VL::Type) os.str().size();
    ret.SetByteValue( os.str().c_str(), osStrSize);
    return ret;
  }
  void SetFromDataElement(DataElement const &de) {
    // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
    should be ok:
    assert( GetTag() == de.GetTag() || GetTag().GetGroup() == 0x6000
      || GetTag().GetGroup() == 0x5000 );
    assert( GetVR().Compatible( de.GetVR() ) ); // In case of VR::INVALID cannot use the & operator
    assert( !de.IsEmpty() );
    const ByteValue *bv = de.GetByteValue();
    SetByteValue(bv);
  }
  void Set(DataSet const &ds) {
    SetFromDataElement( ds.GetDataElement( GetTag() ) );
  }
  void SetFromDataSet(DataSet const &ds) {
    if( ds.FindDataElement( GetTag() ) &&
      !ds.GetDataElement( GetTag() ).IsEmpty() )
      {
      SetFromDataElement( ds.GetDataElement( GetTag() ) );
      }
  }
protected:
  void SetByteValue(const ByteValue *bv) {
    assert( bv ); // FIXME
    std::stringstream ss;
    std::string s = std::string( bv->GetPointer(), bv->GetLength() );
    Length = bv->GetLength(); // HACK FIXME
    ss.str( s );
    ArrayType *internal;
    ArrayType buffer[256];
```

```
    if( bv->GetLength() < 256 )
      {
      internal = buffer;
      }
    else
      {
      internal = new ArrayType[(VL::Type)bv->GetLength()]; // over allocation
      }
    EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(internal, Length, ss);
    SetValues( internal, Length, true );
    if( !(bv->GetLength() < 256) )
      {
      delete[] internal;
      }
    //EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
    //  GetNumberOfValues(),ss);
  }

private:
  ArrayType *Internal;
  unsigned int Length;
  bool Own : 1;
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM1_3> : public Attribute<Group,Element,TVR,VM::VM1_n>
{
public:
  VM  GetVM() const { return VM::VM1_3; }
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM1_8> : public Attribute<Group,Element,TVR,VM::VM1_n>
{
public:
  VM  GetVM() const { return VM::VM1_8; }
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM2_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
{
public:
  VM  GetVM() const { return VM::VM2_n; }
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM2_2n> : public Attribute<Group,Element,TVR,VM::VM2_n>
{
public:
  static VM  GetVM() { return VM::VM2_2n; }
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM3_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
{
public:
  static VM  GetVM() { return VM::VM3_n; }
};

template<uint16_t Group, uint16_t Element, long long TVR>
class Attribute<Group,Element,TVR,VM::VM3_3n> : public Attribute<Group,Element,TVR,VM::VM3_n>
{
public:
  static VM  GetVM() { return VM::VM3_3n; }
};


// For particular case for ASCII string
// WARNING: This template explicitly instantiates a particular
// EncodingImplementation THEREFORE it is required to be declared after the
// EncodingImplementation is needs (doh!)
#if 0
template<int TVM>
class Attribute<TVM>
{
public:
  Attribute(const char array[])
    {
    unsigned int i = 0;
    const char sep = '\\';
    std::string sarray = array;
```

```
    std::string::size_type pos1 = 0;
    std::string::size_type pos2 = sarray.find(sep, pos1+1);
    while(pos2 != std::string::npos)
      {
      Internal[i++] = sarray.substr(pos1, pos2-pos1);
      pos1 = pos2+1;
      pos2 = sarray.find(sep, pos1+1);
      }
    Internal[i] = sarray.substr(pos1, pos2-pos1);
    // Shouldn't we do the contrary, since we know how many separators
    // (and default behavior is to discard anything after the VM declared
    assert( GetLength()-1 == i );
    }

  unsigned long GetLength() const {
    return VMToLength<TVM>::Length;
  }
  // Implementation of Print is common to all Mode (ASCII/Binary)
  void Print(std::ostream &_os) const {
    _os « Internal[0]; // VM is at least guarantee to be one
    for(int i=1; i<VMToLength<TVM>::Length; ++i)
      _os « "," « Internal[i];
    }

  void Read(std::istream &_is) {
    EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
    }
  void Write(std::ostream &_os) const {
    EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
    }
private:
  typename String Internal[VMToLength<TVM>::Length];
};

template< int TVM>
class Attribute<VR::PN, TVM> : public StringAttribute<TVM>
{
};
#endif

#if 0

// Implementation for the undefined length (dynamically allocated array)
template<int TVR>
class Attribute<TVR, VM::VM1_n>
{
public:
  // This the way to prevent default initialization
  explicit Attribute() { Internal=0; Length=0; }
  ~Attribute() {
    delete[] Internal;
    Internal = 0;
  }

  // Length manipulation
  // SetLength should really be protected anyway...all operation
  // should go through SetArray
  unsigned long GetLength() const { return Length; }
  typedef typename VRToType<TVR>::Type ArrayType;
  void SetLength(unsigned long len) {
    const unsigned int size = sizeof(ArrayType);
    if( len ) {
      if( len > Length ) {
        // perform realloc
        assert( (len / size) * size == len );
        ArrayType *internal = new ArrayType[len / size];
        memcpy(internal, Internal, Length * size);
        delete[] Internal;
        Internal = internal;
        }
      }
    Length = len / size;
  }

  // If save is set to zero user should not delete the pointer
  //void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
  void SetArray(const ArrayType *array, unsigned long len,
    bool save = false) {
    if( save ) {
      SetLength(len); // realloc
      memcpy(Internal, array, len/*/sizeof(ArrayType)*/);
```

```
      }
    else {
      // TODO rewrite this stupid code:
      Length = len;
      //Internal = array;
      assert(0);
      }
  }
  // Implementation of Print is common to all Mode (ASCII/Binary)
  void Print(std::ostream &_os) const {
    assert( Length );
    assert( Internal );
    _os « Internal[0]; // VM is at least guarantee to be one
    const unsigned long length = GetLength() < 25 ? GetLength() : 25;
    for(unsigned long i=1; i<length; ++i)
      _os « "," « Internal[i];
    }
  void Read(std::istream &_is) {
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      GetLength(),_is);
    }
  void Write(std::ostream &_os) const {
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }

  Attribute(const Attribute&_val) {
    if( this != &_val) {
      *this = _val;
      }
    }

  Attribute &operator=(const Attribute &_val) {
    Length = 0; // SYITF
    Internal = 0;
    SetArray(_val.Internal, _val.Length, true);
    return *this;
    }

private:
  typename VRToType<TVR>::Type *Internal;
  unsigned long Length; // unsigned int ??
};

//template <int TVM = VM::VM1_n>
//class Attribute<VR::OB, TVM > : public Attribute<VR::OB, VM::VM1_n> {};

// Partial specialization for derivatives of 1-n : 2-n, 3-n ...
template<int TVR>
class Attribute<TVR, VM::VM2_n> : public Attribute<TVR, VM::VM1_n>
{
public:
  typedef Attribute<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len <= 1 ) return;
    Parent::SetLength(len);
  }
};
template<int TVR>
class Attribute<TVR, VM::VM2_2n> : public Attribute<TVR, VM::VM2_n>
{
public:
  typedef Attribute<TVR, VM::VM2_n> Parent;
  void SetLength(int len) {
    if( len % 2 ) return;
    Parent::SetLength(len);
  }
};
template<int TVR>
class Attribute<TVR, VM::VM3_n> : public Attribute<TVR, VM::VM1_n>
{
public:
  typedef Attribute<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len <= 2 ) return;
    Parent::SetLength(len);
  }
};
template<int TVR>
class Attribute<TVR, VM::VM3_3n> : public Attribute<TVR, VM::VM3_n>
{
```

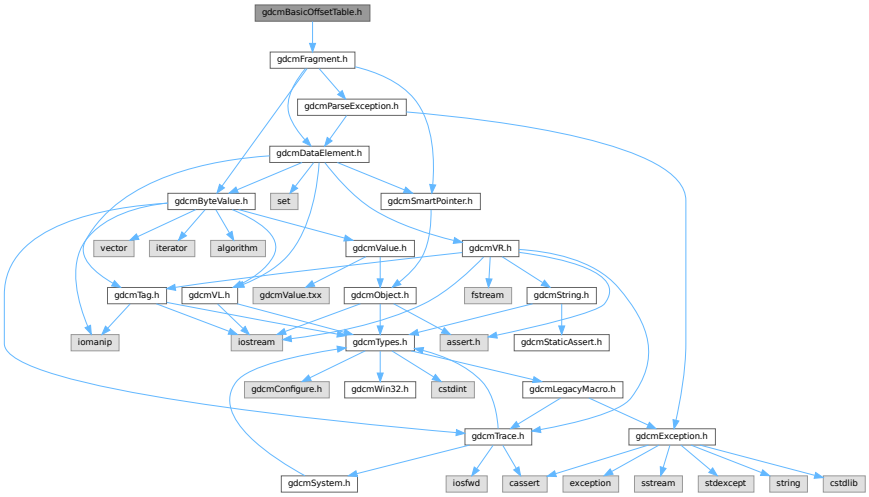
```
public:
  typedef Attribute<TVR, VM::VM3_n> Parent;
  void SetLength(int len) {
    if( len % 3 ) return;
    Parent::SetLength(len);
  }
};


//template<int T> struct VRToLength;
//template <> struct VRToLength<VR::AS>
//{ enum { Length  = VM::VM1 }; }
//template<>
//class Attribute<VR::AS> : public Attribute<VR::AS, VRToLength<VR::AS>::Length >

// only 0010 1010 AS 1 Patient's Age
template<>
class Attribute<VR::AS, VM::VM5>
{
public:
  char Internal[VMToLength<VM::VM5>::Length];
  void Print(std::ostream &_os) const {
    _os « Internal;
    }
};

template <>
class Attribute<VR::OB, VM::VM1> : public Attribute<VR::OB, VM::VM1_n> {};
// Make it impossible to compile any other cases:
template <int TVM> class Attribute<VR::OB, TVM>;

// Same for OW:
template <>
class Attribute<VR::OW, VM::VM1> : public Attribute<VR::OW, VM::VM1_n> {};
// Make it impossible to compile any other cases:
template <int TVM> class Attribute<VR::OW, TVM>;
#endif

#if 0
template<>
class Attribute<0x7fe0,0x0010, VR::OW, VM::VM1>
{
public:
  char *Internal;
  unsigned long Length; // unsigned int ??

  void Print(std::ostream &_os) const {
    _os « Internal[0];
    }
  void SetBytes(char *bytes, unsigned long length) {
    Internal = bytes;
    Length = length;
  }
  void Read(std::istream &_is) {
     uint16_t c[2];
    _is.read((char*)&c, 4);
    uint32_t l;
    _is.read((char*)&l, 4);
    Length = l;
    _is.read( Internal, Length );
    }
  void Write(std::ostream &_os) const {
     uint16_t c[] = {0x7fe0, 0x0010};
    _os.write((char*)&c, 4);
    _os.write((char*)&Length, 4);
    _os.write( Internal, Length );
    }
};
#endif

/*
// Removing Attribute for SQ for now...
template<uint16_t Group, uint16_t Element, typename SQA>
class Attribute<Group,Element, VR::SQ, VM::VM1, SQA>
{
public:
  SQA sqa;
  void Print(std::ostream &_os) const {
    _os « Tag(Group,Element);
    sqa.Print(_os « std::endl « '\t');
    }
```

```
 void Write(std::ostream &_os) const {
    uint16_t c[] = {Group, Element};
    _os.write((char*)&c, 4);
    uint32_t undef = 0xffffffff;
    _os.write((char*)&undef, 4);
    uint16_t item_beg[] = {0xfffe,0xe000};
    _os.write((char*)&item_beg, 4);
    _os.write((char*)&undef, 4);
    sqa.Write(_os);
    uint16_t item_end[] = {0xfffe,0xe00d};
    _os.write((char*)&item_end, 4);
    uint32_t zero = 0x0;
    _os.write((char*)&zero, 4);
    uint16_t seq_end[] = {0xfffe, 0xe0dd};
    _os.write((char*)&seq_end, 4);
    _os.write((char*)&zero, 4);
    }
};
*/

} // namespace gdcm_ns

#endif //GDCMATTRIBUTE_H
```

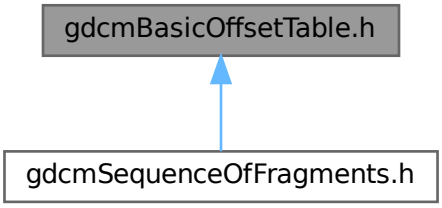
11.111 gdcmBasicOffsetTable.h File Reference

`#include "gdcmFragment.h"`

Include dependency graph for gdcmBasicOffsetTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BasicOffsetTable

  Class to represent a BasicOffsetTable.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const BasicOffsetTable &val)

11.112 gdcmBasicOffsetTable.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMBASICOFFSETTABLE_H
#define GDCMBASICOFFSETTABLE_H

#include "gdcmFragment.h"

namespace gdcm_ns
{
class GDCM_EXPORT BasicOffsetTable : public Fragment
```

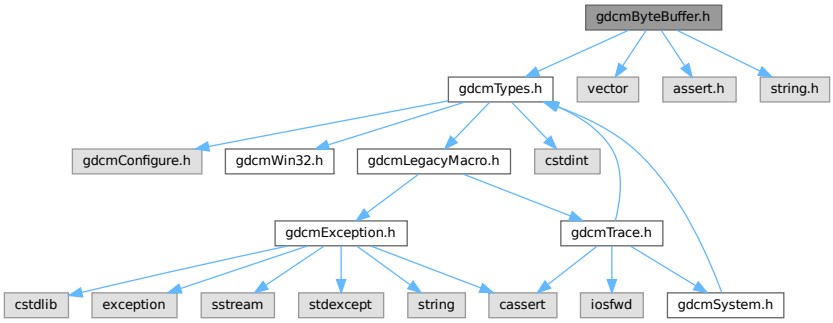
```
{
//protected:
//  void SetTag(const Tag &t);
public:
  BasicOffsetTable() : Fragment() {}
  friend std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val);

/*
  VL GetLength() const {
    assert( !ValueLengthField.IsUndefined() );
    assert( !ValueField || ValueField->GetLength() == ValueLengthField );
    return TagField.GetLength() + ValueLengthField.GetLength()
      + ValueLengthField;
  }
*/

  template <typename TSwap>
  std::istream &Read(std::istream &is) {
    // Superclass
    const Tag itemStart(0xfffe, 0xe000);
    if( !TagField.Read<TSwap>(is) )
      {
      assert(0 && "Should not happen");
      return is;
      }
    //assert( TagField == itemStart );
    if( TagField != itemStart )
      {
      // Bug_Siemens_PrivateIconNoItem.dcm
      //gdcmDebugMacro( "Could be Bug_Siemens_PrivateIconNoItem.dcm" );
      ParseException pe;
      pe.SetLastElement(*this);
      //throw "SIEMENS Icon thingy";
      throw pe;
      }
    if( !ValueLengthField.Read<TSwap>(is) )
      {
      assert(0 && "Should not happen");
      return is;
      }
    // Self
    SmartPointer<ByteValue> bv = new ByteValue;
    bv->SetLength(ValueLengthField);
    if( !bv->Read<TSwap>(is) )
      {
      gdcmAssertAlwaysMacro(0 && "Should not happen");
      return is;
      }
    ValueField = bv;
    return is;
    }

/*
  template <typename TSwap>
  std::ostream &Write(std::ostream &os) const {
    const Tag itemStart(0xfffe, 0xe000);
    const Tag seqDelItem(0xfffe,0xe0dd);
    if( !TagField.Write<TSwap>(os) )
      {
      assert(0 && "Should not happen");
      return os;
      }
    assert( TagField == itemStart );
    if( !ValueLengthField.Write<TSwap>(os) )
      {
      assert(0 && "Should not happen");
      return os;
      }
    if( ValueLengthField )
      {
      // Self
      const ByteValue *bv = GetByteValue();
      assert( bv );
      assert( bv->GetLength() == ValueLengthField );
      if( !bv->Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    return os;
```

```
    }
*/
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val)
{
  os « " BasicOffsetTable Length=" « val.ValueLengthField « std::endl;
  if( val.ValueField )
    {
    const ByteValue *bv = val.GetByteValue();
    assert( bv );
    os « *bv;
    }

  return os;
}


} // end namespace gdcm_ns

#endif //GDCMBASICOFFSETTABLE_H
```

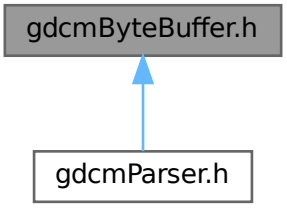
11.113 gdcmByteBuffer.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <assert.h>
#include <string.h>
```

Include dependency graph for gdcmByteBuffer.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ByteBuffer

  ByteBuffer.

Namespaces

- namespace gdcm

11.114 gdcmByteBuffer.h

Go to the documentation of this file.

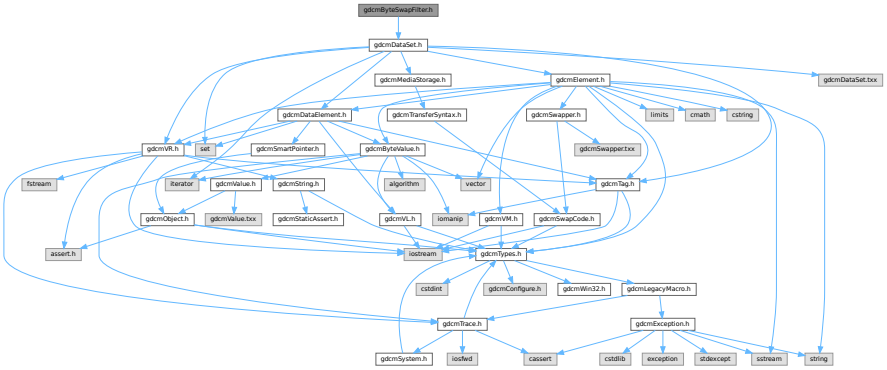
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBYTEBUFFER_H
#define GDCMBYTEBUFFER_H

#include "gdcmTypes.h"
#include <vector>
#include <assert.h>
#include <string.h> // memmove

#error should not be used

namespace gdcm
{
class ByteBuffer
{
  static const int InitBufferSize = 1024;
public:
  ByteBuffer() : Start(0), End(0),Limit(0) {}
```

```
  char *Get(int len)
    {
    char *buffer = &Internal[0];
    if (len > Limit - End)
      {
      // FIXME avoid integer overflow
      int neededSize = len + (End - Start);
      if (neededSize  <= Limit - buffer)
        {
        memmove(buffer, Start, End - Start);
        End = buffer + (End - Start);
        Start = buffer;
        }
      else
        {
        char *newBuf;
        int bufferSize = Limit - Start;
        if ( bufferSize == 0 )
          {
          bufferSize = InitBufferSize;
          }
        do
          {
          bufferSize *= 2;
          } while (bufferSize < neededSize);
        //newBuf = malloc(bufferSize);
        try
          {
          Internal.reserve(bufferSize);
          newBuf = &Internal[0];
          }
        catch(...)
          {
          //errorCode = NoMemoryError;
          return 0;
          }
        Limit = newBuf + bufferSize;

        if (Start)
          {
          memcpy(newBuf, Start, End - Start);
          }
        End = newBuf + (End - Start);
        Start = /*buffer =*/ newBuf;
        }
      }
    assert( (int)Internal.capacity() >= len );
    return End;
    }

  void UpdatePosition() {}
  void ShiftEnd(int len) {
    End += len;
  }
  const char *GetStart() const {
    return Start;
  }

private:
  typedef std::vector<char> CharVector;
  const char *Start;
        char *End;
  const char *Limit;
  CharVector Internal;
};

} // end namespace gdcm

#endif //GDCMBYTEBUFFER_H
```

11.115 gdcmByteSwapFilter.h File Reference

`#include "gdcmDataSet.h"`

Include dependency graph for gdcmByteSwapFilter.h:



Classes

- class gdcm::ByteSwapFilter

  ByteSwapFilter.

Namespaces

- namespace gdcm

11.116 gdcmByteSwapFilter.h

Go to the documentation of this file.

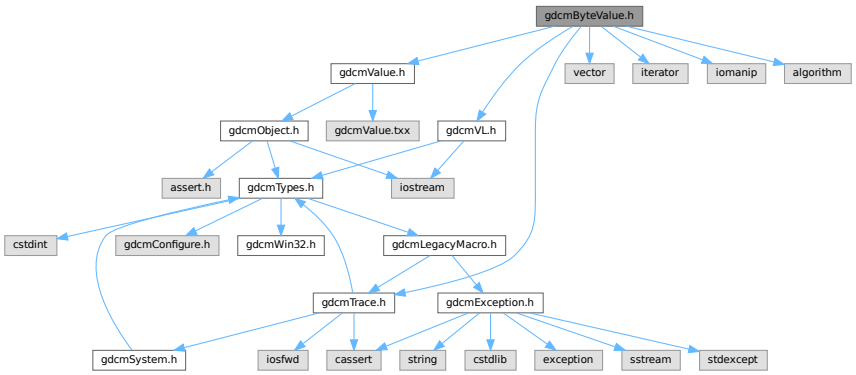
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTESWAPFILTER_H
00015 #define GDCMBYTESWAPFILTER_H
00016
00017 #include "gdcmDataSet.h"
00018
00019 namespace gdcm
00020 {
00021
00027 class GDCM_EXPORT ByteSwapFilter
00028 {
00029 public:
```

```
  ByteSwapFilter(DataSet& ds):DS(ds),ByteSwapTag(false) {}
  ~ByteSwapFilter() = default;
  ByteSwapFilter(const ByteSwapFilter &) = delete;
  ByteSwapFilter& operator=(const ByteSwapFilter &) = delete;

  bool ByteSwap();
  void SetByteSwapTag(bool b) { ByteSwapTag = b; }

private:
  DataSet &DS;
  bool ByteSwapTag;

};

} // end namespace gdcm

#endif //GDCMBYTESWAPFILTER_H
```

11.117 gdcmByteValue.h File Reference

```
#include "gdcmValue.h"
#include "gdcmTrace.h"
#include "gdcmVL.h"
#include <vector>
#include <iterator>
#include <iomanip>
#include <algorithm>
```

Include dependency graph for gdcmByteValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ByteValue

  Class to represent binary value (array of bytes)

Namespaces

- namespace gdcm

11.118 gdcmByteValue.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBYTEVALUE_H
#define GDCMBYTEVALUE_H

#include "gdcmValue.h"
#include "gdcmTrace.h"
#include "gdcmVL.h"

#include <vector>
#include <iterator>
#include <iomanip>
#include <algorithm>

namespace gdcm_ns
{
#if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
using namespace gdcm;
#endif
class GDCM_EXPORT ByteValue : public Value
{
public:
  ByteValue(const char* array = nullptr, VL const &vl = 0):
    Internal(array, array+vl),Length(vl) {
      if( vl.IsOdd() )
        {
        gdcmDebugMacro( "Odd length" );
        Internal.resize(vl+1);
        ++Length;
        }
  }

  ByteValue(std::vector<char> &v):Internal(v),Length((uint32_t)v.size()) {}
  //ByteValue(std::ostringstream const &os) {
  //  (void)os;
  //   assert(0); // TODO
  //}
  ~ByteValue() override {
    Internal.clear();
  }

  // When 'dumping' dicom file we still have some information from
  // Either the VR: eg LO (private tag)
  void PrintASCII(std::ostream &os, VL maxlength ) const;

  void PrintHex(std::ostream &os, VL maxlength) const;

  // Either from Element Number (== 0x0000)
  void PrintGroupLength(std::ostream &os) {
    assert( Length == 2 );
    (void)os;
  }

  bool IsEmpty() const {
#if 0
    if( Internal.empty() ) assert( Length == 0 );
```

```
    return Internal.empty();
#else
  return Length == 0;
#endif
  }
  VL GetLength() const override { return Length; }

  VL ComputeLength() const { return Length + Length % 2; }
  // Does a reallocation
  void SetLength(VL vl) override;

  operator const std::vector<char>& () const { return Internal; }

  ByteValue &operator=(const ByteValue &val) {
    Internal = val.Internal;
    Length = val.Length;
    return *this;
    }

  bool operator==(const ByteValue &val) const {
    if( Length != val.Length )
      return false;
    if( Internal == val.Internal )
      return true;
    return false;
    }
  bool operator==(const Value &val) const override
    {
    const ByteValue &bv = dynamic_cast<const ByteValue&>(val);
    return Length == bv.Length && Internal == bv.Internal;
    }

  void Append(ByteValue const & bv);

  void Clear() override {
    Internal.clear();
  }
  // Use that only if you understand what you are doing
  const char *GetPointer() const {
    if(!Internal.empty()) return &Internal[0];
    return nullptr;
  }
  // Use that only if you really understand what you are doing
  const void *GetVoidPointer() const {
    if(!Internal.empty()) return &Internal[0];
    return nullptr;
  }
  void *GetVoidPointer() {
    if(!Internal.empty()) return &Internal[0];
    return nullptr;
  }
  void Fill(char c) {
    //if( Internal.empty() ) return;
    std::vector<char>::iterator it = Internal.begin();
    for(; it != Internal.end(); ++it) *it = c;
  }
  bool GetBuffer(char *buffer, unsigned long length) const;
  bool WriteBuffer(std::ostream &os) const {
    if( Length ) {
      //assert( Internal.size() <= Length );
      assert( !(Internal.size() % 2) );
      os.write(&Internal[0], Internal.size() );
      }
    return true;
  }

  template <typename TSwap, typename TType>
  std::istream &Read(std::istream &is, bool readvalues = true) {
    // If Length is odd we have detected that in SetLength
    // and calling std::vector::resize make sure to allocate *AND*
    // initialize values to 0 so we are sure to have a \0 at the end
    // even in this case
    if(Length)
      {
      if( readvalues )
        {
        is.read(&Internal[0], Length);
        assert( Internal.size() == Length || Internal.size() == Length + 1 );
        TSwap::SwapArray((TType*)GetVoidPointer(), Internal.size() / sizeof(TType) );
        }
      else
```

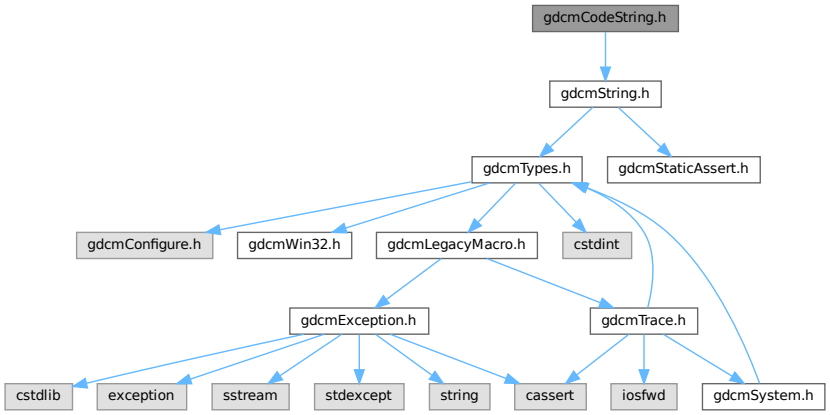
```
        {
        is.seekg(Length, std::ios::cur);
        }
      }
    return is;
  }

  template <typename TSwap>
  std::istream &Read(std::istream &is) {
    return Read<TSwap,uint8_t>(is);
  }


  template <typename TSwap, typename TType>
  std::ostream const &Write(std::ostream &os) const {
    assert( !(Internal.size() % 2) );
    if( !Internal.empty() ) {
      //os.write(&Internal[0], Internal.size());
      std::vector<char> copy = Internal;
      TSwap::SwapArray((TType*)(void*)&copy[0], Internal.size() / sizeof(TType) );
      os.write(&copy[0], copy.size());
      }
    return os;
  }

  template <typename TSwap>
  std::ostream const &Write(std::ostream &os) const {
    return Write<TSwap,uint8_t>(os);
  }

  bool IsPrintable(VL length) const {
    assert( length <= Length );
    for(unsigned int i=0; i<length; i++)
      {
      if ( i == (length-1) && Internal[i] == '\0') continue;
      if ( !( isprint((unsigned char)Internal[i]) || isspace((unsigned char)Internal[i]) ) )
        {
        //gdcmWarningMacro( "Cannot print :" « i );
        return false;
        }
      }
    return true;
    }

  void PrintPNXML(std::ostream &os) const;
  void PrintASCIIXML(std::ostream &os) const;
  void PrintHexXML(std::ostream &os) const;
protected:
  void Print(std::ostream &os) const override {
  // This is perfectly valid to have a Length = 0 , so we cannot check
  // the length for printing
  if( !Internal.empty() )
    {
    if( IsPrintable(Length) )
      {
      // WARNING: Internal.end() != Internal.begin()+Length
      std::vector<char>::size_type length = Length;
      if( Internal.back() == 0 ) --length;
      std::copy(Internal.begin(), Internal.begin()+length,
        std::ostream_iterator<char>(os));
      }
    else
      os « "Loaded:" « Internal.size();
    }
  else
    {
    //os « "Not Loaded";
    os « "(no value available)";
    }
  }
/*
//Introduce check for invalid XML characters
friend std::ostream& operator«(std::ostream &os,const char c);
*/

  void SetLengthOnly(VL vl) override {
    Length = vl;
  }

private:
  std::vector<char> Internal;
```

```
  // WARNING Length IS NOT Internal.size() some *featured* DICOM
  // implementation define odd length, we always load them as even number
  // of byte, so we need to keep the right Length
  VL Length;
};

} // end namespace gdcm_ns

#endif //GDCMBYTEVALUE_H
```

11.119 gdcmCodeString.h File Reference

`#include "gdcmString.h"`

Include dependency graph for gdcmCodeString.h:



Classes

- class gdcm::CodeString

  CodeString.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & gdcm::operator<< (std::ostream &os, const CodeString &str)
- bool gdcm::operator== (const CodeString &ref, const CodeString &cs)

11.120 gdcmCodeString.h

Go to the documentation of this file.

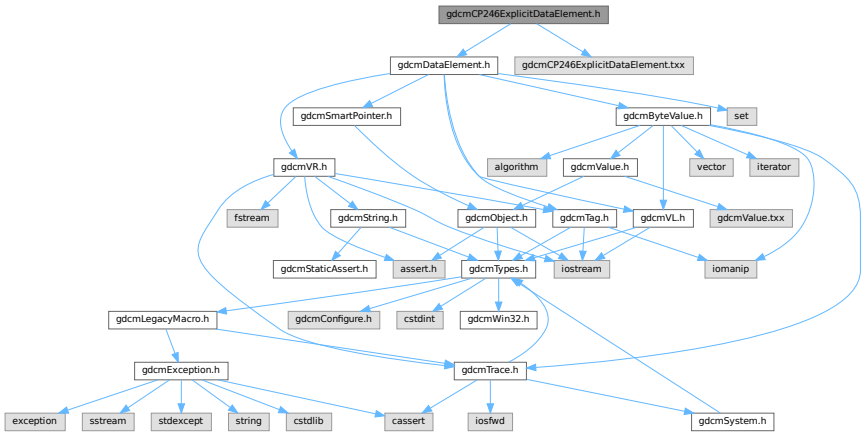
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCODESTRING_H
#define GDCMCODESTRING_H

#include "gdcmString.h"

namespace gdcm
{

// Note to myself: because note all wrapped language support exception
// we could not support throwing an exception during object construction.
class GDCM_EXPORT CodeString
{
  friend std::ostream& operator« (std::ostream& os, const CodeString& str);
  friend bool operator==(const CodeString &ref, const CodeString& cs);
  friend bool operator!=(const CodeString &ref, const CodeString& cs);
  typedef String<'\\',16> InternalClass;
public:
  typedef InternalClass::value_type             value_type;
  typedef InternalClass::pointer                pointer;
  typedef InternalClass::reference              reference;
  typedef InternalClass::const_reference        const_reference;
  typedef InternalClass::size_type              size_type;
  typedef InternalClass::difference_type        difference_type;
  typedef InternalClass::iterator               iterator;
  typedef InternalClass::const_iterator         const_iterator;
  typedef InternalClass::reverse_iterator       reverse_iterator;
  typedef InternalClass::const_reverse_iterator const_reverse_iterator;

  CodeString(): Internal() {}
  CodeString(const value_type* s): Internal(s) { Internal = Internal.Trim(); }
  CodeString(const value_type* s, size_type n): Internal(s, n) {
    Internal = Internal.Trim(); }
  CodeString(const InternalClass& s, size_type pos=0, size_type n=InternalClass::npos):
    Internal(s, pos, n) { Internal = Internal.Trim(); }

  bool IsValid() const;

  std::string GetAsString() const {
    return Internal;
  }

  size_type Size() const { return Internal.size(); }

protected:
  std::string TrimInternal() const {
    return Internal.Trim();
  }

private:
  String<'\\',16> Internal;
};

inline std::ostream& operator« (std::ostream& os, const CodeString& str)
{
  os « str.Internal;
  return os;
}

inline bool operator==(const CodeString &ref, const CodeString& cs)
{
  return ref.Internal == cs.Internal;
}
inline bool operator!=(const CodeString &ref, const CodeString& cs)
```

```
{
  return ref.Internal != cs.Internal;
}


} // end namespace gdcm

#endif //GDCMCODESTRING_H
```

11.121 gdcmCP246ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmCP246ExplicitDataElement.txx"
```

Include dependency graph for gdcmCP246ExplicitDataElement.h:



Classes

- class gdcm::CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.

Namespaces

- namespace gdcm

11.122 gdcmCP246ExplicitDataElement.h

Go to the documentation of this file.

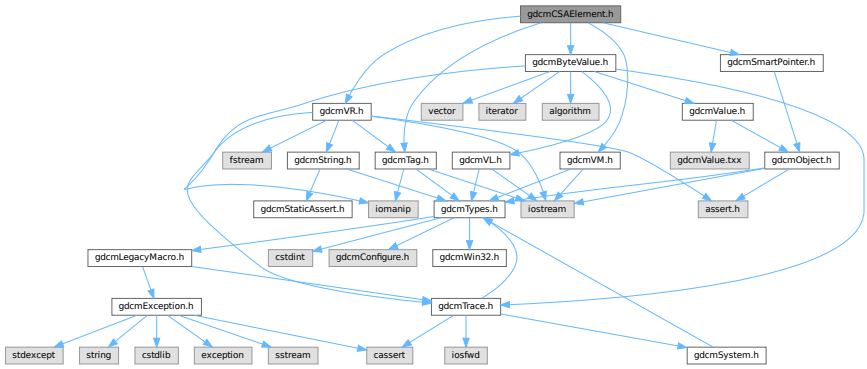
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCP246EXPLICITDATAELEMENT_H
#define GDCMCP246EXPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm
{
// Data Element (CP246Explicit)
class GDCM_EXPORT CP246ExplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL & length);

  // PURPOSELY do not provide an implementation for writing !
  //template <typename TSwap>
  //const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm

#include "gdcmCP246ExplicitDataElement.txx"

#endif //GDCMCP246EXPLICITDATAELEMENT_H
```

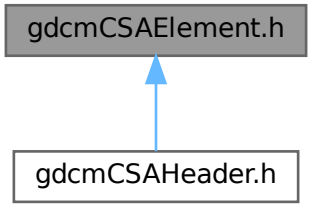
11.123 gdcmCSAElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmCSAElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAElement

  Class to represent a CSA Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAElement &val)

11.124 gdcmCSAElement.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCSAELEMENT_H
#define GDCMCSAELEMENT_H

#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"

```

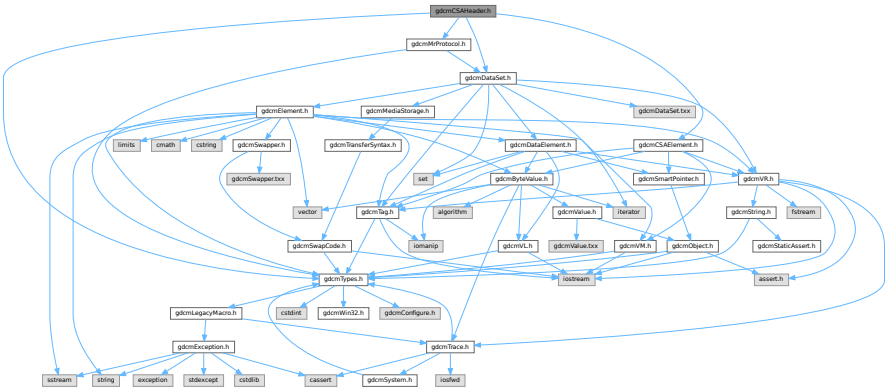
```
namespace gdcm
{
class GDCM_EXPORT CSAElement
{
public:
  CSAElement(unsigned int kf = 0):KeyField(kf) {}

  friend std::ostream& operator«(std::ostream &os, const CSAElement &val);

  unsigned int GetKey() const { return KeyField; }
  void SetKey(unsigned int key) { KeyField = key; }

  const char *GetName() const { return NameField.c_str(); }
  void SetName(const char *name) { NameField = name; }

  const VM& GetVM() const { return ValueMultiplicityField; }
  void SetVM(const VM &vm) { ValueMultiplicityField = vm; }

  VR const &GetVR() const { return VRField; }
  void SetVR(VR const &vr) { VRField = vr; }

  unsigned int GetSyngoDT() const { return SyngoDTField; }
  void SetSyngoDT(unsigned int syngodt) { SyngoDTField = syngodt; }

  unsigned int GetNoOfItems() const { return NoOfItemsField; }
  void SetNoOfItems(unsigned int items) { NoOfItemsField = items; }

  Value const &GetValue() const { return *DataField; }
  Value &GetValue() { return *DataField; }
  void SetValue(Value const & vl) {
    //assert( DataField == 0 );
    DataField = vl;
  }
  bool IsEmpty() const { return DataField == nullptr; }

  void SetByteValue(const char *array, VL length)
    {
    ByteValue *bv = new ByteValue(array,length);
    SetValue( *bv );
    }
  const ByteValue* GetByteValue() const {
    // Get the raw pointer from the gdcm::SmartPointer
    const ByteValue *bv = dynamic_cast<const ByteValue*>(DataField.GetPointer());
    return bv; // Will return NULL if not ByteValue
  }

  CSAElement(const CSAElement &_val)
    {
    if( this != &_val)
      {
      *this = _val;
      }
    }

  bool operator<(const CSAElement &de) const
    {
    return GetKey() < de.GetKey();
    }
  CSAElement &operator=(const CSAElement &de)
    = default;

  bool operator==(const CSAElement &de) const
    {
    return KeyField == de.KeyField
      && NameField == de.NameField
      && ValueMultiplicityField == de.ValueMultiplicityField
      && VRField == de.VRField
      && SyngoDTField == de.SyngoDTField
      //&& ValueField == de.ValueField;
      ;
    }

protected:
  unsigned int KeyField;
  std::string NameField;
  VM ValueMultiplicityField;
  VR VRField;
  unsigned int SyngoDTField;
  unsigned int NoOfItemsField;
  typedef SmartPointer<Value> DataPtr;
  DataPtr DataField;
```

```
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const CSAElement &val)
{
  os « val.KeyField;
  os « " - '" « val.NameField;
  os « "' VM " « val.ValueMultiplicityField;
  os « ", VR " « val.VRField;
  os « ", SyngoDT " « val.SyngoDTField;
  os « ", NoOfItems " « val.NoOfItemsField;
  os « ", Data ";
  if( val.DataField )
    {
    //val.DataField->Print( os « "'" );
    const ByteValue * bv = dynamic_cast<ByteValue*>(&*val.DataField);
    assert( bv );
    const char * p = bv->GetPointer();
    std::string str(p, p + bv->GetLength() );
    if( val.ValueMultiplicityField == VM::VM1 )
      {
      os « "'" « str.c_str() « "'";
      }
    else
      {
      std::istringstream is( str );
      std::string s;
      bool sep = false;
      while( std::getline(is, s, '\\' ) )
        {
        if( sep )
          {
          os « '\\';
          }
        sep = true;
        os « "'" « s.c_str() « "'";
        }
      //bv->Print( os « "'" );
      //os « "'";
      }
    }
  return os;
}

} // end namespace gdcm

#endif //GDCMCSAELEMENT_H
```

11.125 gdcmCSAHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmCSAElement.h"
#include "gdcmMrProtocol.h"
```

Include dependency graph for gdcmCSAHeader.h:



Classes

- class gdcm::CSAHeader

  Class for CSAHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeader &d)

11.126 gdcmCSAHeader.h

Go to the documentation of this file.

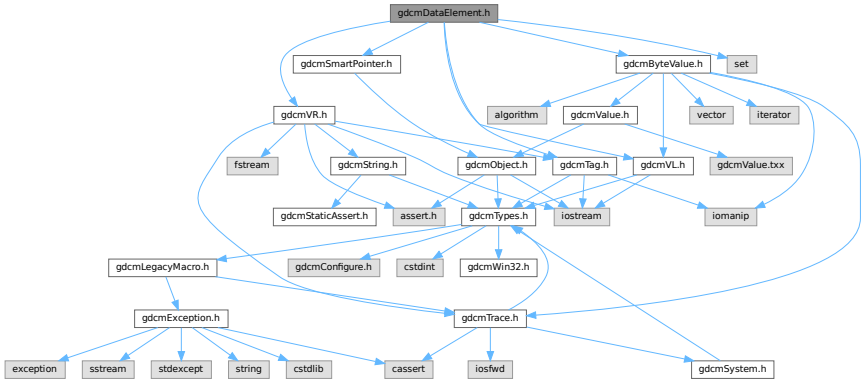
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCSAHEADER_H
#define GDCMCSAHEADER_H

#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmCSAElement.h"
#include "gdcmMrProtocol.h"

```

```
namespace gdcm
{
/*
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 */
//-----------------------------------------------------------------------------

class DataElement;
class PrivateTag;
class GDCM_EXPORT CSAHeader
{
  friend std::ostream& operator«(std::ostream &_os, const CSAHeader &d);
public :
  CSAHeader():InternalDataSet(),InternalType(UNKNOWN),InterfileData(nullptr) {}
  ~CSAHeader() = default;

  typedef enum {
    UNKNOWN = 0,
    SV10,
    NOMAGIC,
    DATASET_FORMAT,
    INTERFILE,
    ZEROED_OUT
  } CSAHeaderType;

  bool LoadFromDataElement(DataElement const &de);

  void Print(std::ostream &os) const;

  const DataSet& GetDataSet() const { return InternalDataSet; }

  const char * GetInterfile() const { return InterfileData; }

  CSAHeaderType GetFormat() const;

  static const PrivateTag & GetCSAImageHeaderInfoTag();

  static const PrivateTag & GetCSASeriesHeaderInfoTag();

  static const PrivateTag & GetCSADataInfo();

  const CSAElement &GetCSAElementByName(const char *name);

  bool FindCSAElementByName(const char *name);

  bool GetMrProtocol( const DataSet & ds, MrProtocol & mrProtocol );

protected:
  const CSAElement& GetCSAEEnd() const;

private:
  std::set<CSAElement> InternalCSADataSet;
  DataSet InternalDataSet;
  CSAHeaderType InternalType;
  Tag DataElementTag;
  static CSAElement CSAEEnd;
  const char *InterfileData;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const CSAHeader &d)
{
  d.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMCSAHEADER_H
```

11.127 gdcmDataElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVL.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include <set>
```

Include dependency graph for gdcmDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElement

  Class to represent a Data Element either Implicit or Explicit.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & gdcm::operator<< (std::ostream &os, const DataElement &val)

11.128 gdcmDataElement.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDATAELEMENT_H
#define GDCMDATAELEMENT_H

#include "gdcmTag.h"
#include "gdcmVL.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"

#include <set>

namespace gdcm_ns
{
// Data Element
// Contains multiple fields:
// -> Tag
// -> Optional VR (Explicit Transfer Syntax)
// -> ValueLength
// -> Value
// TODO: This class SHOULD be pure virtual. I don't want a user
// to shoot himself in the foot.

class SequenceOfItems;
class SequenceOfFragments;
class GDCM_EXPORT DataElement
{
public:
  DataElement(const Tag& t = Tag(0), const VL& vl = 0, const VR &vr =
VR::INVALID):TagField(t),ValueLengthField(vl),VRField(vr),ValueField(nullptr) {}
  //DataElement( Attribute const &att );

  friend std::ostream& operator«(std::ostream &_os, const DataElement &_val);

  const Tag& GetTag() const { return TagField; }
  Tag& GetTag() { return TagField; }
  void SetTag(const Tag &t) { TagField = t; }

  const VL& GetVL() const { return ValueLengthField; }
  VL& GetVL() { return ValueLengthField; }
  void SetVL(const VL &vl) { ValueLengthField = vl; }
  void SetVLToUndefined();

  VR const &GetVR() const { return VRField; }
  void SetVR(VR const &vr) {
    if( vr.IsVRFile() )
      VRField = vr;
  }

  Value const &GetValue() const { gdcmAssertAlwaysMacro(ValueField); return *ValueField; }
  Value &GetValue() {
    gdcmAssertAlwaysMacro(ValueField);
    return *ValueField;
  }
  void SetValue(Value const & vl) {
    //assert( ValueField == 0 );
    ValueField = vl;
    ValueLengthField = vl.GetLength();
  }
  bool IsEmpty() const { return ValueField == nullptr || (GetByteValue() && GetByteValue()->IsEmpty()); }

  void Empty() { ValueField = nullptr; ValueLengthField = 0; }

  void Clear()
```

```
    {
    TagField = 0;
    VRField = VR::INVALID;
    ValueField = nullptr;
    ValueLengthField = 0;
    }

  // Helper:
  void SetByteValue(const char *array, VL length)
    {
    ByteValue *bv = new ByteValue(array,length);
    SetValue( *bv );
    }
  const ByteValue* GetByteValue() const {
    // Get the raw pointer from the gdcm::SmartPointer
    const ByteValue *bv = dynamic_cast<const ByteValue*>(ValueField.GetPointer());
    return bv; // Will return NULL if not ByteValue
  }

  SmartPointer<SequenceOfItems> GetValueAsSQ() const;

  const SequenceOfFragments* GetSequenceOfFragments() const;
  SequenceOfFragments* GetSequenceOfFragments();

  bool IsUndefinedLength() const {
    return ValueLengthField.IsUndefined();
  }

  DataElement(const DataElement &_val)
    {
    if( this != &_val)
      {
      *this = _val;
      }
    }

  bool operator<(const DataElement &de) const
    {
    return GetTag() < de.GetTag();
    }
  DataElement &operator=(const DataElement &)
    = default;

  bool operator==(const DataElement &de) const
    {
    bool b = TagField == de.TagField
      && ValueLengthField == de.ValueLengthField
      && VRField == de.VRField;
    if( !ValueField && !de.ValueField )
      {
      return b;
      }
    if( ValueField && de.ValueField )
      {
      return b && (*ValueField == *de.ValueField);
      }
    // ValueField != de.ValueField
    return false;
    }

  // The following functionalities are dependent on:
  // # The Transfer Syntax: Explicit or Implicit
  // # The Byte encoding: Little Endian / Big Endian

  /*
   * The following was inspired by a C++ idiom: Curiously Recurring Template Pattern
   * Ref: http://en.wikipedia.org/wiki/Curiously_Recurring_Template_Pattern
   * The typename TDE is typically a derived class *without* any data
   * while TSwap is a simple template parameter to achieve byteswapping (and allow factorization of
   * highly identical code)
   */
  template <typename TDE>
  VL GetLength() const {
    return static_cast<const TDE*>(this)->GetLength();
  }

  template <typename TDE, typename TSwap>
  std::istream &Read(std::istream &is) {
    return static_cast<TDE*>(this)->template Read<TSwap>(is);
  }

```

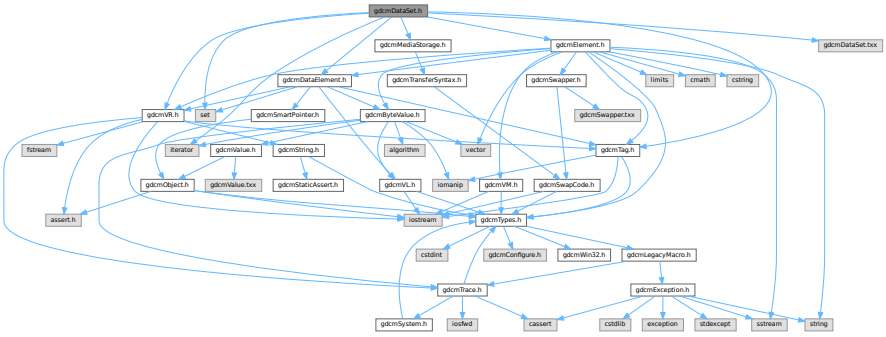
```
  template <typename TDE, typename TSwap>
  std::istream &ReadOrSkip(std::istream &is, std::set<Tag> const &skiptags) {
    (void)skiptags;
    return static_cast<TDE*>(this)->template Read<TSwap>(is);
  }

  template <typename TDE, typename TSwap>
  std::istream &ReadPreValue(std::istream &is, std::set<Tag> const &skiptags) {
    (void)skiptags;
    return static_cast<TDE*>(this)->template ReadPreValue<TSwap>(is);
  }
  template <typename TDE, typename TSwap>
  std::istream &ReadValue(std::istream &is, std::set<Tag> const &skiptags) {
    (void)skiptags;
    return static_cast<TDE*>(this)->template ReadValue<TSwap>(is);
  }
  template <typename TDE, typename TSwap>
  std::istream &ReadValueWithLength(std::istream &is, VL & length, std::set<Tag> const &skiptags) {
    (void)skiptags;
    return static_cast<TDE*>(this)->template ReadValueWithLength<TSwap>(is, length);
  }

  template <typename TDE, typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL &length) {
    return static_cast<TDE*>(this)->template ReadWithLength<TSwap>(is,length);
  }

  template <typename TDE, typename TSwap>
  const std::ostream &Write(std::ostream &os) const {
    return static_cast<const TDE*>(this)->template Write<TSwap>(os);
  }

protected:
  Tag TagField;
  // This is the value read from the file, might be different from the length of Value Field
  VL ValueLengthField; // Can be 0xFFFFFFFF

  // Value Representation
  VR VRField;
  typedef SmartPointer<Value> ValuePtr;
  ValuePtr ValueField;

  void SetValueFieldLength( VL vl, bool readvalues );
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const DataElement &val)
{
  os « val.TagField;
  os « "\t" « val.VRField;
  os « "\t" « val.ValueLengthField;
  if( val.ValueField )
    {
    val.ValueField->Print( os « "\t" );
    }
  return os;
}

inline bool operator!=(const DataElement& lhs, const DataElement& rhs)
{
  return ! ( lhs == rhs );
}

} // end namespace gdcm_ns

#endif //GDCMDATAELEMENT_H
```

11.129 gdcmDataSet.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmElement.h"
#include "gdcmMediaStorage.h"
```

```
#include <set>
#include <iterator>
#include "gdcmDataSet.txx"
```

Include dependency graph for gdcmDataSet.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElementException
- class gdcm::DataSet

  Class to represent a Data Set (which contains Data Elements)

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DataSet &val)

11.130 gdcmDataSet.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDATASET_H
#define GDCMDATASET_H

#include "gdcmDataElement.h"
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmElement.h"
#include "gdcmMediaStorage.h"

#include <set>
#include <iterator>

namespace gdcm_ns
{
class GDCM_EXPORT DataElementException : public std::exception {};

class PrivateTag;
class GDCM_EXPORT DataSet
{
  friend class CSAHeader;
public:
  typedef std::set<DataElement> DataElementSet;
  typedef DataElementSet::const_iterator ConstIterator;
  typedef DataElementSet::iterator Iterator;
  typedef DataElementSet::size_type SizeType;
  //typedef typename DataElementSet::iterator iterator;
  ConstIterator Begin() const { return DES.begin(); }
  Iterator Begin() { return DES.begin(); }
  ConstIterator End() const { return DES.end(); }
  Iterator End() { return DES.end(); }
  const DataElementSet &GetDES() const { return DES; }
  DataElementSet &GetDES() { return DES; }
  void Clear() {
    DES.clear();
    assert( DES.empty() );
  }

  SizeType Size() const {
    return DES.size();
  }

  void Print(std::ostream &os, std::string const &indent = "") const {
    // CT_Phillips_JPEG2K_Decompr_Problem.dcm has a SQ of length == 0
    //int s = DES.size();
    //assert( s );
    //std::copy(DES.begin(), DES.end(),
    //  std::ostream_iterator<DataElement>(os, "\n"));
    ConstIterator it = DES.begin();
    for( ; it != DES.end(); ++it)
      {
      os « indent « *it « "\n";
      }
  }

  template <typename TDE>
  unsigned int ComputeGroupLength(Tag const &tag) const
    {
    assert( tag.GetElement() == 0x0 );
    const DataElement r(tag);
    ConstIterator it = DES.find(r);
    unsigned int res = 0;
    for( ++it; it != DES.end()
      && it->GetTag().GetGroup() == tag.GetGroup(); ++it)
      {
      assert( it->GetTag().GetElement() != 0x0 );
      assert( it->GetTag().GetGroup() == tag.GetGroup() );
      res += it->GetLength<TDE>();
      }
    return res;
    }

  template <typename TDE>
  VL GetLength() const {
    if( DES.empty() ) return 0;
    assert( !DES.empty() );
```

```
    VL ll = 0;
    assert( ll == 0 );
    ConstIterator it = DES.begin();
    for( ; it != DES.end(); ++it)
      {
      assert( !(it->GetLength<TDE>().IsUndefined()) );
      if ( it->GetTag() != Tag(0xfffe,0xe00d) )
        {
        ll += it->GetLength<TDE>();
        }
      }
    return ll;
  }
  void Insert(const DataElement& de) {
    // FIXME: there is a special case where a dataset can have value < 0x8, see:
    // $ gdcmdump --csa gdcmData/SIEMENS-JPEG-CorruptFrag.dcm
    if( de.GetTag().GetGroup() >= 0x0008 || de.GetTag().GetGroup() == 0x4 )
      {
      // prevent user error:
      if( de.GetTag() == Tag(0xfffe,0xe00d)
      || de.GetTag() == Tag(0xfffe,0xe0dd)
      || de.GetTag() == Tag(0xfffe,0xe000) )
        {
        }
      else
        {
        InsertDataElement( de );
        }
      }
    else
      {
      gdcmErrorMacro( "Cannot add element with group < 0x0008 and != 0x4 in the dataset: " « de.GetTag()
);
      }
  }
  void Replace(const DataElement& de) {
    ConstIterator it = DES.find(de);
  if( it != DES.end() )
  {
    // detect loop:
    gdcmAssertAlwaysMacro( &*it != &de );
    DES.erase(it);
  }
    DES.insert(de);
  }
  void ReplaceEmpty(const DataElement& de) {
    ConstIterator it = DES.find(de);
    if( it != DES.end() && it->IsEmpty() )
    {
      // detect loop:
    gdcmAssertAlwaysMacro( &*it != &de );
    DES.erase(it);
    }
  DES.insert(de);
  }
  SizeType Remove(const Tag& tag) {
    DataElementSet::size_type count = DES.erase(tag);
    assert( count == 0 || count == 1 );
    return count;
  }

  //DataElement& GetDataElement(const Tag &t) {
  //  DataElement r(t);
  //  Iterator it = DES.find(r);
  //  if( it != DES.end() )
  //    return *it;
  //  return GetDEEnd();
  //  }
  const DataElement& GetDataElement(const Tag &t) const {
    const DataElement r(t);
    ConstIterator it = DES.find(r);
    if( it != DES.end() )
      return *it;
    return GetDEEnd();
    }
  const DataElement& operator[] (const Tag &t) const { return GetDataElement(t); }
  const DataElement& operator() (uint16_t group, uint16_t element) const { return GetDataElement(
Tag(group,element) ); }

  std::string GetPrivateCreator(const Tag &t) const;

```

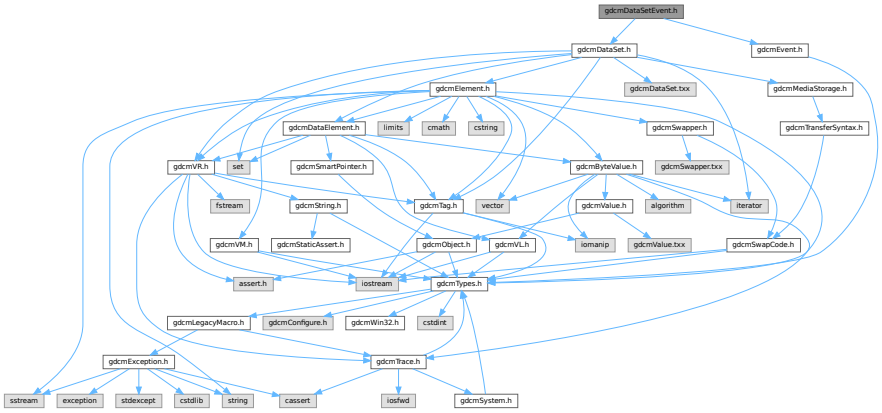
```
  PrivateTag GetPrivateTag(const Tag &t) const;

  bool FindDataElement(const PrivateTag &t) const;
  const DataElement& GetDataElement(const PrivateTag &t) const;

  // DUMB: this only search within the level of the current DataSet
  bool FindDataElement(const Tag &t) const {
    const auto it = GetDataElement(t);
    // Return if tag is found
    return it != GetDEEnd();
    }

  // WARNING:
  // This only search at the same level as the DataSet is !
  const DataElement& FindNextDataElement(const Tag &t) const {
    const DataElement r(t);
    ConstIterator it = DES.lower_bound(r);
    if( it != DES.end() )
      return *it;
    return GetDEEnd();
    }

  bool IsEmpty() const { return DES.empty(); }

  DataSet& operator=(DataSet const &)
  = default;

  template <typename TDE, typename TSwap>
  std::istream &ReadNested(std::istream &is);

  template <typename TDE, typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TDE, typename TSwap>
  std::istream &ReadUpToTag(std::istream &is, const Tag &t, std::set<Tag> const & skiptags);

  template <typename TDE, typename TSwap>
  std::istream &ReadUpToTagWithLength(std::istream &is, const Tag &t, std::set<Tag> const & skiptags, VL &
length);

  template <typename TDE, typename TSwap>
  std::istream &ReadSelectedTags(std::istream &is, const std::set<Tag> & tags, bool readvalues = true);
  template <typename TDE, typename TSwap>
  std::istream &ReadSelectedTagsWithLength(std::istream &is, const std::set<Tag> & tags, VL & length, bool
readvalues = true);

  template <typename TDE, typename TSwap>
  std::istream &ReadSelectedPrivateTags(std::istream &is, const std::set<PrivateTag> & tags, bool
readvalues = true);
  template <typename TDE, typename TSwap>
  std::istream &ReadSelectedPrivateTagsWithLength(std::istream &is, const std::set<PrivateTag> & tags, VL
& length, bool readvalues = true);

  template <typename TDE, typename TSwap>
  std::ostream const &Write(std::ostream &os) const;

  template <typename TDE, typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL &length);

  MediaStorage GetMediaStorage() const;

protected:
  /* GetDEEnd is a Win32 only issue, one cannot use a dllexported
   * static member data in an inline function, otherwise symbol
   * will get reported as missing in any dll using the inlined function
   */
  const DataElement& GetDEEnd() const;

  // This function is not safe, it does not check for the value of the tag
  // so depending whether we are getting called from a dataset or file meta header
  // the condition is different
  void InsertDataElement(const DataElement& de) {
    //if( de.GetTag() == Tag(0xfffe,0xe00d) ) return;
    //if( de.GetTag() == Tag(0xfffe,0xe0dd) ) return;
#ifndef NDEBUG
    std::pair<Iterator,bool> pr = DES.insert(de);
    if( pr.second == false )
      {
      gdcmWarningMacro( "DataElement: " « de « " was already found, skipping duplicate entry.\n"
        "Original entry kept is: " « *pr.first );
      }
```

```
#else
    DES.insert(de);
#endif
    assert( de.IsEmpty() || de.GetVL() == de.GetValue().GetLength() );
    }

protected:
  // Internal function, that will compute the actual Tag (if found) of
  // a requested Private Tag (XXXX,YY,"PRIVATE")
  Tag ComputeDataElement(const PrivateTag & t) const;

private:
  DataElementSet DES;
  static DataElement DEEnd;
  friend std::ostream& operator«(std::ostream &_os, const DataSet &);
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const DataSet &val)
{
  val.Print(os);
  return os;
}

#if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
/*
 * HACK: I need this temp class to be able to manipulate a std::set from python,
 * swig does not support wrapping of simple class like std::set...
 */
class SWIGDataSet
{
public:
  SWIGDataSet(DataSet &des):Internal(des),it(des.Begin()) {}
  const DataElement& GetCurrent() const { return *it; }
  void Start() { it = Internal.Begin(); }
  bool IsAtEnd() const { return it == Internal.End(); }
  void Next() { ++it; }
private:
  DataSet & Internal;
  DataSet::ConstIterator it;
};
#endif /* SWIG */

} // end namespace gdcm_ns

#include "gdcmDataSet.txx"

#endif //GDCMDATASET_H
```

11.131 gdcmDataSetEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDataSetEvent.h:



Classes

- class gdcm::DataSetEvent

  DataSetEvent.

Namespaces

- namespace gdcm

11.132 gdcmDataSetEvent.h

Go to the documentation of this file.

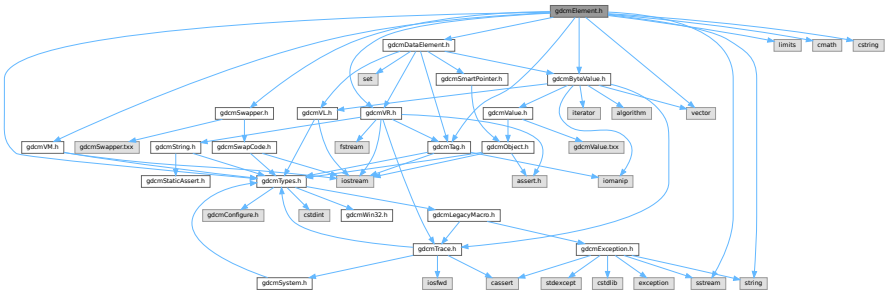
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDATASETEVENT_H
#define GDCMDATASETEVENT_H

#include "gdcmEvent.h"
#include "gdcmDataSet.h"

namespace gdcm
{

class DataSetEvent : public AnyEvent
{
public:
  typedef DataSetEvent Self;
  typedef AnyEvent Superclass;
  DataSetEvent(DataSet const *ds = nullptr):m_DataSet(ds) {}
```

```
  ~DataSetEvent() override = default;
  void operator=(const Self&) = delete;
  const DataSet *m_DataSet;
  const char * GetEventName() const override { return "DataSetEvent"; }
  bool CheckEvent(const ::gdcm::Event* e) const override
  { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
  ::gdcm::Event* MakeObject() const override
    { return new Self; }
  DataSetEvent(const Self&s) : AnyEvent(s){}

  DataSet const & GetDataSet() const { return *m_DataSet; }
};


} // end namespace gdcm

#endif //GDCMANONYMIZEEVENT_H
```

11.133 gdcmElement.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmByteValue.h"
#include "gdcmDataElement.h"
#include "gdcmSwapper.h"
#include <string>
#include <vector>
#include <sstream>
#include <limits>
#include <cmath>
#include <cstring>
```

Include dependency graph for gdcmElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Element< TVR, TVM >

  Element class.
- class gdcm::Element< TVR, VM::VM1_2 >
- class gdcm::Element< TVR, VM::VM1_n >
- class gdcm::Element< TVR, VM::VM2_2n >
- class gdcm::Element< TVR, VM::VM2_n >
- class gdcm::Element< TVR, VM::VM3_3n >
- class gdcm::Element< TVR, VM::VM3_4 >
- class gdcm::Element< TVR, VM::VM3_n >
- class gdcm::Element< VR::AS, VM::VM5 >
- class gdcm::Element< VR::OB, VM::VM1 >
- class gdcm::Element< VR::OW, VM::VM1 >
- class gdcm::ElementDisableCombinations< TVR, TVM >

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >
- class gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >
- class gdcm::EncodingImplementation< VR::VRASCII >
- class gdcm::EncodingImplementation< VR::VRBINARY >
- struct gdcm::ignore_char

Namespaces

- namespace gdcm

Functions

- static int gdcm::add1 (char *buf, int n)
- ignore_char const gdcm::backslash ('\\')
- static void gdcm::clean (char *mant)
- static int gdcm::doround (char *buf, unsigned int n)
- std::istream & gdcm::operator>> (std::istream &in, ignore_char const &ic)
- static int gdcm::roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float >
  static void gdcm::x16printf (char *buf, int size, Float f)

11.134 gdcmElement.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
00012
00013 ==========================================================================*/
00014 #ifndef GDCMELEMENT_H
00015 #define GDCMELEMENT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmVM.h"
00021 #include "gdcmByteValue.h"
00022 #include "gdcmDataElement.h"
00023 #include "gdcmSwapper.h"
00024
00025 #include <string>
00026 #include <vector>
00027 #include <sstream>
00028 #include <limits>
00029 #include <cmath>
00030 #include <cstring>
00031
00032 namespace gdcm_ns
00033 {
00034
00035 // Forward declaration
00041 template<long long T> class EncodingImplementation;
00042
00043
00051 template <long long TVR, int TVM>
00052 class ElementDisableCombinations {};
00053 template <>
00054 class  ElementDisableCombinations<VR::OB, VM::VM1_n> {};
00055 template <>
00056 class  ElementDisableCombinations<VR::OW, VM::VM1_n> {};
00057 // Make it impossible to compile these other cases
00058 template <int TVM>
00059 class  ElementDisableCombinations<VR::OB, TVM>;
00060 template <int TVM>
00061 class ElementDisableCombinations<VR::OW, TVM>;
00062
00068 template<long long TVR, int TVM>
00069 class Element
00070 {
00071   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, TVM> ) };
00072 public:
00073   typename VRToType<TVR>::Type Internal[VMToLength<TVM>::Length];
00074   typedef typename VRToType<TVR>::Type Type;
00075
00076   static VR  GetVR()  { return (VR::VRType)TVR; }
00077   static VM  GetVM()  { return (VM::VMType)TVM; }
00078
00079   unsigned long GetLength() const {
00080     return VMToLength<TVM>::Length;
00081   }
00082   // Implementation of Print is common to all Mode (ASCII/Binary)
00083   // TODO: Can we print a \ when in ASCII...well I don't think so
00084   // it would mean we used a bad VM then, right?
00085   void Print(std::ostream &_os) const {
00086     _os « Internal[0]; // VM is at least guarantee to be one
00087     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00088       _os « "," « Internal[i];
00089     }
00090
00091   const typename VRToType<TVR>::Type *GetValues() const {
00092     return Internal;
00093   }
00094   const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
00095     assert( idx < VMToLength<TVM>::Length );
00096     return Internal[idx];
00097   }
00098   typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
00099     assert( idx < VMToLength<TVM>::Length );
00100     return Internal[idx];
00101   }
00102   typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
00103     return GetValue(idx);
00104   }
00105   void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
00106     assert( idx < VMToLength<TVM>::Length );
00107     Internal[idx] = v;
00108   }
00109
```

```
  void SetFromDataElement(DataElement const &de) {
    const ByteValue *bv = de.GetByteValue();
    if( !bv ) return;
#ifdef GDCM_WORDS_BIGENDIAN
    if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
#else
    if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
#endif
      {
      Set(de.GetValue());
      }
    else
      {
      SetNoSwap(de.GetValue());
      }
  }

  DataElement GetAsDataElement() const {
    DataElement ret;
    std::ostringstream os;
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),os);
    ret.SetVR( (VR::VRType)TVR );
    assert( ret.GetVR() != VR::SQ );
    if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
      {
      if( GetVR() != VR::UI )
        {
        if( os.str().size() % 2 )
          {
          os « " ";
          }
        }
      }
    VL::Type osStrSize = (VL::Type)os.str().size();
    ret.SetByteValue( os.str().c_str(), osStrSize );

    return ret;
  }

  void Read(std::istream &_is) {
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      GetLength(),_is);
    }
  void Write(std::ostream &_os) const {
    return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }

  // FIXME: remove this function
  // this is only used in gdcm::SplitMosaicFilter / to pass value of a CSAElement
  void Set(Value const &v) {
    const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
    if( bv ) {
      //memcpy(Internal, bv->GetPointer(), bv->GetLength());
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
        GetLength(),ss);
    }
  }
protected:
  void SetNoSwap(Value const &v) {
    const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
    assert( bv ); // That would be bad...
    //memcpy(Internal, bv->GetPointer(), bv->GetLength());
    std::stringstream ss;
    std::string s = std::string( bv->GetPointer(), bv->GetLength() );
    ss.str( s );
    EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
      GetLength(),ss);
  }
};

struct ignore_char {
  ignore_char(char c): m_char(c) {}
  char m_char;
};
ignore_char const backslash('\\');

```

```
  inline std::istream& operator» (std::istream& in, ignore_char const& ic) {
    if (!in.eof())
      in.clear(in.rdstate() & ~std::ios_base::failbit);
    if (in.get() != ic.m_char)
      in.setstate(std::ios_base::failbit);
    return in;
  }


// Implementation to perform formatted read and write
template<> class EncodingImplementation<VR::VRASCII> {
public:
  template<typename T> // FIXME this should be VRToType<TVR>::Type
  static inline void ReadComputeLength(T* data, unsigned int &length,
                           std::istream &_is) {
    assert( data );
    //assert( length ); // != 0
    length = 0;
    assert( _is );
#if 0
    char sep;
    while( _is » data[length++] )
      {
      // Get the separator in between the values
      assert( _is );
      _is.get(sep);
      assert( sep == '\\' || sep == ' ' ); // FIXME: Bad use of assert
      if( sep == ' ' ) length--; // FIXME
      }
#else
  while( _is » std::ws » data[length++] » std::ws » backslash )
    {
    }
#endif
    }

  template<typename T> // FIXME this should be VRToType<TVR>::Type
  static inline void Read(T* data, unsigned long length,
                           std::istream &_is) {
    assert( data );
    assert( length ); // != 0
    assert( _is );
    // FIXME BUG: what if » operation fails ?
    // gdcmData/MR00010001.dcm / SpacingBetweenSlices
    _is » std::ws » data[0];
    char sep;
    //std::cout « "GetLength: " « af->GetLength() « std::endl;
    for(unsigned long i=1; i<length;++i) {
      //assert( _is );
      // Get the separator in between the values
      _is » std::ws » sep; //_is.get(sep);
      //assert( sep == '\\' ); // FIXME: Bad use of assert
      _is » std::ws » data[i];
      }
    }

  template<typename T>
  static inline void ReadNoSwap(T* data, unsigned long length,
                           std::istream &_is) {
    Read(data,length,_is);
}
  template<typename T>
  static inline void Write(const T* data, unsigned long length,
                            std::ostream &_os)  {
    assert( data );
    assert( length );
    assert( _os );
    _os « data[0];
    for(unsigned long i=1; i<length; ++i) {
      assert( _os );
      _os « "\\" « data[i];
      }
    }
};

//#define VRDS16ILLEGAL

#ifdef VRDS16ILLEGAL
template < typename Float >
std::string to_string ( Float data ) {
  std::stringstream in;
```

```
  // in.imbue(std::locale::classic()); // This is not required AFAIK
  int const digits =
    static_cast< int >(
    - std::log( std::numeric_limits<Float>::epsilon() )
    / static_cast< Float >( std::log( 10.0 ) ) );
  if ( in « std::dec « std::setprecision(/*2+*/digits) « data ) {
    return ( in.str() );
  } else {
    throw "Impossible Conversion"; // should not happen ...
  }
}
#else
//
http://stackoverflow.com/questions/32631178/writing-ieee-754-1985-double-as-ascii-on-a-limited-16-bytes-string

static inline void clean(char *mant) {
  char *ix = mant + strlen(mant) - 1;
  while(('0' == *ix) && (ix > mant)) {
    *ix-- = '\0';
  }
  if ('.' == *ix) {
    *ix = '\0';
  }
}

static int add1(char *buf, int n) {
  if (n < 0) return 1;
  if (buf[n] == '9') {
    buf[n] = '0';
    return add1(buf, n-1);
  }
  else {
    buf[n] = (char)(buf[n] + 1);
  }
  return 0;
}

static int doround(char *buf, unsigned int n) {
  char c;
  if (n >= strlen(buf)) return 0;
  c = buf[n];
  buf[n] = 0;
  if ((c >= '5') && (c <= '9')) return add1(buf, n-1);
  return 0;
}

#if defined(_MSC_VER) && (_MSC_VER < 1900)
#define snprintf _snprintf
#endif

static int roundat(char *buf, size_t bufLen, unsigned int i, int iexp) {
  if (doround(buf, i) != 0) {
    iexp += 1;
    switch(iexp) {
    case -2:
      strcpy(buf, ".01");
      break;
    case -1:
      strcpy(buf, ".1");
      break;
    case 0:
      strcpy(buf, "1.");
      break;
    case 1:
      strcpy(buf, "10");
      break;
    case 2:
      strcpy(buf, "100");
      break;
    default:
      snprintf(buf, bufLen, "1e%d", iexp);
    }
    return 1;
  }
  return 0;
}

template < typename Float >
static void x16printf(char *buf, int size, Float f) {
  char line[40];
  char *mant = line + 1;
```

```
  int iexp, lexp, i;
  char exp[6];

  if (f < 0) {
    f = -f;
    size -= 1;
    *buf++ = '-';
  }
  snprintf(line, sizeof(line), "%1.16e", f);
  if (line[0] == '-') {
    f = -f;
    size -= 1;
    *buf++ = '-';
    snprintf(line, sizeof(line), "%1.16e", f);
  }
  *mant = line[0];
  i = (int)strcspn(mant, "eE");
  mant[i] = '\0';
  iexp = (int)strtol(mant + i + 1, nullptr, 10);
  lexp = snprintf(exp, sizeof(exp), "e%d", iexp);
  if ((iexp >= size) || (iexp < -3)) {
    i = roundat(mant, sizeof(line) - 1, size - 1 -lexp, iexp);
    if(i == 1) {
      strcpy(buf, mant);
      return;
    }
    buf[0] = mant[0];
    buf[1] = '.';
    strncpy(buf + i + 2, mant + 1, size - 2 - lexp);
    buf[size-lexp] = 0;
    clean(buf);
    strcat(buf, exp);
  }
  else if (iexp >= size - 2) {
    roundat(mant, sizeof(line) - 1, iexp + 1, iexp);
    strcpy(buf, mant);
  }
  else if (iexp >= 0) {
    i = roundat(mant, sizeof(line) - 1, size - 1, iexp);
    if (i == 1) {
      strcpy(buf, mant);
      return;
    }
    strncpy(buf, mant, iexp + 1);
    buf[iexp + 1] = '.';
    strncpy(buf + iexp + 2, mant + iexp + 1, size - iexp - 1);
    buf[size] = 0;
    clean(buf);
  }
  else {
    int j;
    i = roundat(mant, sizeof(line) - 1, size + 1 + iexp, iexp);
    if (i == 1) {
      strcpy(buf, mant);
      return;
    }
    buf[0] = '.';
    for(j=0; j< -1 - iexp; j++) {
      buf[j+1] = '0';
    }
    strncpy(buf - iexp, mant, size + 1 + iexp);
    buf[size] = 0;
    clean(buf);
  }
}
#if defined(_MSC_VER) && (_MSC_VER < 1900)
#undef snprintf
#endif

#endif

template<> inline void EncodingImplementation<VR::VRASCII>::Write(const double* data, unsigned long
length, std::ostream &_os)  {
    assert( data );
    assert( length );
    assert( _os );
#ifdef VRDS16ILLEGAL
    _os « to_string(data[0]);
#else
    char buf[16+1];
    x16printf(buf, 16, data[0]);
```

```
    _os « buf;
#endif
    for(unsigned long i=1; i<length; ++i) {
      assert( _os );
#ifdef VRDS16ILLEGAL
      _os « "\\" « to_string(data[i]);
#else
      x16printf(buf, 16, data[i]);
      _os « "\\" « buf;
#endif
      }
    }


// Implementation to perform binary read and write
// TODO rewrite operation so that either:
// #1. dummy implementation use a pointer to Internal and do ++p (faster)
// #2. Actually do some meta programming to unroll the loop
// (no notion of order in VM ...)
template<> class EncodingImplementation<VR::VRBINARY> {
public:
  template<typename T> // FIXME this should be VRToType<TVR>::Type
    static inline void ReadComputeLength(T* data, unsigned int &length,
      std::istream &_is) {
    const unsigned int type_size = sizeof(T);
    assert( data ); // Can we read from pointer ?
    //assert( length );
    length /= type_size;
    assert( _is ); // Is stream valid ?
    _is.read( reinterpret_cast<char*>(data+0), type_size);
    for(unsigned long i=1; i<length; ++i) {
      assert( _is );
      _is.read( reinterpret_cast<char*>(data+i), type_size );
    }
    }
  template<typename T>
  static inline void ReadNoSwap(T* data, unsigned long length,
    std::istream &_is) {
    const unsigned int type_size = sizeof(T);
    assert( data ); // Can we read from pointer ?
    assert( length );
    assert( _is ); // Is stream valid ?
    _is.read( reinterpret_cast<char*>(data+0), type_size);
    for(unsigned long i=1; i<length; ++i) {
      if( _is )
      _is.read( reinterpret_cast<char*>(data+i), type_size );
    }
    //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
    //  _is.GetSwapCode(), length);
    //SwapperNoOp::SwapArray(data,length);
  }
  template<typename T>
  static inline void Read(T* data, unsigned long length,
    std::istream &_is) {
    const unsigned int type_size = sizeof(T);
    assert( data ); // Can we read from pointer ?
    assert( length );
    assert( _is ); // Is stream valid ?
    _is.read( reinterpret_cast<char*>(data+0), type_size);
    for(unsigned long i=1; i<length; ++i) {
      if( _is )
      _is.read( reinterpret_cast<char*>(data+i), type_size );
    }
    //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
    //  _is.GetSwapCode(), length);
    SwapperNoOp::SwapArray(data,length);
  }
  template<typename T>
  static inline void Write(const T* data, unsigned long length,
    std::ostream &_os) {
    const unsigned int type_size = sizeof(T);
    assert( data ); // Can we write into pointer ?
    assert( length );
    assert( _os ); // Is stream valid ?
    //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
    //  _os.GetSwapCode(), length);
    T swappedData = SwapperNoOp::Swap(data[0]);
    _os.write( reinterpret_cast<const char*>(&swappedData), type_size);
    for(unsigned long i=1; i<length;++i) {
      assert( _os );
      swappedData = SwapperNoOp::Swap(data[i]);
```

```
      _os.write( reinterpret_cast<const char*>(&swappedData), type_size );
    }
    //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
    //  _os.GetSwapCode(), length);
  }
};

// For particular case for ASCII string
// WARNING: This template explicitly instantiates a particular
// EncodingImplementation THEREFORE it is required to be declared after the
// EncodingImplementation is needs (doh!)
#if 0
template<int TVM>
class Element<TVM>
{
public:
  Element(const char array[])
    {
    unsigned int i = 0;
    const char sep = '\\';
    std::string sarray = array;
    std::string::size_type pos1 = 0;
    std::string::size_type pos2 = sarray.find(sep, pos1+1);
    while(pos2 != std::string::npos)
      {
      Internal[i++] = sarray.substr(pos1, pos2-pos1);
      pos1 = pos2+1;
      pos2 = sarray.find(sep, pos1+1);
      }
    Internal[i] = sarray.substr(pos1, pos2-pos1);
    // Shouldn't we do the contrary, since we know how many separators
    // (and default behavior is to discard anything after the VM declared
    assert( GetLength()-1 == i );
    }

  unsigned long GetLength() const {
    return VMToLength<TVM>::Length;
  }
  // Implementation of Print is common to all Mode (ASCII/Binary)
  void Print(std::ostream &_os) const {
    _os « Internal[0]; // VM is at least guarantee to be one
    for(int i=1; i<VMToLength<TVM>::Length; ++i)
      _os « "," « Internal[i];
    }

  void Read(std::istream &_is) {
    EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
    }
  void Write(std::ostream &_os) const {
    EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
    }
private:
  typename String Internal[VMToLength<TVM>::Length];
};

template< int TVM>
class Element<VR::PN, TVM> : public StringElement<TVM>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::PN, TVM> ) };
};
#endif

// Implementation for the undefined length (dynamically allocated array)
template<long long TVR>
class Element<TVR, VM::VM1_n>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM1_n> ) };
public:
  // This the way to prevent default initialization
  explicit Element() { Internal=nullptr; Length=0; Save = false; }
  ~Element() {
    if( Save ) {
      delete[] Internal;
    }
    Internal = nullptr;
  }

  static VR  GetVR()  { return (VR::VRType)TVR; }
  static VM  GetVM()  { return VM::VM1_n; }

  // Length manipulation
```

```
// SetLength should really be protected anyway...all operation
// should go through SetArray
unsigned long GetLength() const { return Length; }
typedef typename VRToType<TVR>::Type Type;

void SetLength(unsigned long len) {
  const unsigned int size = sizeof(Type);
  if( len ) {
    if( len > Length ) {
      // perform realloc
      assert( (len / size) * size == len );
      Type *internal = new Type[len / size];
      assert( Save == false );
      Save = true; // ????
      if( Internal )
        {
        memcpy(internal, Internal, len);
        delete[] Internal;
        }
      Internal = internal;
      }
    }
  Length = len / size;
}

// If save is set to zero user should not delete the pointer
//void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
void SetArray(const Type *array, unsigned long len,
  bool save = false) {
  if( save ) {
    SetLength(len); // realloc
    memcpy(Internal, array, len/*/sizeof(Type)*/);
    assert( Save == false );
    }
  else {
    // TODO rewrite this stupid code:
    assert( Length == 0 );
    assert( Internal == nullptr );
    assert( Save == false );
    Length = len / sizeof(Type);
    //assert( (len / sizeof(Type)) * sizeof(Type) == len );
    // MR00010001.dcm is a tough kid: 0019,105a is supposed to be VR::FL, VM::VM3 but
    // length is 14 bytes instead of 12 bytes. Simply consider value is total garbage.
    if( (len / sizeof(Type)) * sizeof(Type) != len ) { Internal = nullptr; Length = 0; }
    else Internal = const_cast<Type*>(array);
    }
    Save = save;
}
void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
  assert( idx < Length );
  Internal[idx] = v;
}
const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
  assert( idx < Length );
  return Internal[idx];
}
typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
  //assert( idx < Length );
  return Internal[idx];
}
typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
  return GetValue(idx);
}
void Set(Value const &v) {
  const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
  assert( bv ); // That would be bad...
  if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
    {
    const Type* array = (const Type*)bv->GetVoidPointer();
    if( array ) {
      assert( array ); // That would be bad...
      assert( Internal == nullptr );
      SetArray(array, bv->GetLength() ); }
    }
  else
    {
    std::stringstream ss;
    std::string s = std::string( bv->GetPointer(), bv->GetLength() );
    ss.str( s );
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      GetLength(),ss);
```

```
      }
  }
  void SetFromDataElement(DataElement const &de) {
    const ByteValue *bv = de.GetByteValue();
    if( !bv ) return;
#ifdef GDCM_WORDS_BIGENDIAN
    if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
#else
    if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
#endif
      {
      Set(de.GetValue());
      }
    else
      {
      SetNoSwap(de.GetValue());
      }
  }


  // Need to be placed after definition of EncodingImplementation<VR::VRASCII>
  void WriteASCII(std::ostream &os) const {
    return EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(), os);
    }

  // Implementation of Print is common to all Mode (ASCII/Binary)
  void Print(std::ostream &_os) const {
    assert( Length );
    assert( Internal );
    _os « Internal[0]; // VM is at least guarantee to be one
    const unsigned long length = GetLength() < 25 ? GetLength() : 25;
    for(unsigned long i=1; i<length; ++i)
      _os « "," « Internal[i];
    }
  void Read(std::istream &_is) {
    if( !Internal ) return;
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
      GetLength(),_is);
    }
  //void ReadComputeLength(std::istream &_is) {
  //  if( !Internal ) return;
  //  EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(Internal,
  //    Length,_is);
  //  }
  void Write(std::ostream &_os) const {
    EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
      GetLength(),_os);
    }

  DataElement GetAsDataElement() const {
    DataElement ret;
    ret.SetVR( (VR::VRType)TVR );
    assert( ret.GetVR() != VR::SQ );
    if( Internal )
      {
      std::ostringstream os;
      EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
        GetLength(),os);
      if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
        {
        if( GetVR() != VR::UI )
          {
          if( os.str().size() % 2 )
            {
            os « " ";
            }
          }
        }
      VL::Type osStrSize = (VL::Type)os.str().size();
      ret.SetByteValue( os.str().c_str(), osStrSize );
      }
    return ret;
  }

  Element(const Element&_val) {
    if( this != &_val) {
      *this = _val;
      }
    }

  Element &operator=(const Element &_val) {
```

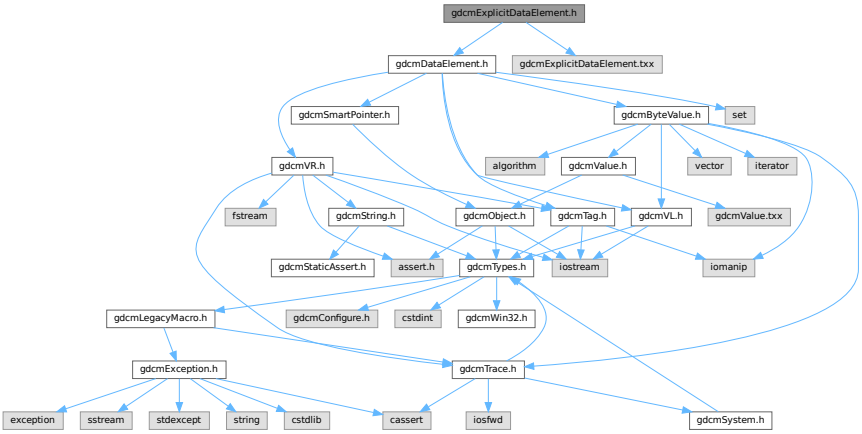
```
    Length = 0; // SYITF
    Internal = 0;
    SetArray(_val.Internal, _val.Length, true);
    return *this;
    }
protected:
  void SetNoSwap(Value const &v) {
    const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
    assert( bv ); // That would be bad...
    if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
      {
      const Type* array = (const Type*)bv->GetPointer();
      if( array ) {
        assert( array ); // That would be bad...
        assert( Internal == nullptr );
        SetArray(array, bv->GetLength() ); }
      }
    else
      {
      std::stringstream ss;
      std::string s = std::string( bv->GetPointer(), bv->GetLength() );
      ss.str( s );
      EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
        GetLength(),ss);
      }
  }

private:
  typename VRToType<TVR>::Type *Internal;
  unsigned long Length; // unsigned int ??
  bool Save;
};

//template <int TVM = VM::VM1_n>
//class Element<VR::OB, TVM > : public Element<VR::OB, VM::VM1_n> {};

// Partial specialization for derivatives of 1-n : 2-n, 3-n ...
template<long long TVR>
class Element<TVR, VM::VM1_2> : public Element<TVR, VM::VM1_n>
{
public:
  typedef Element<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len != 1 && len != 2 ) return;
    Parent::SetLength(len);
  }
};
template<long long TVR>
class Element<TVR, VM::VM2_n> : public Element<TVR, VM::VM1_n>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_n> ) };
public:
  typedef Element<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len <= 1 ) return;
    Parent::SetLength(len);
  }
};
template<long long TVR>
class Element<TVR, VM::VM2_2n> : public Element<TVR, VM::VM2_n>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_2n> ) };
public:
  typedef Element<TVR, VM::VM2_n> Parent;
  void SetLength(int len) {
    if( len % 2 ) return;
    Parent::SetLength(len);
  }
};
template<long long TVR>
class Element<TVR, VM::VM3_n> : public Element<TVR, VM::VM1_n>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_n> ) };
public:
  typedef Element<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len <= 2 ) return;
    Parent::SetLength(len);
  }
};
template<long long TVR>
```

```
class Element<TVR, VM::VM3_3n> : public Element<TVR, VM::VM3_n>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_3n> ) };
public:
  typedef Element<TVR, VM::VM3_n> Parent;
  void SetLength(int len) {
    if( len % 3 ) return;
    Parent::SetLength(len);
  }
};
template<long long TVR>
class Element<TVR, VM::VM3_4> : public Element<TVR, VM::VM1_n>
{
public:
  typedef Element<TVR, VM::VM1_n> Parent;
  void SetLength(int len) {
    if( len != 3 && len != 4 ) return;
    Parent::SetLength(len);
  }
};


//template<int T> struct VRToLength;
//template <> struct VRToLength<VR::AS>
//{ enum { Length  = VM::VM1 }; }
//template<>
//class Element<VR::AS> : public Element<VR::AS, VRToLength<VR::AS>::Length >

// only 0010 1010 AS 1 Patient's Age
template<>
class Element<VR::AS, VM::VM5>
{
  enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::AS, VM::VM5> ) };
public:
  char Internal[VMToLength<VM::VM5>::Length * sizeof( VRToType<VR::AS>::Type )];
  void Print(std::ostream &_os) const {
    _os « Internal;
    }
  unsigned long GetLength() const {
    return VMToLength<VM::VM5>::Length;
  }
};


template <>
class Element<VR::OB, VM::VM1> : public Element<VR::OB, VM::VM1_n> {};

// Same for OW:
template <>
class Element<VR::OW, VM::VM1> : public Element<VR::OW, VM::VM1_n> {};


} // namespace gdcm_ns

#endif //GDCMELEMENT_H
```

11.135 gdcmExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

11.136 gdcmExplicitDataElement.h

Go to the documentation of this file.

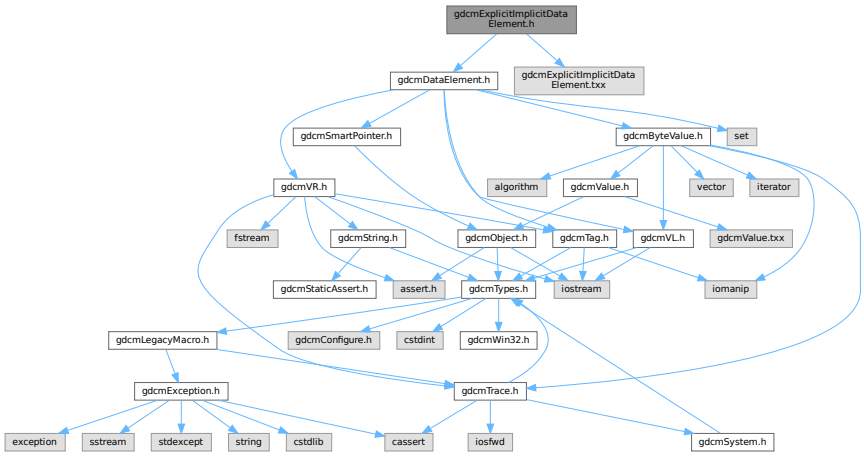
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

```

```
=========================================================================*/
#ifndef GDCMEXPLICITDATAELEMENT_H
#define GDCMEXPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm_ns
{
class GDCM_EXPORT ExplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL & length);

  template <typename TSwap>
  const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm_ns

#include "gdcmExplicitDataElement.txx"

#endif //GDCMEXPLICITDATAELEMENT_H
```

11.137 gdcmExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitImplicitDataElement.h:



Classes

- class gdcm::ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

11.138 gdcmExplicitImplicitDataElement.h

Go to the documentation of this file.

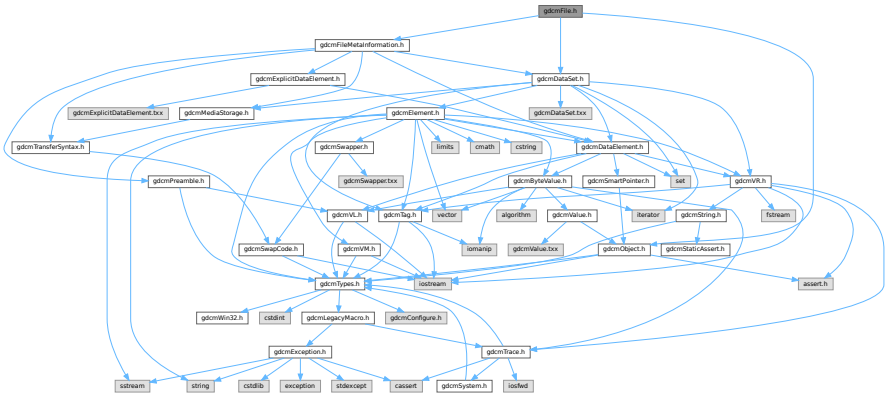
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMEXPLICITIMPLICITDATAELEMENT_H
#define GDCMEXPLICITIMPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm
{
// Data Element (ExplicitImplicit)
class GDCM_EXPORT ExplicitImplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL & length)
    {
    (void)length;
    return Read<TSwap>(is);
    }

  // PURPOSELY do not provide an implementation for writing !
  //template <typename TSwap>
  //const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm

#include "gdcmExplicitImplicitDataElement.txx"

#endif //GDCMEXPLICITIMPLICITDATAELEMENT_H
```

11.139 gdcmFile.h File Reference

```
#include "gdcmObject.h"
#include "gdcmDataSet.h"
```

```
#include "gdcmFileMetaInformation.h"
```

Include dependency graph for gdcmFile.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::File

  a DICOM File

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const File &val)

11.140 gdcmFile.h

Go to the documentation of this file.

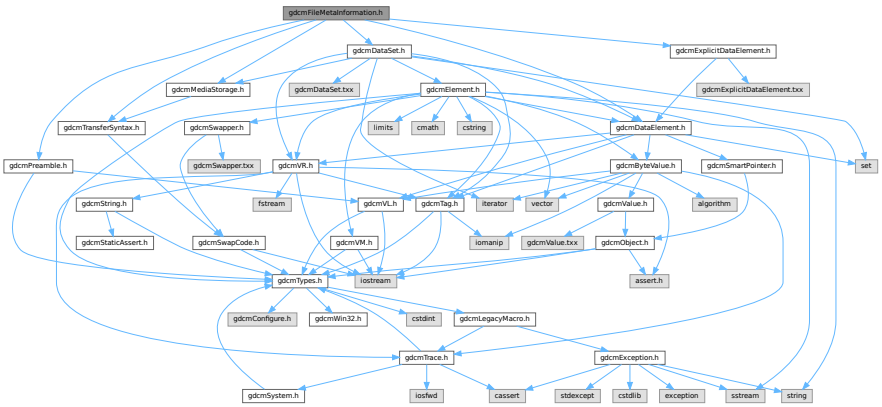
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILE_H
00015 #define GDCMFILE_H
00016
00017 #include "gdcmObject.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmFileMetaInformation.h"
00020
00021 namespace gdcm_ns
00022 {
00023
00033 class GDCM_EXPORT File : public Object
00034 {
00035 public:
00036   File();
00037   ~File() override;
00038
00039   friend std::ostream &operator«(std::ostream &os, const File &val);
00040
00042   std::istream &Read(std::istream &is);
00043
00045   std::ostream const &Write(std::ostream &os) const;
00046
00048   const FileMetaInformation &GetHeader() const { return Header; }
00049
00051   FileMetaInformation &GetHeader() { return Header; }
00052
00054   void SetHeader( const FileMetaInformation &fmi ) { Header = fmi; }
00055
00057   const DataSet &GetDataSet() const { return DS; }
00058
00060   DataSet &GetDataSet() { return DS; }
00061
00063   void SetDataSet( const DataSet &ds) { DS = ds; }
00064
00065 private:
00066   FileMetaInformation Header;
00067   DataSet DS;
00068 };
00069 //-----------------------------------------------------------------------------
00070 inline std::ostream& operator«(std::ostream &os, const File &val)
00071 {
00072   os « val.GetHeader() « std::endl;
00073   //os « val.GetDataSet() « std::endl; // FIXME
00074   assert(0);
00075   return os;
00076 }
00077
00078 } // end namespace gdcm_ns
00079
00080 #endif //GDCMFILE_H
```

11.141 gdcmFileMetaInformation.h File Reference

```
#include "gdcmPreamble.h"
#include "gdcmDataSet.h"
#include "gdcmDataElement.h"
#include "gdcmMediaStorage.h"
#include "gdcmTransferSyntax.h"
#include "gdcmExplicitDataElement.h"
```

Include dependency graph for gdcmFileMetaInformation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::FileMetaInformation

  Class to represent a File Meta Information.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileMetaInformation &val)

11.142 gdcmFileMetaInformation.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

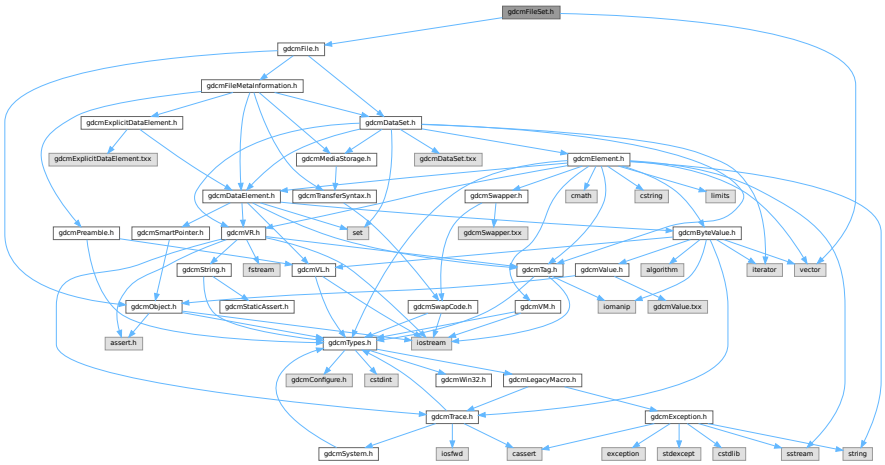
```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEMETAINFORMATION_H
00015 #define GDCMFILEMETAINFORMATION_H
00016
00017 #include "gdcmPreamble.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmDataElement.h"
00020 #include "gdcmMediaStorage.h"
00021 #include "gdcmTransferSyntax.h"
00022 #include "gdcmExplicitDataElement.h"
00023
00024 namespace gdcm_ns
00025 {
00040 class GDCM_EXPORT FileMetaInformation : public DataSet
00041 {
00042 public:
00043   // FIXME: TransferSyntax::TS_END -> TransferSyntax::ImplicitDataElement
00044   FileMetaInformation();
00045   ~FileMetaInformation();
00046
00047   friend std::ostream &operator«(std::ostream &_os, const FileMetaInformation &_val);
00048
00049   bool IsValid() const { return true; }
00050
00051   TransferSyntax::NegociatedType GetMetaInformationTS() const { return MetaInformationTS; }
00052   void SetDataSetTransferSyntax(const TransferSyntax &ts);
00053   const TransferSyntax &GetDataSetTransferSyntax() const { return DataSetTS; }
00054   MediaStorage GetMediaStorage() const;
00055   std::string GetMediaStorageAsString() const;
00056
00057   // FIXME: no virtual function means: duplicate code...
00058   void Insert(const DataElement& de) {
00059     if( de.GetTag().GetGroup() == 0x0002 )
00060       {
00061       InsertDataElement( de );
00062       }
00063     else
00064       {
00065       gdcmErrorMacro( "Cannot add element with group != 0x0002 in the file meta header: " « de );
00066       }
00067   }
00068   void Replace(const DataElement& de) {
00069     Remove(de.GetTag());
00070     Insert(de);
00071   }
00072
00074   std::istream &Read(std::istream &is);
00075   std::istream &ReadCompat(std::istream &is);
00076
00078   std::ostream &Write(std::ostream &os) const;
00079
00081   void FillFromDataSet(DataSet const &ds);
00082
00084   const Preamble &GetPreamble() const { return P; }
00085   Preamble &GetPreamble() { return P; }
00086   void SetPreamble(const Preamble &p) { P = p; }
00087
00089   static void SetImplementationClassUID(const char * imp);
00090   static void AppendImplementationClassUID(const char * imp);
00091   static const char *GetImplementationClassUID();
00092   static void SetImplementationVersionName(const char * version);
00093   static const char *GetImplementationVersionName();
00094   static void SetSourceApplicationEntityTitle(const char * title);
00095   static const char *GetSourceApplicationEntityTitle();
00096
00097   FileMetaInformation(FileMetaInformation const& fmi) = default;
00098   FileMetaInformation& operator=(const FileMetaInformation& fmi) = default;
00099
00100     VL GetFullLength() const {
00101       return P.GetLength() + DataSet::GetLength<ExplicitDataElement>();
00102     }
00103
00104 protected:
00105   void ComputeDataSetTransferSyntax(); // FIXME
00106
00107   template <typename TSwap>
```

```
  std::istream &ReadCompatInternal(std::istream &is);

  void Default();
  void ComputeDataSetMediaStorageSOPClass();

  TransferSyntax DataSetTS;
  TransferSyntax::NegociatedType MetaInformationTS;
  MediaStorage::MSType DataSetMS;

protected:
  static const char * GetFileMetaInformationVersion();
  static const char * GetGDCMImplementationClassUID();
  static const char * GetGDCMImplementationVersionName();
  static const char * GetGDCMSourceApplicationEntityTitle();

private:
  Preamble P;

//static stuff:
  static const char GDCM_FILE_META_INFORMATION_VERSION[];
  static const char GDCM_IMPLEMENTATION_CLASS_UID[];
  static const char GDCM_IMPLEMENTATION_VERSION_NAME[];
  static const char GDCM_SOURCE_APPLICATION_ENTITY_TITLE[];
  static std::string ImplementationClassUID;
  static std::string ImplementationVersionName;
  static std::string SourceApplicationEntityTitle;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const FileMetaInformation &val)
{
  os « val.GetPreamble() « std::endl;
  val.Print( os );
  return os;
}

} // end namespace gdcm_ns

#endif //GDCMFILEMETAINFORMATION_H
```

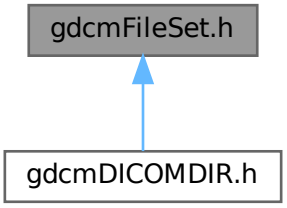
11.143 gdcmFileSet.h File Reference

```
#include "gdcmFile.h"
#include <vector>
```

Include dependency graph for gdcmFileSet.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FileSet

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileSet &f)

11.144 gdcmFileSet.h

Go to the documentation of this file.

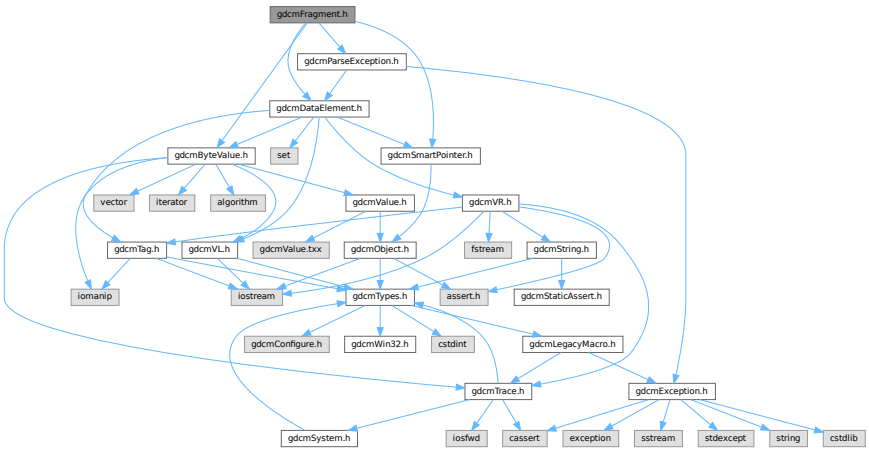
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILESET_H
#define GDCMFILESET_H

#include "gdcmFile.h"
#include <vector>

namespace gdcm
{
class GDCM_EXPORT FileSet
{
  friend std::ostream& operator«(std::ostream &_os, const FileSet &d);
```

```
public:
  FileSet():Files() {}
  typedef std::string FileType;
  typedef std::vector<FileType> FilesType;

  void AddFile(File const & ) {}

  bool AddFile(const char *filename);

  void SetFiles(FilesType const &files);
  FilesType const &GetFiles() const {
    return Files;
  }

private:
  FilesType Files;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const FileSet &f)
{
  (void)f; // FIXME
  return os;
}

} // end namespace gdcm

#endif //GDCMFILESET_H
```

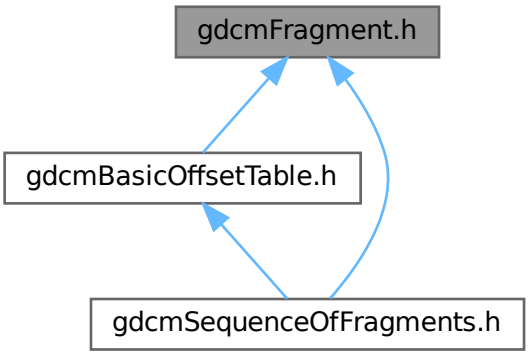
11.145 gdcmFragment.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include "gdcmParseException.h"
```

Include dependency graph for gdcmFragment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Fragment

  Class to represent a Fragment.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Fragment &val)

11.146 gdcmFragment.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFRAGMENT_H
#define GDCMFRAGMENT_H

```

```
#include "gdcmDataElement.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include "gdcmParseException.h"

namespace gdcm_ns
{

// Implementation detail:
// I think Fragment should be a protected subclass of DataElement:
// looking somewhat like this:
/*
class GDCM_EXPORT Fragment : protected DataElement
{
public:
  using DataElement::GetTag;
  using DataElement::GetVL;
  using DataElement::SetByteValue;
  using DataElement::GetByteValue;
  using DataElement::GetValue;
*/
// Instead I am only hiding the SetTag member...

class GDCM_EXPORT Fragment : public DataElement
{
//protected:
//  void SetTag(const Tag &t);
public:
  Fragment() : DataElement(Tag(0xfffe, 0xe000), 0) {}
  friend std::ostream &operator«(std::ostream &os, const Fragment &val);

  VL GetLength() const;

  VL ComputeLength() const;

  template <typename TSwap>
  std::istream &Read(std::istream &is)
    {
    ReadPreValue<TSwap>(is);
    return ReadValue<TSwap>(is);
    }

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is)
    {
    TagField.Read<TSwap>(is);
    if( !is )
      {
      //  BogusItemStartItemEnd.dcm
      throw Exception( "Problem #1" );
      }
    if( !ValueLengthField.Read<TSwap>(is) )
      {
      // GENESIS_SIGNA-JPEG-CorruptFrag.dcm
      // JPEG fragment is declared to have 61902, but in fact really is only 61901
      // so we end up reading 0xddff,0x00e0, and VL = 0x0 (1 byte)
      throw Exception( "Problem #2" );
      }
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
    const Tag itemStart(0xfffe, 0xe000);
    const Tag seqDelItem(0xfffe,0xe0dd);
    if( TagField != itemStart && TagField != seqDelItem )
      {
      throw Exception( "Problem #3" );
      }
#endif
    return is;
    }

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is)
    {
    // Self
    SmartPointer<ByteValue> bv = new ByteValue;
    bv->SetLength(ValueLengthField);
    if( !bv->Read<TSwap>(is) )
      {
      // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
      gdcmWarningMacro( "Fragment could not be read" );
      //bv->SetLength(is.gcount());
      ValueField = bv;
```

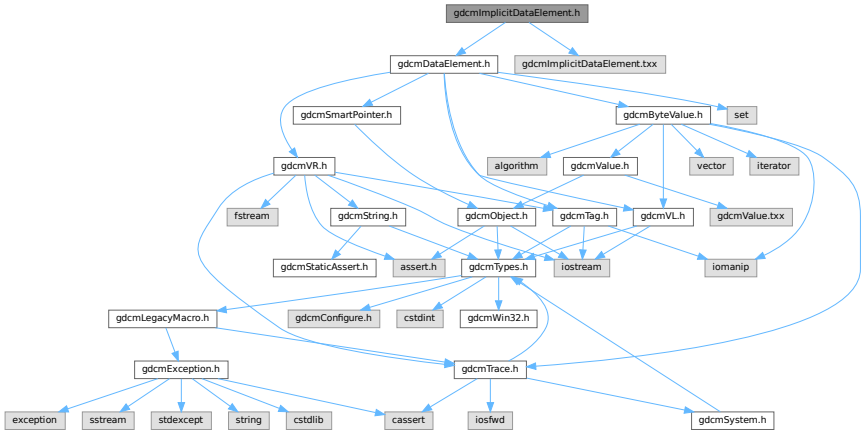
```
      ParseException pe;
      pe.SetLastElement( *this );
      throw pe;
      }
    ValueField = bv;
    return is;
    }

  template <typename TSwap>
  std::istream &ReadBacktrack(std::istream &is)
    {
    const Tag itemStart(0xfffe, 0xe000);
    const Tag seqDelItem(0xfffe,0xe0dd);

    bool cont = true;
    const std::streampos start = is.tellg();
    const int max = 10;
    int offset = 0;
    while( cont )
      {
      TagField.Read<TSwap>(is);
      assert( is );
      if( TagField != itemStart && TagField != seqDelItem )
        {
        ++offset;
        is.seekg( (std::streampos)((size_t)start - offset) );
        gdcmWarningMacro( "Fuzzy Search, backtrack: " « (start - is.tellg()) « " Offset: " « is.tellg() );
        if( offset > max )
          {
          gdcmErrorMacro( "Giving up" );
          throw "Impossible to backtrack";
          }
        }
      else
        {
        cont = false;
        }
      }
    assert( TagField == itemStart || TagField == seqDelItem );
    if( !ValueLengthField.Read<TSwap>(is) )
      {
      return is;
      }

    // Self
    SmartPointer<ByteValue> bv = new ByteValue;
    bv->SetLength(ValueLengthField);
    if( !bv->Read<TSwap>(is) )
      {
      // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
      gdcmWarningMacro( "Fragment could not be read" );
      //bv->SetLength(is.gcount());
      ValueField = bv;
      ParseException pe;
      pe.SetLastElement( *this );
      throw pe;
      }
    ValueField = bv;
    return is;
    }


  template <typename TSwap>
  std::ostream &Write(std::ostream &os) const {
    const Tag itemStart(0xfffe, 0xe000);
    const Tag seqDelItem(0xfffe,0xe0dd);
    if( !TagField.Write<TSwap>(os) )
      {
      assert(0 && "Should not happen");
      return os;
      }
    assert( TagField == itemStart
        || TagField == seqDelItem );
    const ByteValue *bv = GetByteValue();
    // VL
    // The following piece of code is hard to read in order to support such broken file as:
    // CompressedLossy.dcm
    if( IsEmpty() )
      {
      //assert( bv );
      VL zero = 0;
```

```
      if( !zero.Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    else
      {
      assert( ValueLengthField );
      assert( !ValueLengthField.IsUndefined() );
      const VL actuallen = bv->ComputeLength();
      assert( actuallen == ValueLengthField || actuallen == ValueLengthField + 1 );
      if( !actuallen.Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    // Value
    if( ValueLengthField && bv )
      {
      // Self
      assert( bv );
      assert( bv->GetLength() == ValueLengthField );
      if( !bv->Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    return os;
    }
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &os, const Fragment &val)
{
  os « "Tag: " « val.TagField;
  os « "\tVL: " « val.ValueLengthField;
  if( val.ValueField )
    {
    os « "\t" « *(val.ValueField);
    }

  return os;
}

} // end namespace gdcm_ns

#endif //GDCMFRAGMENT_H
```

11.147 gdcmImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmImplicitDataElement.txx"
```

Include dependency graph for gdcmImplicitDataElement.h:



Classes

- class gdcm::ImplicitDataElement

  Class to represent an Implicit VR Data Element.

Namespaces

- namespace gdcm

11.148 gdcmImplicitDataElement.h

Go to the documentation of this file.

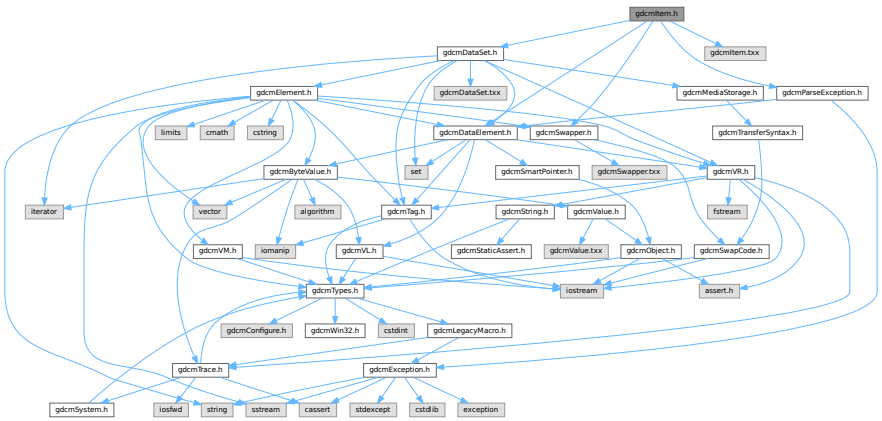
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMPLICITDATAELEMENT_H
#define GDCMIMPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm_ns
{

class GDCM_EXPORT ImplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

```

```
  template <typename TSwap>
  std::istream &Read(std::istream& is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream& is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream& is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream& is, VL & length, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadValueWithLength(std::istream& is, VL & length, bool readvalues = true);

  template <typename TSwap>
  const std::ostream &Write(std::ostream& os) const;
};

} // end namespace gdcm_ns

#include "gdcmImplicitDataElement.txx"

#endif //GDCMIMPLICITDATAELEMENT_H
```

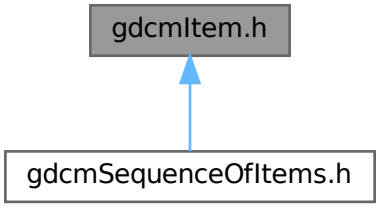
11.149 gdcmItem.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmParseException.h"
#include "gdcmSwapper.h"
#include "gdcmItem.txx"
```

Include dependency graph for gdcmItem.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Item

  Class to represent an Item.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Item &val)

11.150 gdcmItem.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMITEM_H
#define GDCMITEM_H

#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmParseException.h"
#include "gdcmSwapper.h"

```

```
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
#include "gdcmByteSwapFilter.h"
#endif

namespace gdcm_ns
{

class DataSet;
class GDCM_EXPORT Item : public DataElement
{
public:
  Item() : DataElement(Tag(0xfffe, 0xe000), 0xFFFFFFFF), NestedDataSet() {}
  friend std::ostream& operator« (std::ostream &os, const Item &val);

  void Clear() {
    this->DataElement::Clear();
    NestedDataSet.Clear();
    }

  template <typename TDE>
  VL GetLength() const;

  void InsertDataElement(const DataElement & de) {
    NestedDataSet.Insert(de);
    // Update the length
    if( !IsUndefinedLength() )
      {
      assert( 0 && "InsertDataElement" );
      //ValueLengthField += de.GetLength();
      }
    }
  const DataElement& GetDataElement(const Tag& t) const
    {
    return NestedDataSet.GetDataElement(t);
    }

  // Completely defines it with the nested dataset
  // destroy anything present
  void SetNestedDataSet(const DataSet& nested)
    {
    NestedDataSet = nested;
    }
  // Return a const ref to the Nested Data Set
  const DataSet &GetNestedDataSet() const
    {
    return NestedDataSet;
    }
  DataSet &GetNestedDataSet()
    {
    return NestedDataSet;
    }

  //Value const & GetValue() const { return *NestedDataSet; }

  Item(Item const &val):DataElement(val)
    {
    NestedDataSet = val.NestedDataSet;
    }

  template <typename TDE, typename TSwap>
  std::istream &Read(std::istream &is) {
    // Superclass
    {
        DataSet &nested = NestedDataSet;
        nested.Clear();
        assert( nested.IsEmpty() );
    }
    if( !TagField.Read<TSwap>(is) )
      {
      throw Exception("Should not happen (item)");
      return is;
      }
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
    // MR_Philips_Intera_SwitchIndianess_noLgtSQItem_in_trueLgtSeq.dcm
    if( TagField == Tag(0xfeff, 0x00e0)
      || TagField == Tag(0xfeff, 0xdde0) )
      {
      gdcmWarningMacro( "ByteSwaping Private SQ: " « TagField );
      // Invert previously read TagField since wrong endianness:
      TagField = Tag( SwapperDoOp::Swap( TagField.GetGroup() ), SwapperDoOp::Swap( TagField.GetElement() )
);
```

```
      assert ( TagField == Tag(0xfffe, 0xe000)
        || TagField == Tag(0xfffe, 0xe0dd) );

      if( !ValueLengthField.Read<SwapperDoOp>(is) )
        {
        assert(0 && "Should not happen");
        return is;
        }
      // Self
      // Some file written by GDCM 1.0 we write 0xFFFFFFFF instead of 0x0
      if( TagField == Tag(0xfffe,0xe0dd) )
        {
        if( ValueLengthField )
          {
          gdcmErrorMacro( "ValueLengthField is not 0" );
          }
        }
      //else if( ValueLengthField == 0 )
      //  {
      //  //assert( TagField == Tag( 0xfffe, 0xe0dd) );
      //  if( TagField != Tag( 0xfffe, 0xe0dd) )
      //    {
      //    gdcmErrorMacro( "SQ: " « TagField « " has a length of 0" );
      //    }
      //  }
      else if( ValueLengthField.IsUndefined() )
        {
        DataSet &nested = NestedDataSet;
        nested.Clear();
        assert( nested.IsEmpty() );
        std::streampos start = is.tellg();
        try
          {
          nested.template ReadNested<TDE,SwapperDoOp>(is);
          ByteSwapFilter bsf(nested);
          bsf.ByteSwap();
          }
        catch(ParseException &pe)
          {
          (void)pe;
          //
MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
          // You have to byteswap the length but not the tag...sigh
          gdcmWarningMacro( "Attempt to read nested Item without byteswapping the Value Length." );
          start -= is.tellg();
          assert( start < 0 );
          is.seekg( start, std::ios::cur );
          nested.Clear();
          nested.template ReadNested<TDE,SwapperNoOp>(is);
          ByteSwapFilter bsf(nested);
          // Tag are read in big endian, need to byteswap them back...
          bsf.SetByteSwapTag(true);
          bsf.ByteSwap();
          }
        catch(Exception &e)
          {
          // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
          throw e;
          }
        catch(...)
          {
          assert(0);
          }
        }
      else /* if( ValueLengthField.IsUndefined() ) */
        {
        DataSet &nested = NestedDataSet;
        nested.Clear();
        assert( nested.IsEmpty() );
        nested.template ReadWithLength<TDE,SwapperDoOp>(is, ValueLengthField);
        ByteSwapFilter bsf(nested);
        bsf.ByteSwap();
        }
      return is;
      }
    // http://groups.google.com/group/comp.protocols.dicom/msg/c07efcf5e759fc83
    // Bug_Philips_ItemTag_3F3F.dcm
    if( TagField == Tag(0x3f3f, 0x3f00) )
      {
      //TagField = Tag(0xfffe, 0xe000);
      }
```

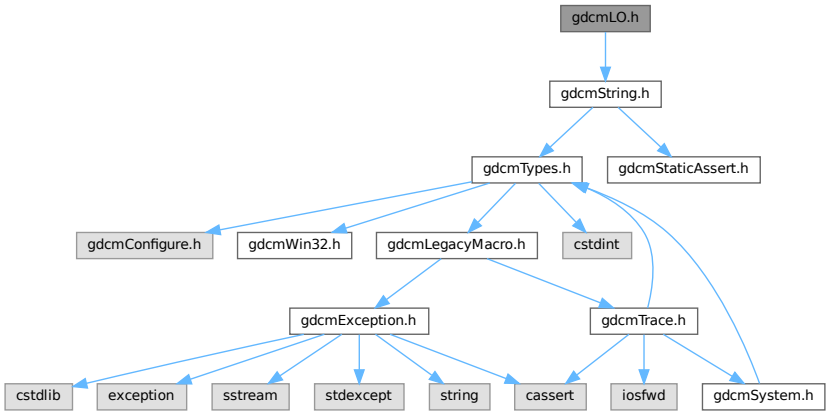
```
#endif
    if( TagField != Tag(0xfffe, 0xe000) && TagField != Tag(0xfffe, 0xe0dd) )
      {
      gdcmDebugMacro( "Invalid Item, found tag: " « TagField);
      throw Exception( "Not a valid Item" );
      }
    assert( TagField == Tag(0xfffe, 0xe000) || TagField == Tag(0xfffe, 0xe0dd) );

    if( !ValueLengthField.Read<TSwap>(is) )
      {
      assert(0 && "Should not happen");
      return is;
      }
    // Self
    if( TagField == Tag(0xfffe,0xe0dd) )
      {
      // Some file written by GDCM 1.0 were written with 0xFFFFFFFF instead of 0x0
      if( ValueLengthField )
        {
        gdcmDebugMacro( "ValueLengthField is not 0 but " « ValueLengthField );
        }
      }
    else if( ValueLengthField.IsUndefined() )
      {
      DataSet &nested = NestedDataSet;
      nested.Clear();
      assert( nested.IsEmpty() );
      nested.template ReadNested<TDE,TSwap>(is);
      }
    else /* if( ValueLengthField.IsUndefined() ) */
      {
      assert( !ValueLengthField.IsUndefined() );
      DataSet &nested = NestedDataSet;
      nested.Clear();
      assert( nested.IsEmpty() );
      nested.template ReadWithLength<TDE,TSwap>(is, ValueLengthField);
      }

    return is;
  }

  template <typename TDE, typename TSwap>
  const std::ostream &Write(std::ostream &os) const {
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
    if( TagField == Tag(0x3f3f,0x3f00) && false )
      {
      Tag t(0xfffe, 0xe000);
      t.Write<TSwap>(os);
      }
    else
#endif
      {
      assert ( TagField == Tag(0xfffe, 0xe000)
        || TagField == Tag(0xfffe, 0xe0dd) );
      // Not sure how this happen
      if( TagField == Tag(0xfffe, 0xe0dd) )
        {
        gdcmWarningMacro( "SeqDelItem found in defined length Sequence" );
        assert( ValueLengthField == 0 );
        assert( NestedDataSet.Size() == 0 );
        }
      if( !TagField.Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    if( ValueLengthField.IsUndefined() )
      {
      if( !ValueLengthField.Write<TSwap>(os) )
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    else
      {
      const VL dummy = NestedDataSet.GetLength<TDE>();
      assert( dummy % 2 == 0 );
      //assert( ValueLengthField == dummy );
      if( !dummy.Write<TSwap>(os) )
```

```
        {
        assert(0 && "Should not happen");
        return os;
        }
      }
    // Self
    NestedDataSet.Write<TDE,TSwap>(os);
    if( ValueLengthField.IsUndefined() )
      {
      const Tag itemDelItem(0xfffe,0xe00d);
      itemDelItem.Write<TSwap>(os);
      VL zero = 0;
      zero.Write<TSwap>(os);
      }

    return os;
  }

/*
There are three special SQ related Data Elements that are not ruled by the VR encoding rules conveyed
by the Transfer Syntax. They shall be encoded as Implicit VR. These special Data Elements are Item
(FFFE,E000), Item Delimitation Item (FFFE,E00D), and Sequence Delimitation Item (FFFE,E0DD).
However, the Data Set within the Value Field of the Data Element Item (FFFE,E000) shall be encoded
according to the rules conveyed by the Transfer Syntax.
*/
  bool FindDataElement(const Tag &t) const {
    return NestedDataSet.FindDataElement( t );
  }

private:
  /* NESTED DATA SET  a Data Set contained within a Data Element of an other Data Set.
   * May be nested recursively.
   * Only Data Elements with VR = SQ  may, themselves, contain Data Sets
   */
  DataSet NestedDataSet;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const Item &val)
{
  os « val.TagField;
  os « "\t" « val.ValueLengthField « "\n";
  val.NestedDataSet.Print( os, "\t" );

  return os;
}


} // end namespace gdcm_ns

#include "gdcmItem.txx"

#endif //GDCMITEM_H
```

11.151 gdcmLO.h File Reference

`#include "gdcmString.h"`

Include dependency graph for gdcmLO.h:



Classes

- class gdcm::LO

  LO.

Namespaces

- namespace gdcm

11.152 gdcmLO.h

Go to the documentation of this file.

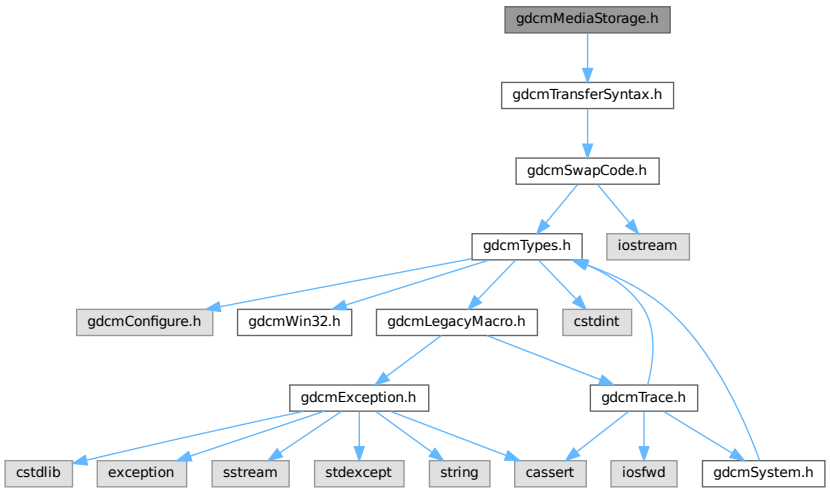
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMLO_H
#define GDCMLO_H

#include "gdcmString.h"

namespace gdcm
```

```
{

class /*GDCM_EXPORT*/ LO : public String<'\\',64> /* PLEASE do not export me */
{
public:
  // typedef are not inherited:
  typedef String<'\\',64> Superclass;
  typedef Superclass::value_type             value_type;
  typedef Superclass::pointer                pointer;
  typedef Superclass::reference              reference;
  typedef Superclass::const_reference        const_reference;
  typedef Superclass::size_type              size_type;
  typedef Superclass::difference_type        difference_type;
  typedef Superclass::iterator               iterator;
  typedef Superclass::const_iterator         const_iterator;
  typedef Superclass::reverse_iterator       reverse_iterator;
  typedef Superclass::const_reverse_iterator const_reverse_iterator;

  // LO constructors.
  LO(): Superclass() {}
  LO(const value_type* s): Superclass(s) {}
  LO(const value_type* s, size_type n): Superclass(s, n) {}
  LO(const Superclass& s, size_type pos=0, size_type n=npos):
    Superclass(s, pos, n) {}

  bool IsValid() const {
    if( !Superclass::IsValid() ) return false;
    // Implementation specific:
    return true;
  }
};

} // end namespace gdcm

#endif //GDCMLO_H
```

11.153 gdcmMediaStorage.h File Reference

`#include "gdcmTransferSyntax.h"`

Include dependency graph for gdcmMediaStorage.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::MediaStorage

  MediaStorage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const MediaStorage &ms)

11.154 gdcmMediaStorage.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMEDIASTORAGE_H
#define GDCMMEDIASTORAGE_H

#include "gdcmTransferSyntax.h"

namespace gdcm { class Tag; }
namespace gdcm_ns
{
#if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
using namespace gdcm;
#endif
class DataSet;
class FileMetaInformation;
class File;

// WARNING: This class will be deprecated in the future. There is no reason to extend this class.
// Please check the gdcm::UIDs class if adding new well known UID.

class GDCM_EXPORT MediaStorage
{
public:
  typedef enum {
    MediaStorageDirectoryStorage = 0,
    ComputedRadiographyImageStorage,
    DigitalXRayImageStorageForPresentation,
```

```
    DigitalXRayImageStorageForProcessing,
    DigitalMammographyImageStorageForPresentation,
    DigitalMammographyImageStorageForProcessing,
    DigitalIntraoralXrayImageStorageForPresentation,
    DigitalIntraoralXRayImageStorageForProcessing,
    CTImageStorage,
    EnhancedCTImageStorage,
    UltrasoundImageStorageRetired,
    UltrasoundImageStorage,
    UltrasoundMultiFrameImageStorageRetired,
    UltrasoundMultiFrameImageStorage,
    MRImageStorage,
    EnhancedMRImageStorage,
    MRSpectroscopyStorage,
    NuclearMedicineImageStorageRetired,
    SecondaryCaptureImageStorage,
    MultiframeSingleBitSecondaryCaptureImageStorage,
    MultiframeGrayscaleByteSecondaryCaptureImageStorage,
    MultiframeGrayscaleWordSecondaryCaptureImageStorage,
    MultiframeTrueColorSecondaryCaptureImageStorage,
    StandaloneOverlayStorage,
    StandaloneCurveStorage,
    LeadECGWaveformStorage, // 12-
    GeneralECGWaveformStorage,
    AmbulatoryECGWaveformStorage,
    HemodynamicWaveformStorage,
    CardiacElectrophysiologyWaveformStorage,
    BasicVoiceAudioWaveformStorage,
    StandaloneModalityLUTStorage,
    StandaloneVOILUTStorage,
    GrayscaleSoftcopyPresentationStateStorageSOPClass,
    XRayAngiographicImageStorage,
    XRayRadiofluoroscopingImageStorage,
    XRayAngiographicBiPlaneImageStorageRetired,
    NuclearMedicineImageStorage,
    RawDataStorage,
    SpacialRegistrationStorage, // Spatial
    SpacialFiducialsStorage, // Spatial..
    PETImageStorage,
    RTImageStorage,
    RTDoseStorage,
    RTStructureSetStorage,
    RTPlanStorage,
    CSANonImageStorage,
    Philips3D,
    EnhancedSR,
    BasicTextSR,
    HardcopyGrayscaleImageStorage,
    ComprehensiveSR,
    DetachedStudyManagementSOPClass,
    EncapsulatedPDFStorage,
    EncapsulatedCDAStorage,
    StudyComponentManagementSOPClass,
    DetachedVisitManagementSOPClass,
    DetachedPatientManagementSOPClass,
    VideoEndoscopicImageStorage,
    GeneralElectricMagneticResonanceImageStorage,
    GEPrivate3DModelStorage,
    ToshibaPrivateDataStorage,
    MammographyCADSR,
    KeyObjectSelectionDocument,
    HangingProtocolStorage,
    ModalityPerformedProcedureStepSOPClass,
    PhilipsPrivateMRSyntheticImageStorage,
    VLPhotographicImageStorage,
    SegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.4"
    RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
    XRay3DAngiographicImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.1
    EnhancedXAImageStorage,
    RTIonBeamsTreatmentRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.9
    SurfaceSegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.5"
    VLWholeSlideMicroscopyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.6
    RTTreatmentSummaryRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.7
    EnhancedUSVolumeStorage, // 1.2.840.10008.5.1.4.1.1.6.2
    XRayRadiationDoseSR, // 1.2.840.10008.5.1.4.1.1.88.67
    VLEndoscopicImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.1
    BreastTomosynthesisImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.3
    FujiPrivateCRImageStorage, // 1.2.392.200036.9125.1.1.2
    OphthalmicPhotography8BitImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.1
    OphthalmicTomographyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.4
    VLMicroscopicImageStorage,
```

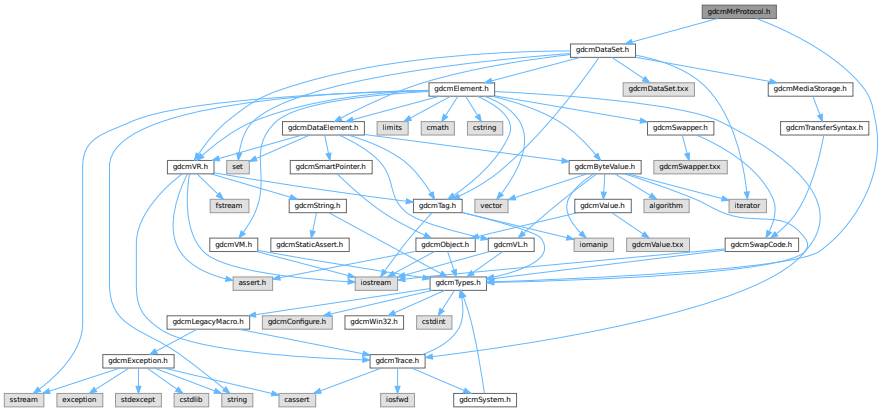
```
    EnhancedPETImageStorage,
    VideoPhotographicImageStorage,
    XRay3DCraniofacialImageStorage,
    IVOCTForPresentation,
    IVOCTForProcessing,
    LegacyConvertedEnhancedCTImageStorage,
    LegacyConvertedEnhancedMRImageStorage,
    LegacyConvertedEnhancedPETImageStorage,
    BreastProjectionXRayImageStorageForPresentation,
    BreastProjectionXRayImageStorageForProcessing,
    HardcopyColorImageStorage,
    EnhancedMRColorImageStorage,
    FujiPrivateMammoCRImageStorage,
    OphthalmicPhotography16BitImageStorage,
    VideoMicroscopicImageStorage,
    MS_END
  } MSType; // Media Storage Type

typedef enum {
    NoObject = 0, // DICOMDIR
    Video, // Most common, include image, video and volume
    Waveform, // Isn't it simply a 1D video ?
    Audio, // ???
    PDF,
    URI, // URL...
    Segmentation, // TODO
    ObjectEnd
  } ObjectType;

  static const char* GetMSString(MSType ts);

  const char* GetString() const;
  static MSType GetMSType(const char *str);

  MediaStorage(MSType type = MS_END):MSField(type) {}

  static bool IsImage(MSType ts);

  operator MSType () const { return MSField; }

  const char *GetModality() const;
  unsigned int GetModalityDimension() const;

  static unsigned int GetNumberOfMSType();
  static unsigned int GetNumberOfMSString();
  static unsigned int GetNumberOfModality();


  bool SetFromFile(File const &file);

  bool SetFromDataSet(DataSet const &ds); // Will get the SOP Class UID
  bool SetFromHeader(FileMetaInformation const &fmi); // Will get the Media Storage SOP Class UID
  bool SetFromModality(DataSet const &ds);
  void GuessFromModality(const char *modality, unsigned int dimension = 2);

  friend std::ostream &operator«(std::ostream &os, const MediaStorage &ms);

  bool IsUndefined() const { return MSField == MS_END; }

protected:
  void SetFromSourceImageSequence(DataSet const &ds);

private:
  bool SetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);

  std::string GetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);
  std::string GetFromHeader(FileMetaInformation const &fmi);
  std::string GetFromDataSet(DataSet const &ds);

private:
  MSType MSField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const MediaStorage &ms)
{
  const char *msstring = MediaStorage::GetMSString(ms);
  _os « (msstring ? msstring : "INVALID MEDIA STORAGE");
  return _os;

}

```

```
} // end namespace gdcm_ns

#endif // GDCMMEDIASTORAGE_H
```

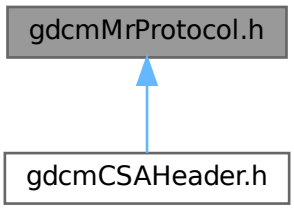
11.155 gdcmMrProtocol.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmMrProtocol.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MrProtocol

  Class for MrProtocol.
- struct gdcm::MrProtocol::Slice
- struct gdcm::MrProtocol::SliceArray
- struct gdcm::MrProtocol::Vector3

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const MrProtocol &d)

11.156 gdcmMrProtocol.h

Go to the documentation of this file.

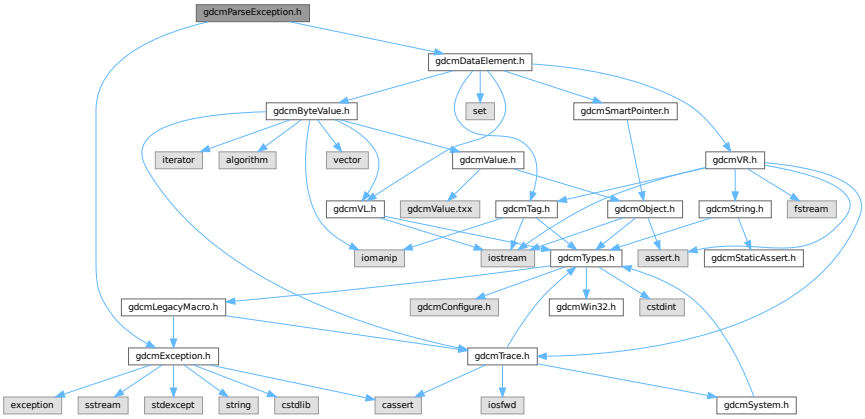
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMRPROTOCOL_H
#define GDCMMRPROTOCOL_H

#include "gdcmTypes.h"
#include "gdcmDataSet.h"

namespace gdcm
{
class ByteValue;
/*
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 */
//-----------------------------------------------------------------------------

class DataElement;
class GDCM_EXPORT MrProtocol
{
  friend std::ostream& operator«(std::ostream &_os, const MrProtocol &d);
public :
  MrProtocol();
  ~MrProtocol();

  bool Load( const ByteValue * bv, const char * str, int version );
  void Print(std::ostream &os) const;

  int GetVersion() const;

  const char * GetMrProtocolByName(const char *name) const;

  bool FindMrProtocolByName(const char *name) const;

  struct Vector3
  {
    double dSag;
    double dCor;
    double dTra;
  };
  struct Slice
  {
    Vector3 Normal;
    Vector3 Position;
  };
```

```
  struct SliceArray
  {
    std::vector< Slice > Slices;
  };
  bool GetSliceArray( MrProtocol::SliceArray & sa ) const;

private:
  struct Element;
  struct Internals;
  Internals *Pimpl;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const MrProtocol &d)
{
  d.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMMRPROTOCOL_H
```

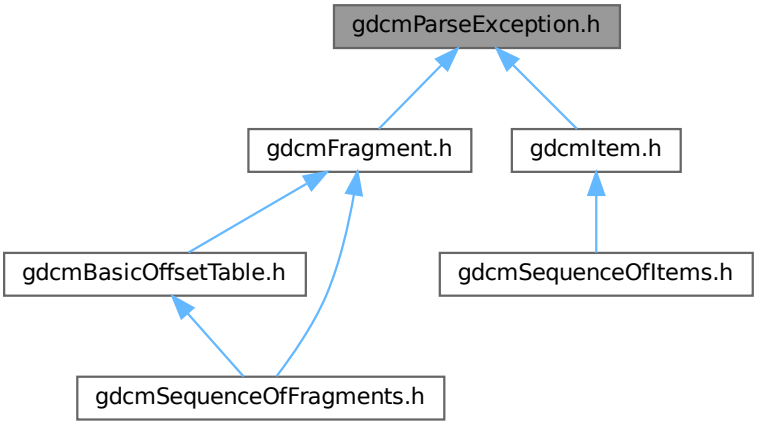
11.157 gdcmParseException.h File Reference

```
#include "gdcmException.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmParseException.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ParseException

  ParseException Standard exception handling object.

Namespaces

- namespace gdcm

11.158 gdcmParseException.h

Go to the documentation of this file.

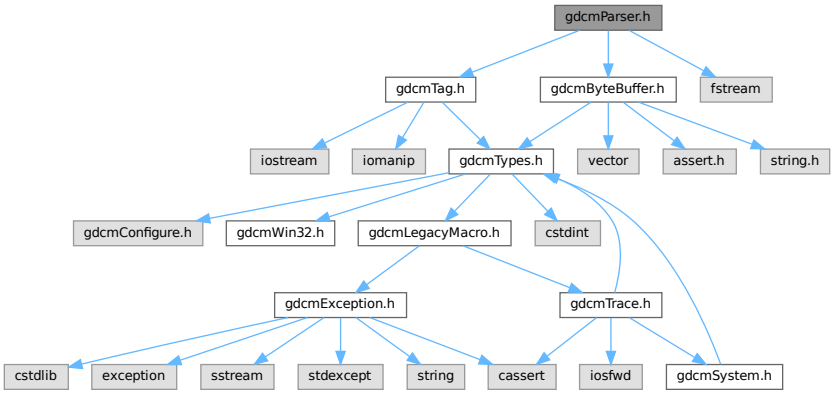
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPARSEEXCEPTION_H
#define GDCMPARSEEXCEPTION_H

#include "gdcmException.h"
#include "gdcmDataElement.h"

// Disable clang warning "dynamic exception specifications are deprecated".
// We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
```

```
// specifier we'll get an error in C++03 by not matching the superclass.
#if defined(__clang__) && defined(__has_warning)
# if __has_warning("-Wdeprecated")
#  pragma clang diagnostic push
#  pragma clang diagnostic ignored "-Wdeprecated"
# endif
#endif

namespace gdcm_ns
{
class ParseException : public Exception
{
public:
  ParseException() = default;
  ~ParseException() throw() override {}

  ParseException &operator= ( const ParseException &orig )
    {
    LastElement = orig.LastElement;
    return *this;
    }
  ParseException(const ParseException& orig):Exception(orig)
    {
    LastElement = orig.LastElement;
    }

/*  virtual bool operator==( const ParseException &orig )
  {
    return true;
  }*/

/*
  // Multiple calls to what ??
  const char* what() const throw()
    {
    static std::string strwhat;
    std::ostringstream oswhat;
    oswhat « File « ":" « Line « ":\n";
    oswhat « Description;
    strwhat = oswhat.str();
    return strwhat.c_str();
    }
*/
  void SetLastElement(DataElement& de)
    {
    LastElement = de;
    }
  const DataElement& GetLastElement() const { return LastElement; }

private:
  // Store last parsed element before error:
  DataElement LastElement;
};

} // end namespace gdcm_ns

// Undo warning suppression.
#if defined(__clang__) && defined(__has_warning)
# if __has_warning("-Wdeprecated")
#  pragma clang diagnostic pop
# endif
#endif

#endif
```

11.159 gdcmParser.h File Reference

```
#include "gdcmTag.h"
#include "gdcmByteBuffer.h"
#include <fstream>
```

Include dependency graph for gdcmParser.h:



Classes

- class gdcm::Parser

  Parser ala XML_Parser from expat (SAX)

Namespaces

- namespace gdcm

11.160 gdcmParser.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMPARSER_H
#define GDCMPARSER_H

#include "gdcmTag.h"
#error do not use
#include "gdcmByteBuffer.h"

#include <fstream> // std::ifstream

namespace gdcm
{
class GDCM_EXPORT Parser /*: private IStream*/
```

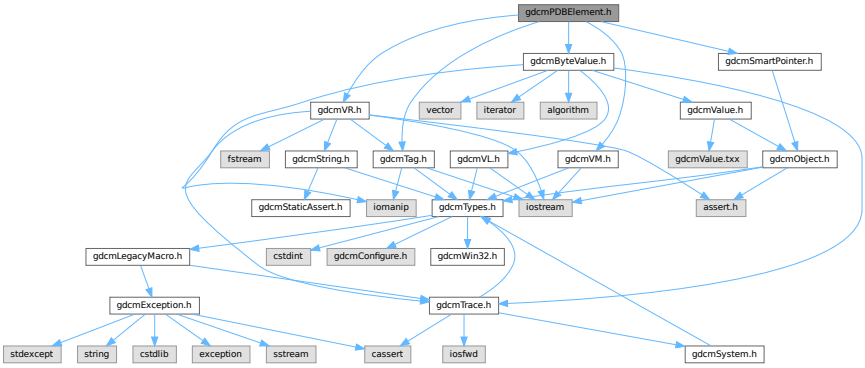
```
{
public:
  typedef enum {
    NoError,
    NoMemoryError,
    SyntaxError,
    NoElementsError,
    TagMismatchError,
    DuplicateAttributeError,
    JunkAfterDocElementError,
    UndefinedEntityError,
    UnexpectedStateError
  } ErrorType;

  Parser() : UserData(0),Buffer(),ErrorCode(NoError) {}
  ~Parser() {}

  // Parse some more of the document. The string s is a buffer containing
  // part (or perhaps all) of the document. The number of bytes of s that
  // are part of the document is indicated by len. This means that s
  // doesn't have to be null terminated. It also means that if len is
  // larger than the number of bytes in the block of memory that s points
  // at, then a memory fault is likely. The isFinal parameter informs the
  // parser that this is the last piece of the document. Frequently, the
  // last piece is empty (i.e. len is zero.) If a parse error occurred,
  // it returns 0. Otherwise it returns a non-zero value.
  bool Parse(const char* s, int len, bool isFinal);

  // Set handlers for start and end tags. Attributes are passed to the
  // start handler as a pointer to a vector of char pointers. Each
  // attribute seen in a start (or empty) tag occupies 2 consecutive places
  // in this vector: the attribute name followed by the attribute value.
  // These pairs are terminated by a null pointer.
  typedef void (*StartElementHandler) (void *userData,
                                       const Tag &tag,
                                       const char *atts[]);
  typedef void (*EndElementHandler) (void *userData, const Tag &name);
  void SetElementHandler(StartElementHandler start, EndElementHandler end);

  // Return what type of error has occurred.
  ErrorType GetErrorCode() const;

  // Return a string describing the error corresponding to code.
  // The code should be one of the enums that can be returned from
  // GetErrorCode.
  static const char *GetErrorString(ErrorType const &err);

  // Return the byte offset of the position.
  unsigned long GetCurrentByteIndex() const;

  // Miscellaneous functions

  // The functions in this section either obtain state information from
  // the parser or can be used to dynamically set parser options.

  // This sets the user data pointer that gets passed to handlers.
  void SetUserData(void *userData);

  // This returns the user data pointer that gets passed to handlers.
  void * GetUserData() const;

protected:

  // This is just like Parse, except in this case expat provides the buffer.
  // By obtaining the buffer from expat with the GetBuffer function,
  // the application can avoid double copying of the input.
  bool ParseBuffer(int len, bool isFinal);

  // Obtain a buffer of size len to read a piece of the document into.
  // A NULL value is returned if expat can't allocate enough memory for
  // this buffer. This has to be called prior to every call to ParseBuffer.
  char *GetBuffer(int len);

  ErrorType Process();

private:
  std::ifstream Stream;
  void* UserData;
  ByteBuffer Buffer;
  ErrorType ErrorCode;

```

```
00114   StartElementHandler StartElement;
00115   EndElementHandler EndElement;
00116 };
00117
00118 } // end namespace gdcm
00119
00120 #endif //GDCMPARSER_H
```

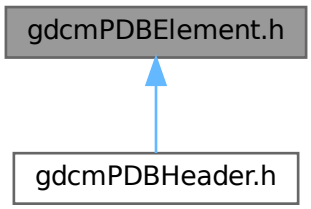
11.161 gdcmPDBElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmPDBElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PDBElement

  Class to represent a PDB Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBElement &val)

11.162 gdcmPDBElement.h

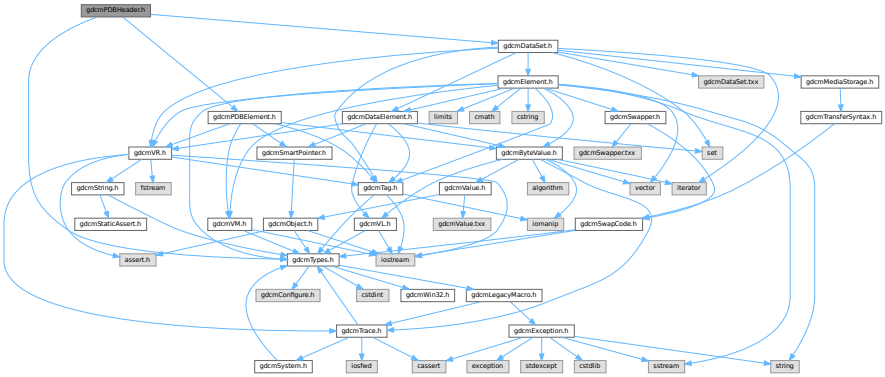
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPDBELEMENT_H
#define GDCMPDBELEMENT_H

#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"

namespace gdcm
{
class GDCM_EXPORT PDBElement
{
public:
  PDBElement() = default;

  friend std::ostream& operator«(std::ostream &os, const PDBElement &val);

  const char *GetName() const { return NameField.c_str(); }
  void SetName(const char *name) { NameField = name; }

  const char *GetValue() const { return ValueField.c_str(); }
  void SetValue(const char *value) { ValueField = value; }

  bool operator==(const PDBElement &de) const
    {
    return ValueField == de.ValueField
      && NameField == de.NameField;
    }

protected:
  std::string NameField;
  std::string ValueField;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const PDBElement &val)
{
  os « val.NameField;
  os « " \"";
  os « val.ValueField;
  os « "\"";

  return os;
}

} // end namespace gdcm

#endif //GDCMPDBELEMENT_H
```

11.163 gdcmPDBHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmPDBElement.h"
```

Include dependency graph for gdcmPDBHeader.h:



Classes

- class gdcm::PDBHeader

  Class for PDBHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBHeader &d)

11.164 gdcmPDBHeader.h

Go to the documentation of this file.

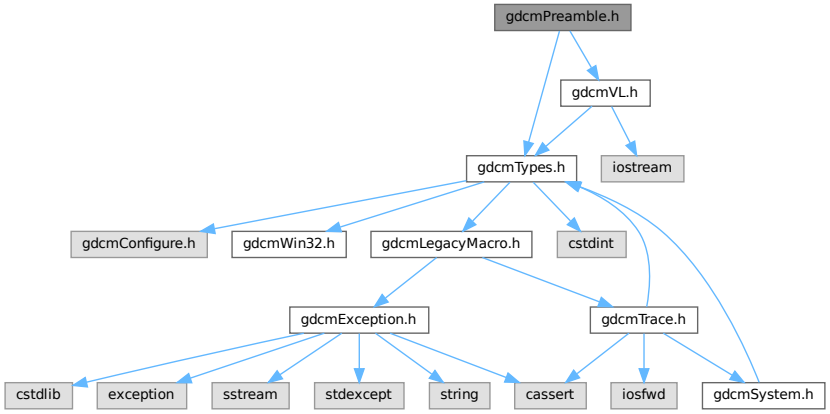
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

```
#ifndef GDCMPDBHEADER_H
#define GDCMPDBHEADER_H

#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmPDBElement.h"

namespace gdcm
{

/*
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 */
//-----------------------------------------------------------------------------

class DataElement;
class PrivateTag;
class GDCM_EXPORT PDBHeader
{
  friend std::ostream& operator«(std::ostream &_os, const PDBHeader &d);
public :
  PDBHeader() = default;
  ~PDBHeader() = default;

  bool LoadFromDataElement(DataElement const &de);

  void Print(std::ostream &os) const;

  static const PrivateTag & GetPDBInfoTag();

  const PDBElement &GetPDBElementByName(const char *name);

  bool FindPDBElementByName(const char *name);

protected:
  const PDBElement& GetPDBEEnd() const;

private:
  int readprotocoldatablock(const char *input, size_t inputlen, bool verbose);
  std::vector<PDBElement> InternalPDBDataSet;
  static PDBElement PDBEEnd;
  bool IsXML;
  std::string xmltxt;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const PDBHeader &d)
{
  d.Print( os );
  return os;
}

} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMPDBHEADER_H
```

11.165 gdcmPreamble.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVL.h"
```

Include dependency graph for gdcmPreamble.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Preamble

  DICOM Preamble (Part 10)

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Preamble &val)

11.166 gdcmPreamble.h

Go to the documentation of this file.

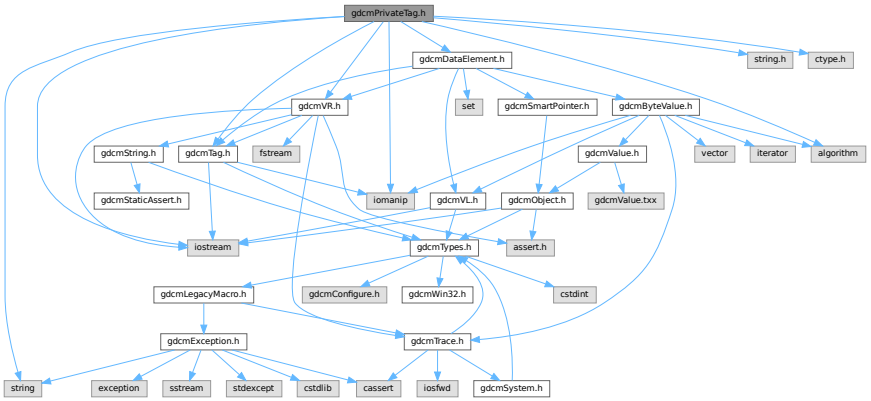
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPREAMBLE_H
#define GDCMPREAMBLE_H

#include "gdcmTypes.h"
#include "gdcmVL.h"

namespace gdcm
{

class GDCM_EXPORT Preamble
{
public:
  Preamble();
  ~Preamble();

  friend std::ostream &operator«(std::ostream &_os, const Preamble &_val);

  void Clear();

  void Valid();
  void Create();
  void Remove();

  std::istream &Read(std::istream &is);

  std::ostream const &Write(std::ostream &os) const;

  void Print(std::ostream &os) const;

  const char *GetInternal() const { return Internal; }

  bool IsEmpty() const { return !Internal; }

  VL GetLength() const { return 128 + 4; }

  Preamble(Preamble const &):Internal(nullptr)
    {
    Create();
    }
  Preamble& operator=(Preamble const &)
    {
    Create();
    return *this;
    }
protected:
  //
  bool IsValid() const {
    // is (IsValid == true) => Internal was read
    return true;
  }

private:
  char *Internal;
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Preamble &val)
{
  os « val.Internal;
  return os;
}

} // end namespace gdcm

```

```
00088 #endif //GDCMPREAMBLE_H
```

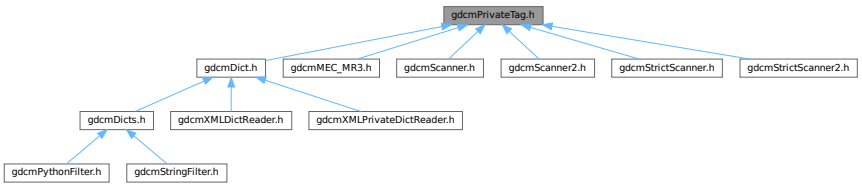
11.167 gdcmPrivateTag.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmDataElement.h"
#include <iostream>
#include <iomanip>
#include <string>
#include <algorithm>
#include <string.h>
#include <ctype.h>
```

Include dependency graph for gdcmPrivateTag.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner)

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateTag &val)

11.168 gdcmPrivateTag.h

Go to the documentation of this file.

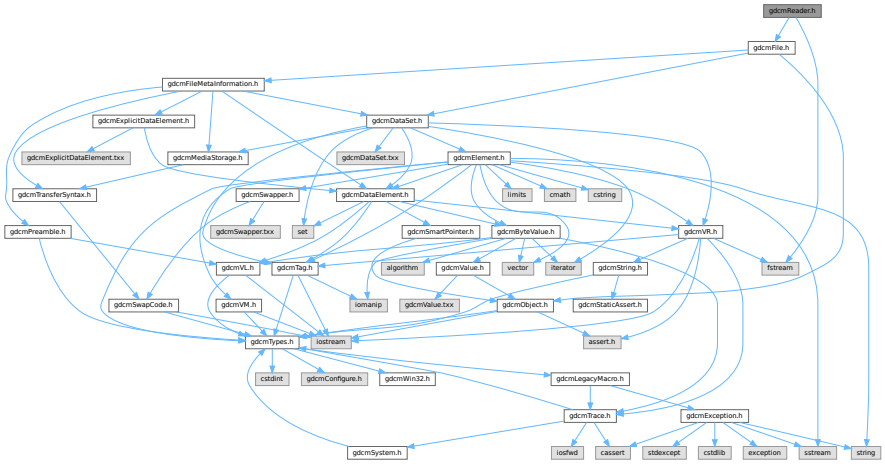
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRIVATETAG_H
#define GDCMPRIVATETAG_H

#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmDataElement.h"

#include <iostream>
#include <iomanip>
#include <string>
#include <algorithm>

#include <string.h> // strlen
#include <ctype.h> // tolower

namespace gdcm_ns
{

// TODO: We could save some space since we only store 8bits for element
class GDCM_EXPORT PrivateTag : public Tag
{
  friend std::ostream& operator«(std::ostream &_os, const PrivateTag &_val);
public:
  PrivateTag(uint16_t group = 0, uint16_t element = 0, const char *owner = ""):Tag(group,element),Owner(owner ? LOComp::Trim(owner) : "") {
    // truncate the high bits
    SetElement( (uint8_t)element );
  }
  PrivateTag( Tag const & t, const char *owner = ""):Tag(t),Owner(owner ? LOComp::Trim(owner) : "") {
    // truncate the high bits
    SetElement( (uint8_t)t.GetElement());
  }

  const char *GetOwner() const { return Owner.c_str(); }
  void SetOwner(const char *owner) { if(owner) Owner = LOComp::Trim(owner); }

  PrivateTag &operator=(const PrivateTag &_val)
    {
    SetElementTag( _val.GetElementTag() );
    Owner = _val.Owner;
    return *this;
    }

  bool operator==(const Tag &_val) const
    {
    return GetElementTag() == _val.GetElementTag();
```

```
    }
  bool operator==(const PrivateTag &_val) const
    {
    return GetElementTag() == _val.GetElementTag() && Owner == _val.Owner;
    }
  bool operator!=(const Tag &_val) const
    {
    return GetElementTag() != _val.GetElementTag();
    }
  bool operator!=(const PrivateTag &_val) const
    {
    return GetElementTag() != _val.GetElementTag() || Owner != _val.Owner;
    }

  bool operator<(const PrivateTag &_val) const;

  bool ReadFromCommaSeparatedString(const char *str);

  DataElement GetAsDataElement() const;

private:
  // SIEMENS MED, GEMS_PETD_01 ...
  std::string Owner;
};

inline std::ostream& operator«(std::ostream &os, const PrivateTag &val)
{
  //assert( !val.Owner.empty() );
  os.setf( std::ios::right );
  os « std::hex « '(' « std::setw( 4 ) « std::setfill( '0' )
    « val[0] « ',' « std::setw( 2 ) « std::setfill( '0' )
    « val[1] « ',';
  os « val.Owner;
  os « ')' « std::setfill( ' ' ) « std::dec;
  return os;
}

} // end namespace gdcm_ns

#endif //GDCMPRIVATETAG_H
```

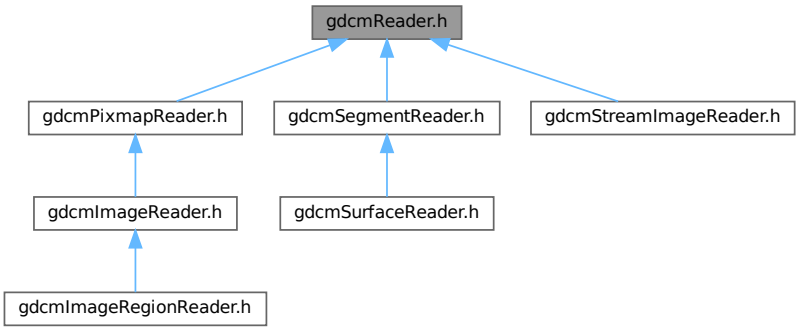
11.169 gdcmReader.h File Reference

```
#include "gdcmFile.h"
#include <fstream>
```

Include dependency graph for gdcmReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Reader

  Reader ala DOM (Document Object Model)

Namespaces

- namespace gdcm

11.170 gdcmReader.h

Go to the documentation of this file.

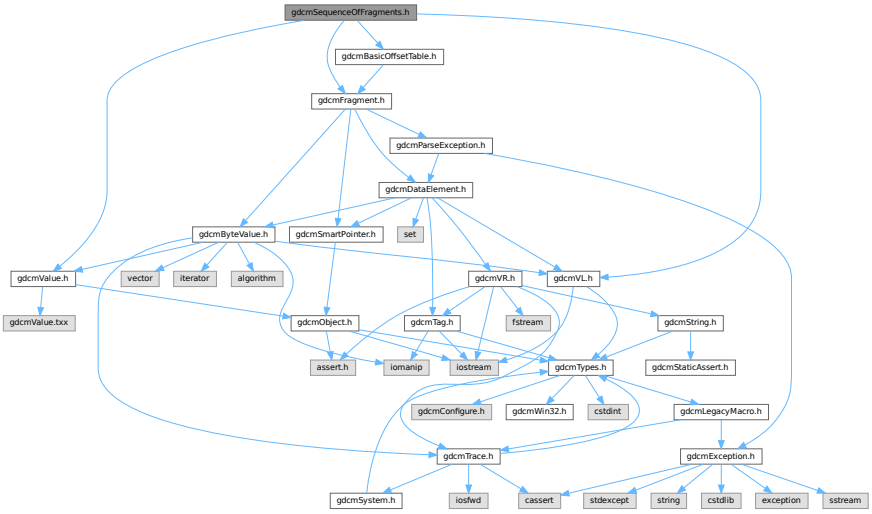
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMREADER_H
#define GDCMREADER_H

#include "gdcmFile.h"

#include <fstream>

namespace gdcm_ns
{
  class StreamImageReader;
class GDCM_EXPORT Reader
{
public:
  Reader();
  virtual ~Reader();
```

```
00058
00060   virtual bool Read(); // Execute()
00061
00064   void SetFileName(const char *filename_native);
00065
00067   void SetStream(std::istream &input_stream) {
00068     Stream = &input_stream;
00069   }
00070
00072   const File &GetFile() const { return *F; }
00073
00075   File &GetFile() { return *F; }
00076
00078   void SetFile(File& file) { F = &file; }
00079
00082   bool ReadUpToTag(const Tag & tag, std::set<Tag> const & skiptags = std::set<Tag>() );
00083
00085   bool ReadSelectedTags(std::set<Tag> const & tags, bool readvalues = true);
00086
00088   bool ReadSelectedPrivateTags(std::set<PrivateTag> const & ptags, bool readvalues = true);
00089
00092   bool CanRead() const;
00093
00096   size_t GetStreamCurrentPosition() const;
00097
00098 protected:
00099   bool ReadPreamble();
00100   bool ReadMetaInformation();
00101   bool ReadDataSet();
00102
00103   SmartPointer<File> F;
00104
00105   friend class StreamImageReader; //need to be friended to be able to grab the GetStreamPtr
00106
00107   //this function is added for the StreamImageReader, which needs to read
00108   //up to the pixel data and then stops right before reading the pixel data.
00109   //it's used to get that position, so that reading can continue
00110   //apace once the read function is called.
00111   //so, this function gets the stream directly, and then allows for position information
00112   //from the tellg function, and allows for stream/pointer manip in order
00113   //to read the pixel data.  Note, of course, that reading pixel elements
00114   //will still have to be subject to endianness swaps, if necessary.
00115   std::istream* GetStreamPtr() const { return Stream; }
00116
00117 private:
00118   template <typename T_Caller>
00119   bool InternalReadCommon(const T_Caller &caller);
00120   TransferSyntax GuessTransferSyntax();
00121   std::istream *Stream;
00122   std::ifstream *Ifstream;
00123
00124   // prevent copy/move to avoid 2 ifstream leak
00125   Reader(const Reader &) = delete;
00126   Reader &operator=(const Reader &) = delete;
00127   Reader(const Reader &&) = delete;
00128   Reader &operator=(const Reader &&) = delete;
00129 };
00130
00137 } // end namespace gdcm_ns
00138
00139
00140 #endif //GDCMREADER_H
```

11.171 gdcmSequenceOfFragments.h File Reference

```
#include "gdcmValue.h"
#include "gdcmVL.h"
#include "gdcmFragment.h"
#include "gdcmBasicOffsetTable.h"
```

Include dependency graph for gdcmSequenceOfFragments.h:



Classes

- class gdcm::SequenceOfFragments

  Class to represent a Sequence Of Fragments.

Namespaces

- namespace gdcm

11.172 gdcmSequenceOfFragments.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSEQUENCEOFFRAGMENTS_H
#define GDCMSEQUENCEOFFRAGMENTS_H

#include "gdcmValue.h"
#include "gdcmVL.h"
#include "gdcmFragment.h"
#include "gdcmBasicOffsetTable.h"

namespace gdcm_ns
{
```

```
  // FIXME gdcmSequenceOfItems and gdcmSequenceOfFragments
  // should be rethink (duplicate code)
class GDCM_EXPORT SequenceOfFragments : public Value
{
public:
  // Typdefs:
  typedef std::vector<Fragment> FragmentVector;
  typedef FragmentVector::size_type SizeType;
  typedef FragmentVector::iterator Iterator;
  typedef FragmentVector::const_iterator ConstIterator;
  Iterator Begin() { return Fragments.begin(); }
  Iterator End() { return Fragments.end(); }
  ConstIterator Begin() const { return Fragments.begin(); }
  ConstIterator End() const { return Fragments.end(); }

  SequenceOfFragments():Table(),SequenceLengthField(0xFFFFFFFF) { }

  VL GetLength() const override {
    return SequenceLengthField;
  }

  void SetLength(VL length) override {
    SequenceLengthField = length;
  }

  void Clear() override;

  void AddFragment(Fragment const &item);

  // Compute the length of all fragments (and fragments only!).
  // Basically the size of the PixelData as stored (in bytes).
  unsigned long ComputeByteLength() const;

  // Compute the length of fragments (in bytes)+ length of tag...
  // to be used for computation of Group Length
  VL ComputeLength() const;

  // Get the buffer
  bool GetBuffer(char *buffer, unsigned long length) const;
  bool GetFragBuffer(unsigned int fragNb, char *buffer, unsigned long &length) const;

  SizeType GetNumberOfFragments() const;
  const Fragment& GetFragment(SizeType num) const;

  // Write the buffer of each fragment (call WriteBuffer on all Fragments, which are
  // ByteValue). No Table information is written.
  bool WriteBuffer(std::ostream &os) const;

  const BasicOffsetTable &GetTable() const { return Table; }
  BasicOffsetTable &GetTable() { return Table; }

template <typename TSwap>
std::istream& Read(std::istream &is, bool readvalues = true)
{
  assert( SequenceLengthField.IsUndefined() );
  ReadPreValue<TSwap>(is);
  return ReadValue<TSwap>(is, readvalues);
}

template <typename TSwap>
std::istream& ReadPreValue(std::istream &is)
{
  // First item is the basic offset table:
#if 0
  try
    {
    Table.Read<TSwap>(is);
    gdcmDebugMacro( "Table: " « Table );
    }
  catch(...)
    {
    // throw "SIEMENS Icon thingy";
    // Bug_Siemens_PrivateIconNoItem.dcm
    // First thing first let's rewind
    is.seekg(-4, std::ios::cur);
    // FF D8 <=> Start of Image (SOI) marker
    // FF E0 <=> APP0 Reserved for Application Use
    if ( Table.GetTag() == Tag(0xd8ff,0xe0ff) )
      {
      Table = BasicOffsetTable(); // clear up stuff
```

```
      //Table.SetByteValue( "", 0 );
      Fragment frag;
      if( FillFragmentWithJPEG( frag, is ) )
        {
        Fragments.push_back( frag );
        }
      return is;
      }
    else
      {
      throw "Catch me if you can";
      //assert(0);
      }
    }
#else
  Table.Read<TSwap>(is);
  gdcmDebugMacro( "Table: " « Table );
#endif
  return is;
}

template <typename TSwap>
std::istream& ReadValue(std::istream &is, bool /*readvalues*/)
{
  const Tag seqDelItem(0xfffe,0xe0dd);
  // not used for now...
  Fragment frag;
  try
    {
    while( frag.Read<TSwap>(is) && frag.GetTag() != seqDelItem )
      {
      //gdcmDebugMacro( "Frag: " « frag );
      Fragments.push_back( frag );
      }
    assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
    }
  catch(Exception &ex)
    {
    (void)ex;
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
    // that's ok ! In all cases the whole file was read, because
    // Fragment::Read only fail on eof() reached 1.
    // SIEMENS-JPEG-CorruptFrag.dcm is more difficult to deal with, we have a
    // partial fragment, read we decide to add it anyway to the stack of
    // fragments (eof was reached so we need to clear error bit)
    if( frag.GetTag() == Tag(0xfffe,0xe000)  )
      {
      gdcmWarningMacro( "Pixel Data Fragment could be corrupted. Use file at own risk" );
      Fragments.push_back( frag );
      is.clear(); // clear the error bit
      }
    // 2. GENESIS_SIGNA-JPEG-CorruptFrag.dcm
    else if ( frag.GetTag() == Tag(0xddff,0x00e0) )
      {
      assert( Fragments.size() == 1 );
      const ByteValue *bv = Fragments[0].GetByteValue();
      assert( (unsigned char)bv->GetPointer()[ bv->GetLength() - 1 ] == 0xfe );
      // Yes this is an extra copy, this is a bug anyway, go fix YOUR code
      Fragments[0].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
      gdcmWarningMacro( "JPEG Fragment length was declared with an extra byte"
        " at the end: stripped !" );
      is.clear(); // clear the error bit
      }
    // 3. LEICA/WSI
    else if ( (frag.GetTag().GetGroup() == 0x00ff)
      && ((frag.GetTag().GetElement() & 0x00ff) == 0xe0) )
      {
      // Looks like there is a mess with offset and odd byte array
      // We are going first to backtrack one byte back, and then use a
      // ReadBacktrack function which in turn may backtrack up to 10 bytes
      // backward. This appears to be working on a set of DICOM/WSI files from
      // LEICA
      gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #1" );
      assert( Fragments.size() );
      const size_t lastf = Fragments.size() - 1;
      const ByteValue *bv = Fragments[ lastf ].GetByteValue();
      const char *a = bv->GetPointer();
      gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 1 ] == 0xfe );
      Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
      is.seekg( -9, std::ios::cur );
      assert( is.good() );
```

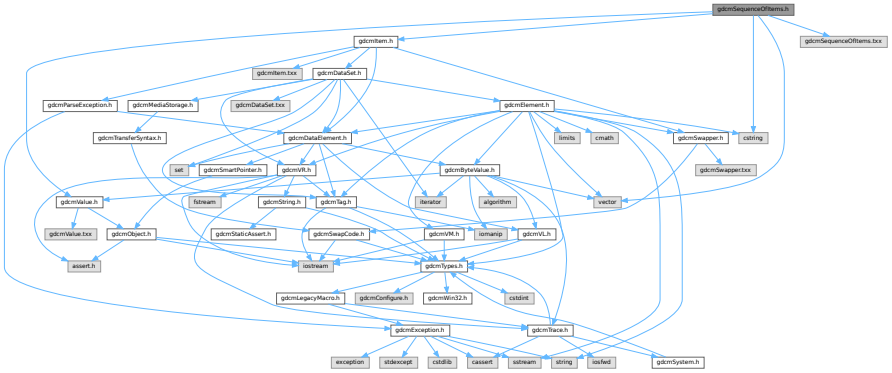
```
      while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
        {
        gdcmDebugMacro( "Frag: " « frag );
        Fragments.push_back( frag );
        }
      assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
      }
    // 4. LEICA/WSI (bis)
    else if ( frag.GetTag().GetGroup() == 0xe000 )
      {
      // Looks like there is a mess with offset and odd byte array
      // We are going first to backtrack one byte back, and then use a
      // ReadBacktrack function which in turn may backtrack up to 10 bytes
      // backward. This appears to be working on a set of DICOM/WSI files from
      // LEICA
      gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #2" );
      assert( Fragments.size() );
      const size_t lastf = Fragments.size() - 1;
      const ByteValue *bv = Fragments[ lastf ].GetByteValue();
      const char *a = bv->GetPointer();
      gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 2 ] == 0xfe );
      Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 2 );
      is.seekg( -10, std::ios::cur );
      assert( is.good() );
      while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
        {
        gdcmDebugMacro( "Frag: " « frag );
        Fragments.push_back( frag );
        }
      assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
      }
    // 5. LEICA/WSI (ter)
    else if ( (frag.GetTag().GetGroup() & 0x00ff) == 0x00e0
    && (frag.GetTag().GetElement() & 0xff00) == 0x0000 )
      {
      // Looks like there is a mess with offset and odd byte array
      // We are going first to backtrack one byte back, and then use a
      // ReadBacktrack function which in turn may backtrack up to 10 bytes
      // backward. This appears to be working on a set of DICOM/WSI files from
      // LEICA
      gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #3" );
      assert( Fragments.size() );
      const size_t lastf = Fragments.size() - 1;
      const ByteValue *bv = Fragments[ lastf ].GetByteValue();
      const char *a = bv->GetPointer();
      gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 3 ] == 0xfe );
      Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 3 );
      is.seekg( -11, std::ios::cur );
      assert( is.good() );
      while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
        {
        gdcmDebugMacro( "Frag: " « frag );
        Fragments.push_back( frag );
        }
      assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
      }
    else
      {
      // 3. gdcm-JPEG-LossLess3a.dcm: easy case, an extra tag was found
      // instead of terminator (eof is the next char)
      gdcmWarningMacro( "Reading failed at Tag:" « frag.GetTag() « " Index #"
        « Fragments.size() « " Offset " « is.tellg() « ". Use file at own risk."
        « ex.what() );
      }
#endif /* GDCM_SUPPORT_BROKEN_IMPLEMENTATION */
    }

  return is;
}

template <typename TSwap>
std::ostream const &Write(std::ostream &os) const
{
  if( !Table.Write<TSwap>(os) )
    {
    assert(0 && "Should not happen");
    return os;
    }
  for(ConstIterator it = Begin();it != End(); ++it)
    {
    it->Write<TSwap>(os);
```

```
    }
  // seq del item is not stored, write it !
  const Tag seqDelItem(0xfffe,0xe0dd);
  seqDelItem.Write<TSwap>(os);
  VL zero = 0;
  zero.Write<TSwap>(os);

  return os;
}

//#if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA)
  // For now leave it there, this does not make sense in the C++ layer
  // Create a new object
  static SmartPointer<SequenceOfFragments> New()
  {
     return new SequenceOfFragments();
  }
//#endif

protected:
public:
  void Print(std::ostream &os) const override {
    os « "SQ L= " « SequenceLengthField « "\n";
    os « "Table:" « Table « "\n";
    for(ConstIterator it = Begin();it != End(); ++it)
      {
      os « "  " « *it « "\n";
      }
    assert( SequenceLengthField.IsUndefined() );
      {
      const Tag seqDelItem(0xfffe,0xe0dd);
      VL zero = 0;
      os « seqDelItem;
      os « "\t" « zero;
      }
  }
  bool operator==(const Value &val) const override
    {
    const SequenceOfFragments &sqf = dynamic_cast<const SequenceOfFragments&>(val);
    return Table == sqf.Table &&
      SequenceLengthField == sqf.SequenceLengthField &&
      Fragments == sqf.Fragments;
    }

private:
  BasicOffsetTable Table;
  VL SequenceLengthField;
  FragmentVector Fragments;

private:
  bool FillFragmentWithJPEG( Fragment & frag, std::istream & is );
};

} // end namespace gdcm_ns

#endif //GDCMSEQUENCEOFFRAGMENTS_H
```

11.173 gdcmSequenceOfItems.h File Reference

```
#include "gdcmValue.h"
#include "gdcmItem.h"
#include <vector>
#include <cstring>
#include "gdcmSequenceOfItems.txx"
```

Include dependency graph for gdcmSequenceOfItems.h:



Classes

- class gdcm::SequenceOfItems

  Class to represent a Sequence Of Items.

Namespaces

- namespace gdcm

11.174 gdcmSequenceOfItems.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMSEQUENCEOFITEMS_H
#define GDCMSEQUENCEOFITEMS_H

#include "gdcmValue.h"
#include "gdcmItem.h"

#include <vector>
#include <cstring> // strcmp

namespace gdcm_ns
{

class GDCM_EXPORT SequenceOfItems : public Value
{
public:
  // Typdefs:
```

```
typedef std::vector< Item > ItemVector;
typedef ItemVector::size_type SizeType;
typedef ItemVector::iterator Iterator;
typedef ItemVector::const_iterator ConstIterator;
Iterator Begin() { return Items.begin(); }
Iterator End() { return Items.end(); }
ConstIterator Begin() const { return Items.begin(); }
ConstIterator End() const { return Items.end(); }

SequenceOfItems():SequenceLengthField(0xFFFFFFFF) { }
//SequenceOfItems(VL const &vl = 0xFFFFFFFF):SequenceLengthField(vl),NType(type) { }

VL GetLength() const override { return SequenceLengthField; }
void SetLength(VL length) override {
  SequenceLengthField = length;
}
void SetLengthToUndefined();
bool IsUndefinedLength() const {
  return SequenceLengthField.IsUndefined();
}

template <typename TDE>
VL ComputeLength() const;

void Clear() override;

void AddItem(Item const &item);

Item & AddNewUndefinedLengthItem();

bool RemoveItemByIndex( const SizeType index );

bool IsEmpty() const { return Items.empty(); }
SizeType GetNumberOfItems() const {  return Items.size(); }
void SetNumberOfItems(SizeType n) {  Items.resize(n); }

/* WARNING: first item is #1 (see DICOM standard)
 *  Each Item shall be implicitly assigned an ordinal position starting with the value 1 for the
 * first Item in the Sequence, and incremented by 1 with each subsequent Item. The last Item in the
 * Sequence shall have an ordinal position equal to the number of Items in the Sequence.
 */
const Item &GetItem(SizeType position) const;
Item &GetItem(SizeType position);

SequenceOfItems &operator=(const SequenceOfItems &val) {
  SequenceLengthField = val.SequenceLengthField;
  Items = val.Items;
  return *this;
  }

template <typename TDE, typename TSwap>
std::istream &Read(std::istream &is, bool readvalues = true)
  {
  (void)readvalues;
  const Tag seqDelItem(0xfffe,0xe0dd);
  if( SequenceLengthField.IsUndefined() )
    {
    Item item;
    while( item.Read<TDE,TSwap>(is) && item.GetTag() != seqDelItem )
      {
      //gdcmDebugMacro( "Item: " « item );
      assert( item.GetTag() != seqDelItem );
      Items.push_back( item );
      item.Clear();
      }
    //assert( item.GetTag() == seqDelItem && item.GetVL() == 0 );
    }
  else
    {
    Item item;
    VL l = 0;
    //is.seekg( SequenceLengthField, std::ios::cur ); return is;
    while( l != SequenceLengthField )
      {
      try
        {
        item.Read<TDE,TSwap>(is);
        }
      catch( Exception &ex )
        {
        if( strcmp( ex.GetDescription(), "Changed Length" ) == 0 )
```

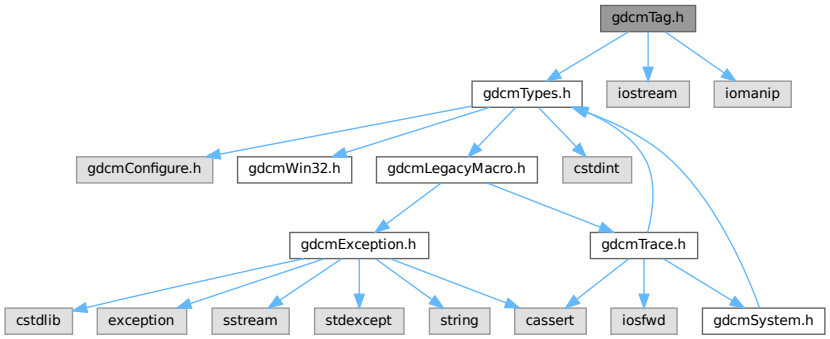
```
            {
            VL newlength = l + item.template GetLength<TDE>();
            if( newlength > SequenceLengthField )
              {
              // BogugsItemAndSequenceLength.dcm
              gdcmWarningMacro( "SQ length is wrong" );
              SequenceLengthField = newlength;
              }
            }
          else
            {
            throw ex;
            }
          }
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
        if( item.GetTag() == seqDelItem )
          {
          gdcmWarningMacro( "SeqDelItem found in defined length Sequence. Skipping" );
          assert( item.GetVL() == 0 );
          assert( item.GetNestedDataSet().Size() == 0 );
          // we need to pay attention that the length of the Sequence of Items will be wrong
          // this way. Indeed by not adding this item we are changing the size of this sqi
          }
        else // Not a seq del item marker
#endif
          {
          // By design we never load them. If we were to load those attribute
          // as normal item it would become very complex to convert a sequence
          // from defined length to undefined length with the risk to write two
          // seq del marker
          Items.push_back( item );
          }
        l += item.template GetLength<TDE>();
        if( l > SequenceLengthField )
          {
          gdcmDebugMacro( "Found: Length of Item larger than expected" );
          throw "Length of Item larger than expected";
          }
        assert( l <= SequenceLengthField );
        //std::cerr « "sqi debug len: " « is.tellg() « " " «  l « " " «  SequenceLengthField « std::endl;
#ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
        // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
        // (0x2005, 0x1080): for some reason computation of length fails...
        if( SequenceLengthField == 778 && l == 774 )
          {
          gdcmWarningMacro( "PMS: Super bad hack" );
          SequenceLengthField = l;
          throw Exception( "Wrong Length" );
          //l = SequenceLengthField;
          }
        // Bug_Philips_ItemTag_3F3F
        // (0x2005, 0x1080): Because we do not handle fully the bug at the item
        // level we need to check here too
        else if ( SequenceLengthField == 444 && l == 3*71 )
          {
          // This one is a double bug. Item length is wrong and impact SQ length
          gdcmWarningMacro( "PMS: Super bad hack" );
          l = SequenceLengthField;
          }
#endif
        }
      assert( l == SequenceLengthField );
      }
    return is;
    }

  template <typename TDE,typename TSwap>
  std::ostream const &Write(std::ostream &os) const
    {
    typename ItemVector::const_iterator it = Items.begin();
    for(;it != Items.end(); ++it)
      {
      it->Write<TDE,TSwap>(os);
      }
    if( SequenceLengthField.IsUndefined() )
      {
      // seq del item is not stored, write it !
      const Tag seqDelItem(0xfffe,0xe0dd);
      seqDelItem.Write<TSwap>(os);
      VL zero = 0;
      zero.Write<TSwap>(os);
```

```
      }

    return os;
    }

//protected:
  void Print(std::ostream &os) const override {
    os « "\t(" « SequenceLengthField « ")\n";
    ItemVector::const_iterator it =
      Items.begin();
    for(;it != Items.end(); ++it)
      {
      os « "  " « *it;
      }
    if( SequenceLengthField.IsUndefined() )
      {
      const Tag seqDelItem(0xfffe,0xe0dd);
      VL zero = 0;
      os « seqDelItem;
      os « "\t" « zero;
      }
  }

  static SmartPointer<SequenceOfItems> New()
  {
     return new SequenceOfItems;
  }
  bool FindDataElement(const Tag &t) const;

  bool operator==(const Value &val) const override
    {
    const SequenceOfItems &sqi = dynamic_cast<const SequenceOfItems&>(val);
    return SequenceLengthField == sqi.SequenceLengthField &&
      Items == sqi.Items;
    }

private:
public:
  VL SequenceLengthField;
  ItemVector Items;
};

} // end namespace gdcm_ns

#include "gdcmSequenceOfItems.txx"

#endif //GDCMSEQUENCEOFITEMS_H
```

11.175 gdcmTag.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmTag.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Tag &_val)
- std::istream & gdcm::operator>> (std::istream &_is, Tag &_val)

11.176 gdcmTag.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTAG_H
#define GDCMTAG_H

#include "gdcmTypes.h"

#include <iostream>
#include <iomanip>

namespace gdcm
{

class GDCM_EXPORT Tag
{
public:
  Tag(uint16_t group, uint16_t element) {
    ElementTag.tags[0] = group; ElementTag.tags[1] = element;
  }
  Tag(uint32_t tag = 0) {
    SetElementTag(tag);
  }

  friend std::ostream& operator«(std::ostream &_os, const Tag &_val);
  friend std::istream& operator»(std::istream &_is, Tag &_val);

  uint16_t GetGroup() const { return ElementTag.tags[0]; }
  uint16_t GetElement() const { return ElementTag.tags[1]; }
  void SetGroup(uint16_t group) { ElementTag.tags[0] = group; }
  void SetElement(uint16_t element) { ElementTag.tags[1] = element; }
  void SetElementTag(uint16_t group, uint16_t element) {
    ElementTag.tags[0] = group; ElementTag.tags[1] = element;
  }

  uint32_t GetElementTag() const {
#ifndef GDCM_WORDS_BIGENDIAN
    return (ElementTag.tag«16) | (ElementTag.tag»16);
#else
    return ElementTag.tag;
#endif
  }

  void SetElementTag(uint32_t tag) {
#ifndef GDCM_WORDS_BIGENDIAN
    tag = ( (tag«16) | (tag»16) );
#endif
    ElementTag.tag = tag;
  }

  const uint16_t &operator[](const unsigned int &_id) const
    {
    assert(_id<2);
    return ElementTag.tags[_id];
    }
  uint16_t &operator[](const unsigned int &_id)
    {
    assert(_id<2);
    return ElementTag.tags[_id];
    }

  Tag &operator=(const Tag &_val)
    {
    ElementTag.tag = _val.ElementTag.tag;
    return *this;
    }

  bool operator==(const Tag &_val) const
    {
    return ElementTag.tag == _val.ElementTag.tag;
    }
  bool operator!=(const Tag &_val) const
    {
    return ElementTag.tag != _val.ElementTag.tag;
    }

  // FIXME FIXME FIXME TODO
  // the following is pretty dumb. Since we have control over who is group
  // and who is element, we should reverse them in little endian and big endian case
```

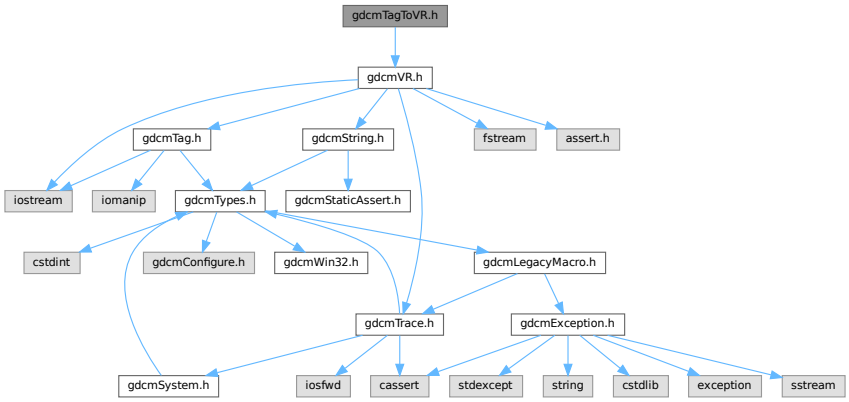
```
  // since what we really want is fast comparison and not guarantee that group is in #0
  // ...
  bool operator<(const Tag &_val) const
    {
#ifndef GDCM_WORDS_BIGENDIAN
    if( ElementTag.tags[0] < _val.ElementTag.tags[0] )
      return true;
    if( ElementTag.tags[0] == _val.ElementTag.tags[0]
      && ElementTag.tags[1] <  _val.ElementTag.tags[1] )
      return true;
    return false;
#else
    // Plain comparison is enough!
    return ( ElementTag.tag < _val.ElementTag.tag );
#endif
    }
  bool operator<=(const Tag &t2) const
    {
    const Tag &t1 = *this;
    return t1 == t2 || t1 < t2;
    }

  Tag(const Tag &_val)
    {
    ElementTag.tag = _val.ElementTag.tag;
    }
  uint32_t GetLength() const { return 4; }

  bool IsPublic() const { return !(ElementTag.tags[0] % 2); }

  bool IsPrivate() const { return !IsPublic(); }

  //-----------------------------------------------------------------------------
  template <typename TSwap>
  std::istream &Read(std::istream &is)
    {
    if( is.read(ElementTag.bytes, 4) )
      TSwap::SwapArray(ElementTag.tags, 2);
    return is;
    }

  template <typename TSwap>
  const std::ostream &Write(std::ostream &os) const
    {
    uint16_t copy[2];
    copy[0]= ElementTag.tags[0];
    copy[1]= ElementTag.tags[1];
    TSwap::SwapArray(copy, 2);
    return os.write((char*)(&copy), 4);
    }

  Tag GetPrivateCreator() const
    {
    // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
    // eg: 0x0123,0x1425 -> 0x0123,0x0014
    if( IsPrivate() && !IsPrivateCreator() )
      {
      Tag r = *this;
      r.SetElement( (uint16_t)(GetElement() » 8) );
      return r;
      }
    if( IsPrivateCreator() ) return *this;
    return Tag(0x0,0x0);
    }
  void SetPrivateCreator(Tag const &t)
    {
    // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
    // eg: 0x0123,0x0045 -> 0x0123,0x4567
    assert( t.IsPrivate() /*&& t.IsPrivateCreator()*/ );
    const uint16_t element = (uint16_t)(t.GetElement() « 8);
    const uint16_t base = (uint16_t)(GetElement() « 8);
    SetElement( (uint16_t)((base » 8) + element) );
    SetGroup( t.GetGroup() );
    }

  bool IsPrivateCreator() const
    {
    return IsPrivate() && (GetElement() <= 0xFF && GetElement() >= 0x10);
    }

  bool IsIllegal() const
```

```
    {
    // DICOM reserved those groups:
    return GetGroup() == 0x0001 || GetGroup() == 0x0003 || GetGroup() == 0x0005 || GetGroup() == 0x0007
    // This is a very special case, in private group, one cannot use element [0x01,0x09] ...
//      || (IsPrivate() && !IsPrivateCreator() && !IsGroupLength());
      || (IsPrivate() && GetElement() > 0x0 && GetElement() < 0x10 );
    }

  bool IsGroupLength() const
    {
    return GetElement() == 0x0;
    }

  bool IsGroupXX(const Tag &t) const
    {
    if( t.GetElement() == GetElement() )
      {
      if( t.IsPrivate() ) return false;
      uint16_t group = (uint16_t)((GetGroup() » 8 ) « 8);
      return group == t.GetGroup();
      }
    return false;
    }

  bool ReadFromCommaSeparatedString(const char *str);

  bool ReadFromContinuousString(const char *str);

  std::string PrintAsContinuousString() const;

  std::string PrintAsContinuousUpperCaseString() const;

  bool ReadFromPipeSeparatedString(const char *str);

  std::string PrintAsPipeSeparatedString() const;

private:
  union { uint32_t tag; uint16_t tags[2]; char bytes[4]; } ElementTag;
};
//-----------------------------------------------------------------------------
inline std::istream& operator»(std::istream &_is, Tag &_val)
{
  char c;
  _is » c;
  uint16_t a, b;
  _is » std::hex » a;
  //_is » std::hex » _val[0];
  //_is » std::hex » _val.ElementTag.tags[0];
  _is » c;
  //_is » _val[1];
  //_is » std::hex » _val.ElementTag.tags[1];
  _is » std::hex » b;
  _is » c;
  _val.SetGroup( a );
  _val.SetElement( b );
  return _is;
}

inline std::ostream& operator«(std::ostream &_os, const Tag &_val)
{
  _os.setf( std::ios::right);
  _os « std::hex « '(' « std::setw( 4 ) « std::setfill( '0' )
    « _val[0] « ',' « std::setw( 4 ) « std::setfill( '0' )
    « _val[1] « ')' « std::setfill( ' ' ) « std::dec;
  return _os;
}

} // end namespace gdcm

#endif //GDCMTAG_H
```

11.177 gdcmTagToVR.h File Reference

`#include "gdcmVR.h"`

Include dependency graph for gdcmTagToVR.h:



Namespaces

- namespace gdcm

Functions

- VR::VRType gdcm::GetVRFromTag (Tag const &tag)

11.178 gdcmTagToVR.h

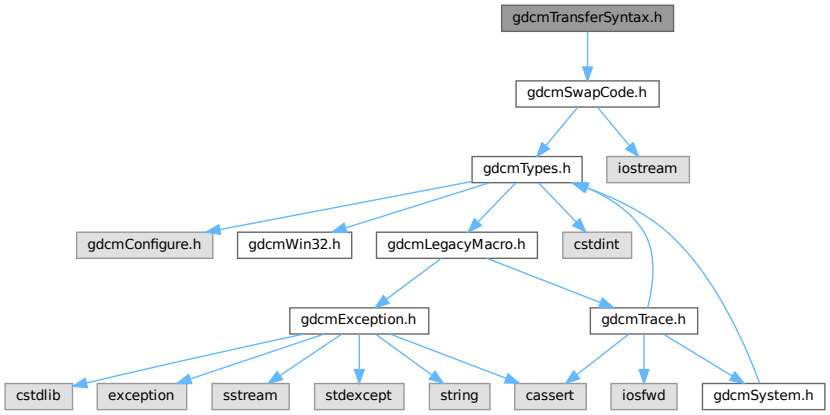
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTAGTOVR_H
#define GDCMTAGTOVR_H

#include "gdcmVR.h"

namespace gdcm
{
  class Tag;
  VR::VRType GetVRFromTag( Tag const & tag );
}

#endif // GDCMTAGTOVR_H
```

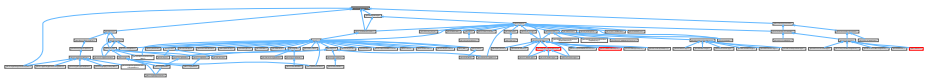
11.179 gdcmTransferSyntax.h File Reference

```
#include "gdcmSwapCode.h"
```

Include dependency graph for gdcmTransferSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TransferSyntax

  Class to manipulate Transfer Syntax.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const TransferSyntax &ts)

11.180 gdcmTransferSyntax.h

Go to the documentation of this file.

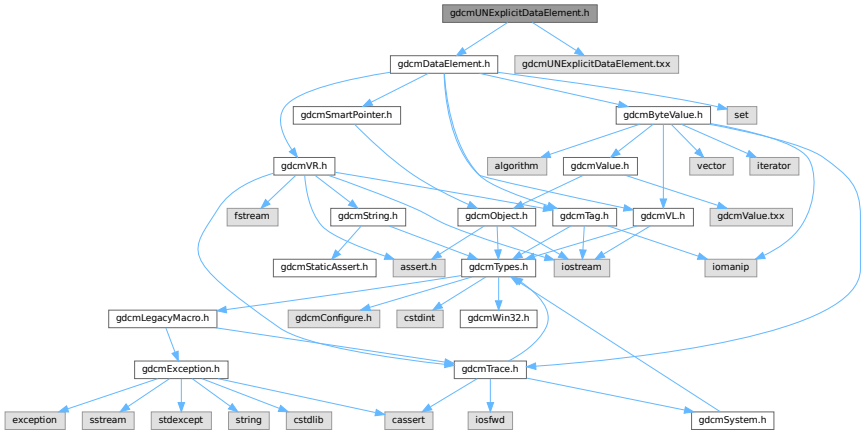
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTRANSFERSYNTAX_H
#define GDCMTRANSFERSYNTAX_H

#include "gdcmSwapCode.h"

namespace gdcm
{

class GDCM_EXPORT TransferSyntax
{
public:
  typedef enum {
    Unknown = 0,
    Explicit,
    Implicit
  } NegociatedType;

#if 0
  //NOT FLEXIBLE, since forces user to update lib every time new module
  //comes out...
  // TODO
  typedef enum {
    NoSpacing = 0,
    PixelSpacing,
    ImagerPixelSpacing,
    PixelAspectRatio
  } ImageSpacingType;
  ImageSpacingType GetImageSpacing();
#endif

  typedef enum {
    ImplicitVRLittleEndian = 0,
    ImplicitVRBigEndianPrivateGE,
    ExplicitVRLittleEndian,
    DeflatedExplicitVRLittleEndian,
    ExplicitVRBigEndian,
    JPEGBaselineProcess1,
    JPEGExtendedProcess2_4,
    JPEGExtendedProcess3_5,
    JPEGSpectralSelectionProcess6_8,
    JPEGFullProgressionProcess10_12,
    JPEGLosslessProcess14,
    JPEGLosslessProcess14_1,
    JPEGLSLossless,
    JPEGLSNearLossless,
    JPEG2000Lossless,
    JPEG2000,
    JPEG2000Part2Lossless,
    JPEG2000Part2,
    RLELossless,
    MPEG2MainProfile,
    ImplicitVRBigEndianACRNEMA,
    WeirdPapryus,
    CT_private_ELE,
    JPIPReferenced,
    MPEG2MainProfileHighLevel,
    MPEG4AVCH264HighProfileLevel4_1,
    MPEG4AVCH264BDcompatibleHighProfileLevel4_1,
    TS_END
  } TSType;

  // Return the string as written in the official DICOM dict from
  // a custom enum type
```

```
  static const char* GetTSString(TSType ts);
  static TSType GetTSType(const char *str);

  NegociatedType GetNegociatedType() const;

  SwapCode GetSwapCode() const;

  bool IsValid() const { return TSField != TS_END; }

  operator TSType () const { return TSField; }

  // FIXME: ImplicitVRLittleEndian used to be the default, but nowadays
  // this is rather the ExplicitVRLittleEndian instead...should be change the default ?
  TransferSyntax(TSType type = ImplicitVRLittleEndian):TSField(type) {}

  // return if dataset is encoded or not (Deflate Explicit VR)
  bool IsEncoded() const;

  bool IsImplicit() const;
  bool IsExplicit() const;

  bool IsEncapsulated() const;

  bool IsLossy() const;
  bool IsLossless() const;
  bool CanStoreLossy() const;

  const char *GetString() const { return TransferSyntax::GetTSString(TSField); }

  friend std::ostream &operator«(std::ostream &os, const TransferSyntax &ts);
private:
  // DO NOT EXPOSE the following. Internal details of TransferSyntax
bool IsImplicit(TSType ts) const;
bool IsExplicit(TSType ts) const;
bool IsLittleEndian(TSType ts) const;
bool IsBigEndian(TSType ts) const;

  TSType TSField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const TransferSyntax &ts)
{
  _os « TransferSyntax::GetTSString(ts);
  return _os;

}

} // end namespace gdcm

#endif //GDCMTRANSFERSYNTAX_H
```

11.181 gdcmUNExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitDataElement.h:



Classes

- class gdcm::UNExplicitDataElement

  Class to read/write a DataElement as UNExplicit Data Element.

Namespaces

- namespace gdcm

11.182 gdcmUNExplicitDataElement.h

Go to the documentation of this file.

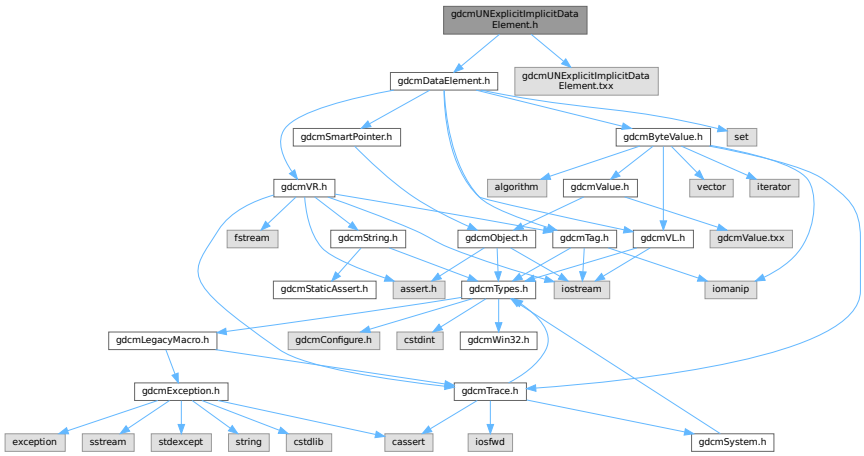
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUNEXPLICITDATAELEMENT_H
#define GDCMUNEXPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm
{
// Data Element (UNExplicit)
class GDCM_EXPORT UNExplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

```

```
  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL & length);

  // PURPOSELY do not provide an implementation for writing !
  //template <typename TSwap>
  //const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm

#include "gdcmUNExplicitDataElement.txx"

#endif //GDCMUNEXPLICITDATAELEMENT_H
```

11.183 gdcmUNExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitImplicitDataElement.h:



Classes

- class gdcm::UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

11.184 gdcmUNExplicitImplicitDataElement.h

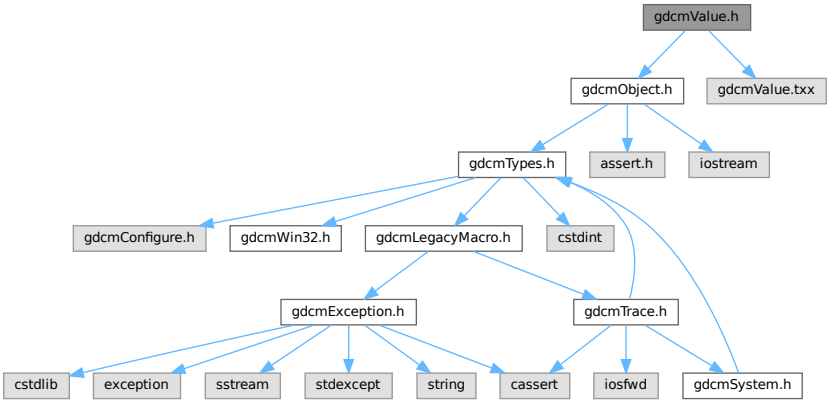
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUNEXPLICITIMPLICITDATAELEMENT_H
#define GDCMUNEXPLICITIMPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm
{
// Data Element (ExplicitImplicit)
class GDCM_EXPORT UNExplicitImplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is);

  // PURPOSELY do not provide an implementation for writing !
  //template <typename TSwap>
  //const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm

#include "gdcmUNExplicitImplicitDataElement.txx"

#endif //GDCMUNEXPLICITIMPLICITDATAELEMENT_H
```

11.185 gdcmValue.h File Reference

```
#include "gdcmObject.h"
#include "gdcmValue.txx"
```

Include dependency graph for gdcmValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Value

  Class to represent the value of a Data Element.

Namespaces

- namespace gdcm

11.186 gdcmValue.h

Go to the documentation of this file.

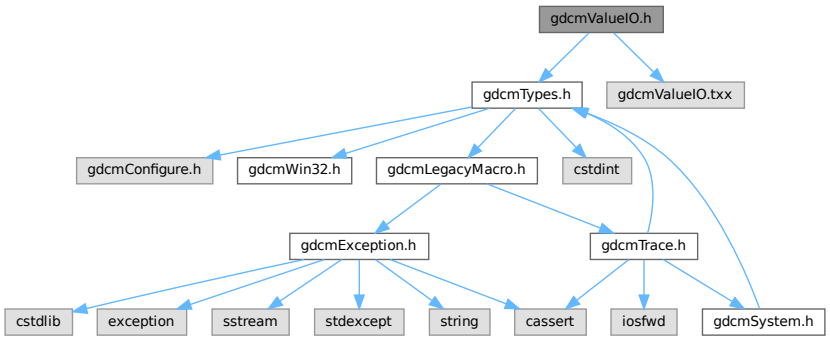
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

```
#ifndef GDCMVALUE_H
#define GDCMVALUE_H

#include "gdcmObject.h"

namespace gdcm { class VL; }
namespace gdcm_ns
{
#if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
using namespace gdcm;
#endif
class GDCM_EXPORT Value : public Object
{
public:
  Value() = default;
  ~Value() override = default;

  virtual VL GetLength() const = 0;
  virtual void SetLength(VL l) = 0;

  virtual void Clear() = 0;

  virtual bool operator==(const Value &val) const = 0;

protected:
  friend class DataElement;
  virtual void SetLengthOnly(VL l);
};

} // end namespace gdcm_ns

#include "gdcmValue.txx"

#endif //GDCMVALUE_H
```

11.187 gdcmValueIO.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmValueIO.txx"
```

Include dependency graph for gdcmValueIO.h:



Classes

- class gdcm::ValueIO< TDE, TSwap, TType >

  Class to dispatch template calls.

Namespaces

- namespace gdcm

11.188 gdcmValueIO.h

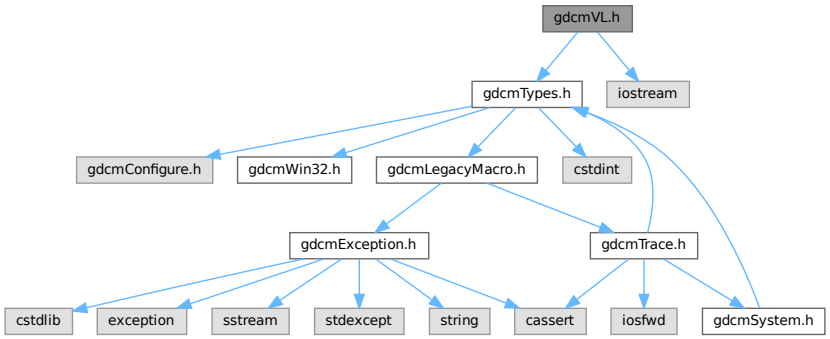
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMVALUEIO_H
#define GDCMVALUEIO_H

#include "gdcmTypes.h"

namespace gdcm_ns
{
template <typename TDE, typename TSwap, typename TType=uint8_t>
class /*GDCM_EXPORT*/ ValueIO
{
public:
  static std::istream &Read(std::istream &is, Value& v, bool readvalues);

  static const std::ostream &Write(std::ostream &os, const Value& v);
};

} // end namespace gdcm_ns

#include "gdcmValueIO.txx"

#endif //GDCMVALUEIO_H
```

11.189 gdcmVL.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVL.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VL

  Value Length.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const VL &val)

11.190 gdcmVL.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVL_H
00015 #define GDCMVL_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00029 class GDCM_EXPORT VL
00030 {
00031 public:
00032   typedef uint32_t Type;
00033   VL(uint32_t vl = 0) : ValueLength(vl) { }
00034
00035   // FIXME: ugly
00036   static uint32_t GetVL32Max() { return 0xFFFFFFFF; }
00037   static uint16_t GetVL16Max() { return 0xFFFF; }
00038
00039   bool IsUndefined() const {
00040     return ValueLength == 0xFFFFFFFF;
00041   }
```

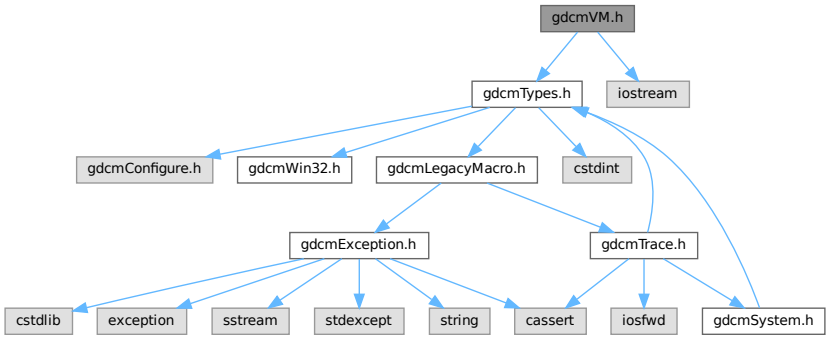
```
  void SetToUndefined() {
    ValueLength = 0xFFFFFFFF;
  }

  bool IsOdd() const {
    return !IsUndefined() && ValueLength % 2;
  }

  VL& operator+=(VL const &vl) {
    ValueLength += vl.ValueLength;
    return *this;
  }
  VL& operator++() {
    ++ValueLength;
    return *this;
  }
  VL operator++(int) {
    uint32_t tmp(ValueLength);
    ++ValueLength;
    return tmp;
  }

  operator uint32_t () const { return ValueLength; }

  VL GetLength() const {
    // VL cannot know it's length...well in implicit yes...
    // TODO: need to check we cannot call this function from an Explicit element
    return 4;
  }

  friend std::ostream& operator«(std::ostream& os, const VL& vl);

  // PURPOSELY not implemented (could not differentiate 16bits vs 32bits VL)
  //friend std::istream& operator»(std::istream& is, VL& n);

  template <typename TSwap>
  std::istream &Read(std::istream &is)
    {
    is.read((char*)(&ValueLength), sizeof(uint32_t));
    TSwap::SwapArray(&ValueLength,1);
    return is;
    }

  template <typename TSwap>
  std::istream &Read16(std::istream &is)
    {
    uint16_t copy;
    is.read((char*)(&copy), sizeof(uint16_t));
    TSwap::SwapArray(&copy,1);
    ValueLength = copy;
    assert( ValueLength <=  65535 /*UINT16_MAX*/ ); // ?? doh !
    return is;
    }

  template <typename TSwap>
  const std::ostream &Write(std::ostream &os) const
    {
    uint32_t copy = ValueLength;
    if( IsOdd() )
      {
      ++copy;
      }
    TSwap::SwapArray(&copy,1);
    return os.write((char*)(&copy), sizeof(uint32_t));
    }

  template <typename TSwap>
  const std::ostream &Write16(std::ostream &os) const
    {
    assert( ValueLength <=   65535 /*UINT16_MAX*/ );
    uint16_t copy = (uint16_t)ValueLength;
    if( IsOdd() )
      {
      ++copy;
      }
    TSwap::SwapArray(&copy,1);
    return os.write((char*)(&copy), sizeof(uint16_t));
    }

private:
  uint32_t ValueLength;
```

```
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const VL& val)
{
  os « /*std::hex «*/ val.ValueLength;
  return os;
}

} // end namespace gdcm

#endif //GDCMVL_H
```

11.191 gdcmVM.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVM.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VM

  Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

Namespaces

- namespace gdcm

Macros

- #define TYPETOLENGTH(type, length)

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const VM &_val)

11.191.1 Macro Definition Documentation

11.191.1.1 TYPETOLENGTH

```
#define TYPETOLENGTH(
            type,
            length )
```

Value:

```
template<> struct VMToLength<VM::type> \
{ enum { Length = length }; };
```

11.192 gdcmVM.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMVM_H
#define GDCMVM_H

#include "gdcmTypes.h"
#include <iostream>

namespace gdcm
{

class GDCM_EXPORT VM
{
public:
  typedef enum {
    VM0 = 0, // aka the invalid VM
    VM1 = 1,
    VM2 = 2,
    VM3 = 4,
    VM4 = 8,
    VM5 = 16,
    VM6 = 32,
    VM8 = 64,
    VM9 = 128,
    VM10 = 256,
    VM12 = 512, //1024,
    VM16 = 1024, //2048,
    VM18 = 2048, //4096,
```

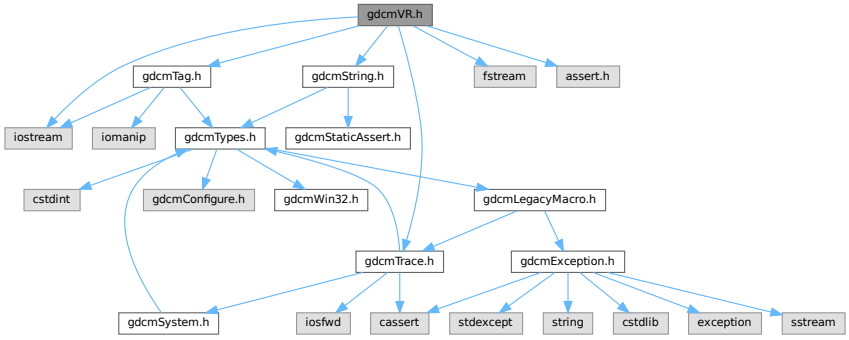
```
    VM24 = 4096, //8192,
    VM28 = 8192, //16384,
    VM32 = 16384, //32768,
    VM35 = 32768, //65536,
    VM99 = 65536, //131072,
    VM256 = 131072, //262144,
    VM1_2  = VM1 | VM2,
    VM1_3  = VM1 | VM2 | VM3,
    VM1_4  = VM1 | VM2 | VM3 | VM4,
    VM1_5  = VM1 | VM2 | VM3 | VM4 | VM5,
    VM1_8  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8,
// The following need some work:
    VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32,
    VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99,
    VM1_n  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
    VM2_2n =       VM2       | VM4       | VM6 | VM8       | VM16 | VM24 | VM32        | VM256,
    VM2_n  =       VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
    VM3_4  =             VM3 | VM4,
    VM3_3n =             VM3 |             VM6        | VM9        | VM24        | VM99 | VM256,
    VM3_n  =             VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
    VM4_4n =                   VM4                          | VM16 | VM24 | VM32        | VM256,
    VM6_6n =                               VM6              | VM12 | VM18 | VM24                ,
    VM6_n  =                               VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
    VM7_7n,
    VM30_30n,
    VM47_47n,
    VM_END = VM1_n + 1  // Custom tag to count number of entry
  } VMType;

  static const char* GetVMString(VMType vm);
  static VMType GetVMType(const char *vm);

  static bool IsValid(int vm1, VMType vm2);
  //bool IsValid() { return VMField != VM0 && VMField < VM_END; }

  bool Compatible(VM const &vm) const;

  static VMType GetVMTypeFromLength(size_t length, unsigned int size);
  static size_t GetNumberOfElementsFromArray(const char *array, size_t length);

  VM(VMType type = VM0):VMField(type) {}
  operator VMType () const { return VMField; }
  unsigned int GetLength() const;

  friend std::ostream &operator«(std::ostream &os, const VM &vm);
protected:
  static unsigned int GetIndex(VMType vm);

private:
  VMType VMField;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const VM &_val)
{
  assert( VM::GetVMString(_val) );
  _os « VM::GetVMString(_val);
  return _os;
}

//template <int TVM> struct LengthToVM;
//template <> struct LengthToVM<1>
//{ enum { TVM = VM::VM1 }; };

template<int T> struct VMToLength;
#define TYPETOLENGTH(type,length) \
  template<> struct VMToLength<VM::type> \
  { enum { Length = length }; };
// TODO: Could be generated from XML file
//TYPETOLENGTH(VM0,1)
TYPETOLENGTH(VM1,1)
TYPETOLENGTH(VM2,2)
TYPETOLENGTH(VM3,3)
TYPETOLENGTH(VM4,4)
TYPETOLENGTH(VM5,5)
TYPETOLENGTH(VM6,6)
TYPETOLENGTH(VM8,8)
TYPETOLENGTH(VM9,9)
TYPETOLENGTH(VM10,10)
TYPETOLENGTH(VM12,12)
TYPETOLENGTH(VM16,16)
TYPETOLENGTH(VM18,18)
```

```
TYPETOLENGTH(VM24,24)
TYPETOLENGTH(VM28,28)
TYPETOLENGTH(VM32,32)
TYPETOLENGTH(VM35,35)
TYPETOLENGTH(VM99,99)
TYPETOLENGTH(VM256,256)
//TYPETOLENGTH(VM1_2,2)
//TYPETOLENGTH(VM1_3,3)
//TYPETOLENGTH(VM1_8,8)
//TYPETOLENGTH(VM1_32,32)
//TYPETOLENGTH(VM1_99,99)
//TYPETOLENGTH(VM1_n,
//TYPETOLENGTH(VM2_2n,
//TYPETOLENGTH(VM2_n,
//TYPETOLENGTH(VM3_3n,
//TYPETOLENGTH(VM3_n,

} // end namespace gdcm

#endif //GDCMVM_H
```

11.193 gdcmVR.h File Reference

```
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmString.h"
#include <iostream>
#include <fstream>
#include <assert.h>
```

Include dependency graph for gdcmVR.h:



This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::UI
- class gdcm::VR

  VR class.

Namespaces

- namespace gdcm

Macros

- #define TYPETOENCODING(type, rep, rtype)
- #define VRTypeTemplateCase(type)

Typedefs

- typedef String<'\\', 16 > gdcm::AEComp
- typedef String<'\\', 64 > gdcm::ASComp
- typedef String<'\\', 16 > gdcm::CSComp
- typedef String<'\\', 64 > gdcm::DAComp
- typedef String<'\\', 64 > gdcm::DTComp
- typedef String<'\\', 64 > gdcm::LOComp
- typedef String<'\\', 64 > gdcm::LTComp
- typedef String<'\\', 64 > gdcm::PNComp
- typedef String<'\\', 64 > gdcm::SHComp
- typedef String<'\\', 64 > gdcm::STComp
- typedef String<'\\', 16 > gdcm::TMComp
- typedef String<'\\', 4294967294 > gdcm::UCComp
- typedef String<'\\', 64, 0 > gdcm::UIComp
- typedef String<'\\', 4294967294 > gdcm::URComp
- typedef String<'\\', 64 > gdcm::UTComp

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UI &_val)
- std::ostream & gdcm::operator<< (std::ostream &_os, const VR &val)

11.193.1 Macro Definition Documentation

11.193.1.1 TYPETOENCODING

```
#define TYPETOENCODING(
            type,
            rep,
            rtype )
```

Value:

```
template<> struct VRToEncoding<VR::type>    \
{ enum:long long { Mode = VR::rep }; };                \
template<> struct VRToType<VR::type>        \
{ typedef rtype Type; };
```

11.193.1.2 VRTypeTemplateCase

```
#define VRTypeTemplateCase(
              type )
```

Value:

```
  case VR::type: \
    return sizeof ( VRToType<VR::type>::Type );
```

11.194 gdcmVR.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVR_H
00015 #define GDCMVR_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmTrace.h"
00019 #include "gdcmString.h"
00020
00021 #include <iostream>
00022 #include <fstream>
00023 #include <assert.h>
00024
00025 //these defines are here to ensure compilation on sunos gcc
00026 #if defined (CS)
00027 # undef CS
00028 #endif
00029 #if defined (DS)
00030 # undef DS
00031 #endif
00032 #if defined (SS)
00033 # undef SS
00034 #endif
00035
00036
00037 namespace gdcm
00038 {
00039
00054 class GDCM_EXPORT VR
00055 {
00056 public:
00057   enum VRType : long long {
00058     // Warning: Do not write if ( vr & VR::INVALID ) but if ( vr == VR::INVALID )
00059     INVALID = 0, // For Item/(Seq) Item Delimitation Item
00060     AE = 1,
00061     AS = 2,
00062     AT = 4,
00063     CS = 8,
00064     DA = 16,
00065     DS = 32,
00066     DT = 64,
00067     FD = 128,
00068     FL = 256,
00069     IS = 512,
00070     LO = 1024,
00071     LT = 2048,
00072     OB = 4096,
00073     OD = 134217728, // 2^27
00074     OF = 8192,
```

```
    OL = 268435456, // 2^28
    OV = 2147483648, // 2^31
    OW = 16384,
    PN = 32768,
    SH = 65536,
    SL = 131072,
    SQ = 262144,
    SS = 524288,
    ST = 1048576,
    SV = 4294967296, // 2^32
    TM = 2097152,
    UC = 536870912, // 2^29
    UI = 4194304,
    UL = 8388608,
    UN = 16777216,
    UR = 1073741824, // 2^30
    US = 33554432,
    UT = 67108864,
    UV = 8589934592, // 2^33
    OB_OW = OB | OW,
    US_SS = US | SS,
    US_SS_OW = US | SS | OW,
    US_OW = US | OW,
    // The following do not have a VRString equivalent (ie cannot be found in PS 3.6)
    VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI | UL | US, // if( VR & VL16 ) => VR has its VL coded over 16bits
    VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV, // if( VR & VL32 ) => VR has its VL coded over 32bits
    VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT,
    VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV, // FIXME: UN ?
    // PS 3.5:
    // Data Elements with a VR of SQ, OD, OF, OL, OW, OB or UN shall always have a Value Multiplicity of one.
    // GDCM is adding a couple more: AS, LT, ST, UT
    VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN, // All those VR have a VM1
    VRALL = VRASCII | VRBINARY,
    VR_END = UV+1  // Invalid VR, need to be max(VRType)+1
  };

  static const char *GetVRString(VRType vr);

  // This function will only look at the very first two chars nothing else
  static VRType GetVRTypeFromFile(const char *vr);

  // You need to make sure end of string is \0
  static VRType GetVRType(const char *vr);
  static const char *GetVRStringFromFile(VRType vr);

  static bool IsValid(const char *vr);
  // Check if vr1 is valid against vr2,
  // Typically vr1 is read from the file and vr2 is taken from the dict
  static bool IsValid(const char *vr1, VRType vr2);
  //static bool IsValid(const VRType &vr1, const VRType &vr2);
  // Find out if the string read is byte swapped
  static bool IsSwap(const char *vr);

  // Size read on disk
  // FIXME: int ?
  int GetLength() const {
    return VR::GetLength(VRField);
  }
  unsigned int GetSizeof() const;
  static uint32_t GetLength(VRType vr) {
    //if( vr == VR::INVALID ) return 4;
    if( vr & VL32 )
      {
      return 4;
      }
    else
      return 2;
  }

  // Some use of template metaprograming with ugly macro
  static bool IsBinary(VRType vr);
  static bool IsASCII(VRType vr);
  // TODO: REMOVE ME
  static bool CanDisplay(VRType vr);
  // TODO: REMOVE ME
  static bool IsBinary2(VRType vr);
  // TODO: REMOVE ME
```

```
  static bool IsASCII2(VRType vr);

  VR(VRType vr = INVALID):VRField(vr) { }
  //VR(VR const &vr):VRField(vr.VRField) { }
  std::istream &Read(std::istream &is)
    {
    char vr[2];
    is.read(vr, 2);
    VRField = GetVRTypeFromFile(vr);
    assert( VRField != VR::VR_END );
    if( VRField == VR::INVALID )
    {
      // \0\2 Data/TheralysGDCM120Bug.dcm
      // \0\0 Data/MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
      // \0\4 Data/BugGDCM2_UndefItemWrongVL.dcm
      // \44\0 Data/gdcm-MR-PHILIPS-16-Multi-Seq.dcm
      // \0\20 Data/ExplicitVRforPublicElementsImplicitVRforShadowElements.dcm
      // \0\3 Data/DMCPACS_ExplicitImplicit_BogusIOP.dcm
      // \0\4 Data/THERALYS-12-MONO2-Uncompressed-Even_Length_Tag.dcm
      // \0\4 Data/PrivateGEImplicitVRBigEndianTransferSyntax16Bits.dcm
      // \0\4 Data/GE_DLX-8-MONO2-PrivateSyntax.dcm
      throw Exception( "INVALID VR" );
    }
    if( VRField & VL32 )
      {
#if 0
      // For some reason this seems slower on my linux box...
      is.seekg(2, std::ios::cur );
#else
      char dumb[2];
      is.read(dumb, 2);
      if( !(dumb[0] == 0 && dumb[1] == 0 ))
        {
        // JDDICOM_Sample4.dcm
        gdcmDebugMacro( "32bits VR contains non zero bytes. Skipped" );
        }
#endif
      }
    return is;
    }

  const std::ostream &Write(std::ostream &os) const
    {
    VRType vrfield = VRField;
    gdcmAssertAlwaysMacro( !IsDual() );
    if( vrfield == VR::INVALID )
      {
      //vrfield = VR::UN;
      }
    const char *vr = GetVRString(vrfield);
    //assert( strlen( vr ) == 2 );
    assert( vr[0] && vr[1] && vr[2] == 0 );
    os.write(vr, 2);
    // See PS 3.5, Data Element Structure With Explicit VR
    if( vrfield & VL32 )
      {
      const char dumb[2] = {0, 0};
      os.write(dumb,2);
      }
    return os;
    }
  friend std::ostream &operator«(std::ostream &os, const VR &vr);

  operator VRType () const { return VRField; }

  unsigned int GetSize() const;

  bool Compatible(VR const &vr) const;

  bool IsVRFile() const;

  bool IsDual() const;

private:
  // Internal function that map a VRType to an index in the VRStrings table
  static unsigned int GetIndex(VRType vr);
  VRType VRField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const VR &val)
```

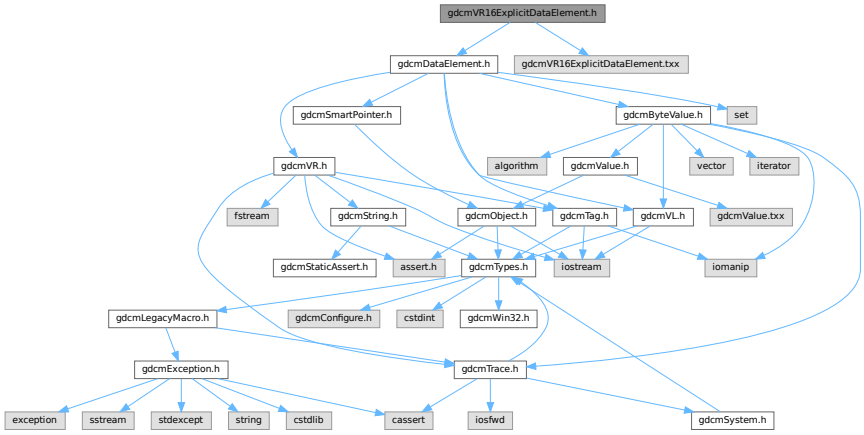
```
{
  //_os « VR::GetVRStringFromFile(val.VRField);
  _os « VR::GetVRString(val.VRField);
  return _os;
}

// Apparently SWIG is not happy with something, somewhere below...
#ifndef SWIG

// Tells whether VR Type is ASCII or Binary
template<long long T> struct VRToEncoding;
// Convert from VR Type to real underlying type
template<long long T> struct VRToType;
#define TYPETOENCODING(type,rep, rtype)          \
  template<> struct VRToEncoding<VR::type>    \
  { enum:long long { Mode = VR::rep }; };                  \
  template<> struct VRToType<VR::type>        \
  { typedef rtype Type; };


// Do not use me
struct UI { char Internal[64+1];
  friend std::ostream& operator«(std::ostream &_os, const UI &_val);
};
inline std::ostream& operator«(std::ostream &_os, const UI &_val)
{
  _os « _val.Internal;
  return _os;
}

typedef String<'\\',16> AEComp;
typedef String<'\\',64> ASComp;
typedef String<'\\',16> CSComp;
typedef String<'\\',64> DAComp;
typedef String<'\\',64> DTComp;
typedef String<'\\',64> LOComp;
typedef String<'\\',64> LTComp;
typedef String<'\\',64> PNComp;
typedef String<'\\',64> SHComp;
typedef String<'\\',64> STComp;
typedef String<'\\',4294967294> UCComp;
typedef String<'\\',4294967294> URComp;
typedef String<'\\',16> TMComp;
typedef String<'\\',64,0> UIComp;
typedef String<'\\',64> UTComp;


// TODO: Could be generated from XML file
TYPETOENCODING(AE,VRASCII ,AEComp)
TYPETOENCODING(AS,VRASCII ,ASComp)
TYPETOENCODING(AT,VRBINARY,Tag)
TYPETOENCODING(CS,VRASCII ,CSComp)
TYPETOENCODING(DA,VRASCII ,DAComp)
TYPETOENCODING(DS,VRASCII ,double)
TYPETOENCODING(DT,VRASCII ,DTComp)
TYPETOENCODING(FL,VRBINARY,float)
TYPETOENCODING(FD,VRBINARY,double)
TYPETOENCODING(IS,VRASCII ,int32_t)
TYPETOENCODING(LO,VRASCII ,LOComp)
TYPETOENCODING(LT,VRASCII ,LTComp)
TYPETOENCODING(OB,VRBINARY,uint8_t)
TYPETOENCODING(OD,VRBINARY,double)
TYPETOENCODING(OF,VRBINARY,float)
TYPETOENCODING(OL,VRBINARY,uint32_t)
TYPETOENCODING(OV,VRBINARY,uint64_t)
TYPETOENCODING(OW,VRBINARY,uint16_t)
TYPETOENCODING(PN,VRASCII ,PNComp)
TYPETOENCODING(SH,VRASCII ,SHComp)
TYPETOENCODING(SL,VRBINARY,int32_t)
TYPETOENCODING(SQ,VRBINARY,unsigned char) // FIXME
TYPETOENCODING(SS,VRBINARY,int16_t)
TYPETOENCODING(ST,VRASCII ,STComp)
TYPETOENCODING(SV,VRBINARY,int64_t)
TYPETOENCODING(TM,VRASCII ,TMComp)
TYPETOENCODING(UC,VRASCII ,UCComp)
TYPETOENCODING(UI,VRASCII ,UIComp)
TYPETOENCODING(UL,VRBINARY,uint32_t)
TYPETOENCODING(UN,VRBINARY,uint8_t) // FIXME ?
TYPETOENCODING(UR,VRASCII,URComp)
TYPETOENCODING(US,VRBINARY,uint16_t)
TYPETOENCODING(UT,VRASCII ,UTComp)
```

```
TYPETOENCODING(UV,VRBINARY,uint64_t)

#define VRTypeTemplateCase(type) \
  case VR::type: \
    return sizeof ( VRToType<VR::type>::Type );

inline unsigned int VR::GetSize() const
{
  switch(VRField)
  {
    VRTypeTemplateCase(AE)
    VRTypeTemplateCase(AS)
    VRTypeTemplateCase(AT)
    VRTypeTemplateCase(CS)
    VRTypeTemplateCase(DA)
    VRTypeTemplateCase(DS)
    VRTypeTemplateCase(DT)
    VRTypeTemplateCase(FL)
    VRTypeTemplateCase(FD)
    VRTypeTemplateCase(IS)
    VRTypeTemplateCase(LO)
    VRTypeTemplateCase(LT)
    VRTypeTemplateCase(OB)
    VRTypeTemplateCase(OD)
    VRTypeTemplateCase(OF)
    VRTypeTemplateCase(OL)
    VRTypeTemplateCase(OV)
    VRTypeTemplateCase(OW)
    VRTypeTemplateCase(PN)
    VRTypeTemplateCase(SH)
    VRTypeTemplateCase(SL)
    VRTypeTemplateCase(SQ)
    VRTypeTemplateCase(SS)
    VRTypeTemplateCase(ST)
    VRTypeTemplateCase(SV)
    VRTypeTemplateCase(TM)
    VRTypeTemplateCase(UC)
    VRTypeTemplateCase(UI)
    VRTypeTemplateCase(UL)
    VRTypeTemplateCase(UN)
    VRTypeTemplateCase(UR)
    VRTypeTemplateCase(US)
    VRTypeTemplateCase(UT)
    VRTypeTemplateCase(UV)
    case VR::US_SS:
      return 2;

    case VR::INVALID:
    case VR::OB_OW:
    case VR::US_SS_OW:
    case VR::US_OW:
    case VR::VL16:
    case VR::VL32:
    case VR::VRASCII:
    case VR::VRBINARY:
    case VR::VR_VM1:
    case VR::VRALL:
    case VR::VR_END:
    default:
       assert( 0 && "should not" );
  }
  return 0;
}
#endif // SWIG


} // end namespace gdcm

#endif //GDCMVR_H
```

11.195 gdcmVR16ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmVR16ExplicitDataElement.txx"
```

Include dependency graph for gdcmVR16ExplicitDataElement.h:



Classes

- class gdcm::VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

11.196 gdcmVR16ExplicitDataElement.h

Go to the documentation of this file.

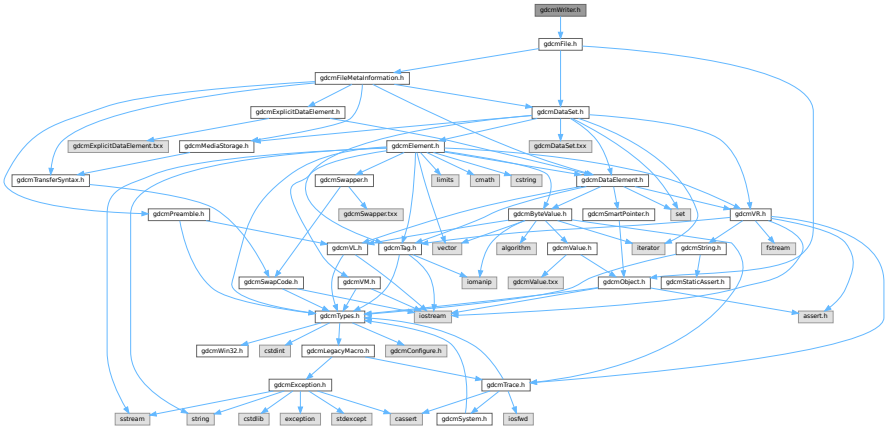
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMVR16EXPLICITDATAELEMENT_H
#define GDCMVR16EXPLICITDATAELEMENT_H

#include "gdcmDataElement.h"

namespace gdcm
{
// Data Element (Explicit)
class GDCM_EXPORT VR16ExplicitDataElement : public DataElement
{
public:
  VL GetLength() const;

```

```
  template <typename TSwap>
  std::istream &Read(std::istream &is);

  template <typename TSwap>
  std::istream &ReadPreValue(std::istream &is);

  template <typename TSwap>
  std::istream &ReadValue(std::istream &is, bool readvalues = true);

  template <typename TSwap>
  std::istream &ReadWithLength(std::istream &is, VL & length);

  // PURPOSELY do not provide an implementation for writing !
  //template <typename TSwap>
  //const std::ostream &Write(std::ostream &os) const;
};

} // end namespace gdcm

#include "gdcmVR16ExplicitDataElement.txx"

#endif //GDCMVR16EXPLICITDATAELEMENT_H
```

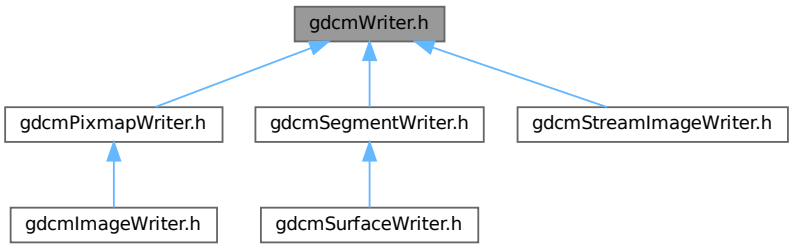
11.197 gdcmWriter.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Writer

  Writer ala DOM (Document Object Model)

Namespaces

- namespace gdcm

11.198 gdcmWriter.h

Go to the documentation of this file.

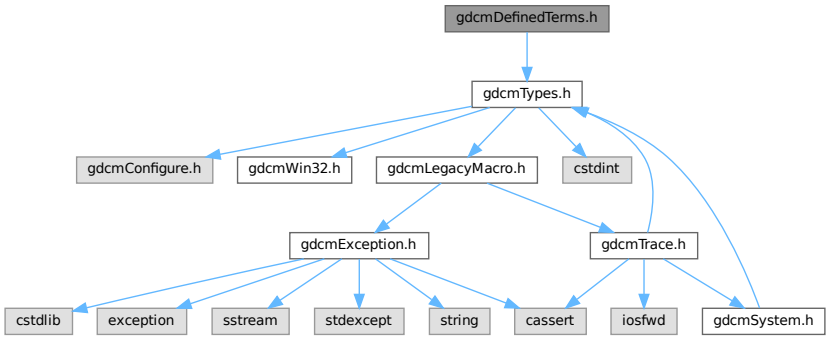
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMWRITER_H
#define GDCMWRITER_H

#include "gdcmFile.h"

namespace gdcm
{

class FileMetaInformation;
class GDCM_EXPORT Writer
{
public:
  Writer();
  virtual ~Writer();

  virtual bool Write(); // Execute()

  void SetFileName(const char *filename_native);

  void SetStream(std::ostream &output_stream) {
    Stream = &output_stream;
  }

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }

  void SetCheckFileMetaInformation(bool b) { CheckFileMetaInformation = b; }
  void CheckFileMetaInformationOff() { CheckFileMetaInformation = false; }
  void CheckFileMetaInformationOn() { CheckFileMetaInformation = true; }

protected:
  void SetWriteDataSetOnly(bool b) { WriteDataSetOnly = b; }

protected:
  friend class StreamImageWriter;
  //this function is added for the StreamImageWriter, which needs to write
  //up to the pixel data and then stops right before writing the pixel data.
  //after that, for the raw codec at least, zeros are written for the length of the data
  std::ostream* GetStreamPtr() const { return Stream; }

protected:
  std::ostream *Stream;
  std::ofstream *Ofstream;
```

```
  bool GetCheckFileMetaInformation() const { return CheckFileMetaInformation; }

private:
  SmartPointer<File> F;
  bool CheckFileMetaInformation;
  bool WriteDataSetOnly;
};

} // end namespace gdcm

#endif //GDCMWRITER_H
```

11.199 gdcmDefinedTerms.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDefinedTerms.h:



Classes

- class gdcm::DefinedTerms

  Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

Namespaces

- namespace gdcm

11.200 gdcmDefinedTerms.h

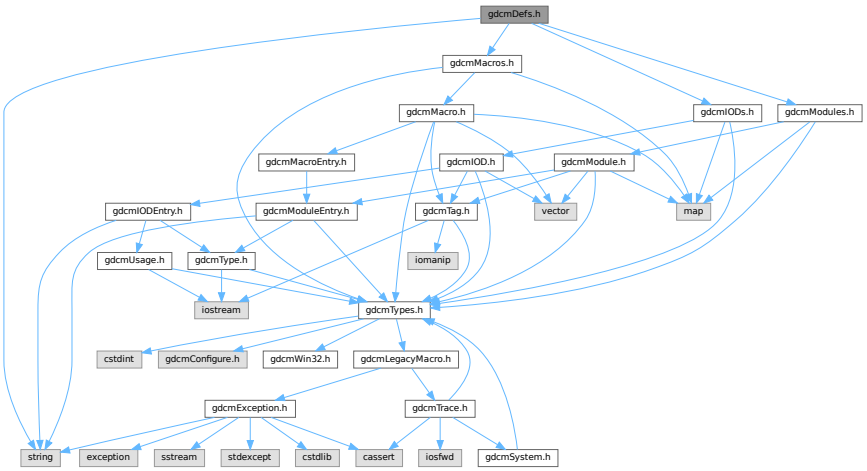
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDEFINEDTERMS_H
#define GDCMDEFINEDTERMS_H

#include "gdcmTypes.h"

namespace gdcm
{
class GDCM_EXPORT DefinedTerms
{
public:
  DefinedTerms() = default;
private:
};

} // end namespace gdcm

#endif //GDCMDEFINEDTERMS_H
```

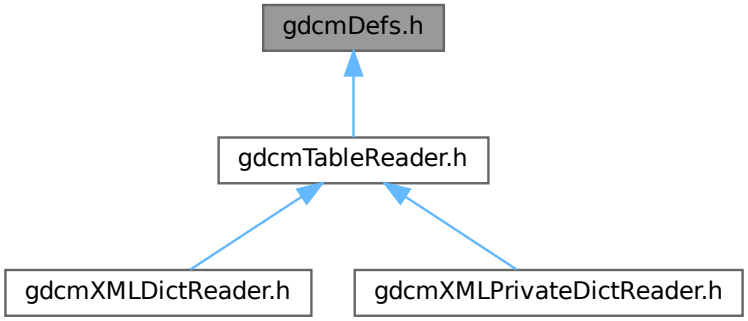
11.201 gdcmDefs.h File Reference

```
#include "gdcmModules.h"
#include "gdcmMacros.h"
#include "gdcmIODs.h"
#include <string>
```

Include dependency graph for gdcmDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Defs

  FIXME I do not like the name 'Defs'.

Namespaces

- namespace gdcm

11.202 gdcmDefs.h

Go to the documentation of this file.

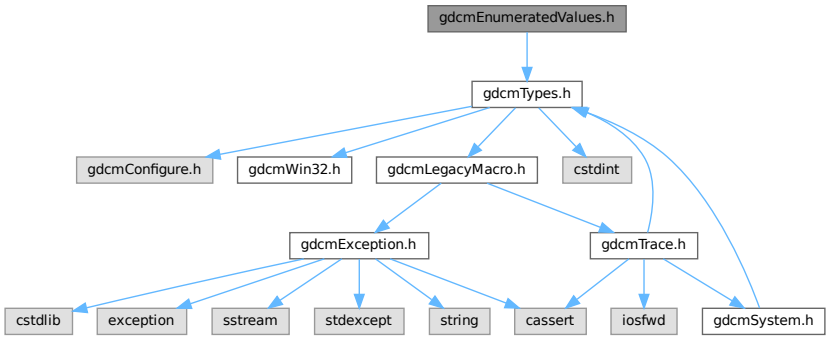
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDEFS_H
#define GDCMDEFS_H

#include "gdcmModules.h"
#include "gdcmMacros.h"
#include "gdcmIODs.h"

#include <string>

namespace gdcm
{
class DataSet;
class File;
```

```
class MediaStorage;
class GDCM_EXPORT Defs
{
public:
  Defs();
  ~Defs();
  Defs &operator=(const Defs &val) = delete;
  Defs(const Defs &val) = delete;

  const Modules &GetModules() const { return Part3Modules; }
  Modules &GetModules() { return Part3Modules; }

  const Macros &GetMacros() const { return Part3Macros; }
  Macros &GetMacros() { return Part3Macros; }

  const IODs & GetIODs() const { return Part3IODs; }
  IODs & GetIODs() { return Part3IODs; }

  bool IsEmpty() const { return GetModules().IsEmpty(); }

  bool Verify(const File& file) const;

  // \deprecated DO NOT USE
  bool Verify(const DataSet& ds) const;

  Type GetTypeFromTag(const File& file, const Tag& tag) const;

  static const char *GetIODNameFromMediaStorage(MediaStorage const &ms);

  const IOD& GetIODFromFile(const File& file) const;

protected:
  friend class Global;
  void LoadDefaults();
  void LoadFromFile(const char *filename);

private:
  // Part 3 stuff:
  Macros Part3Macros;
  Modules Part3Modules;
  IODs Part3IODs;

};


} // end namespace gdcm

#endif //GDCMDEFS_H
```

11.203 gdcmEnumeratedValues.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmEnumeratedValues.h:



Classes

- class gdcm::EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

Namespaces

- namespace gdcm

11.204 gdcmEnumeratedValues.h

Go to the documentation of this file.

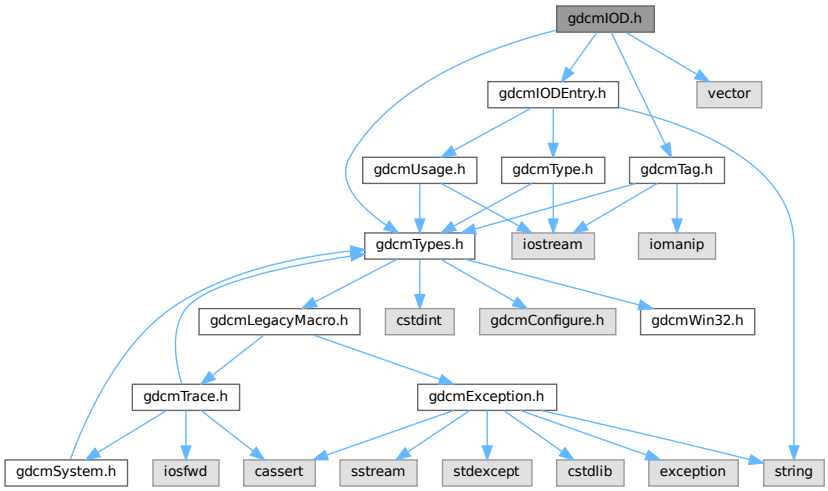
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMENUMERATEDVALUES_H
#define GDCMENUMERATEDVALUES_H

#include "gdcmTypes.h"

namespace gdcm
{
class GDCM_EXPORT EnumeratedValues
{
public:
  EnumeratedValues() = default;
private:
};

} // end namespace gdcm

#endif //GDCMENUMERATEDVALUES_H
```

11.205 gdcmIOD.h File Reference

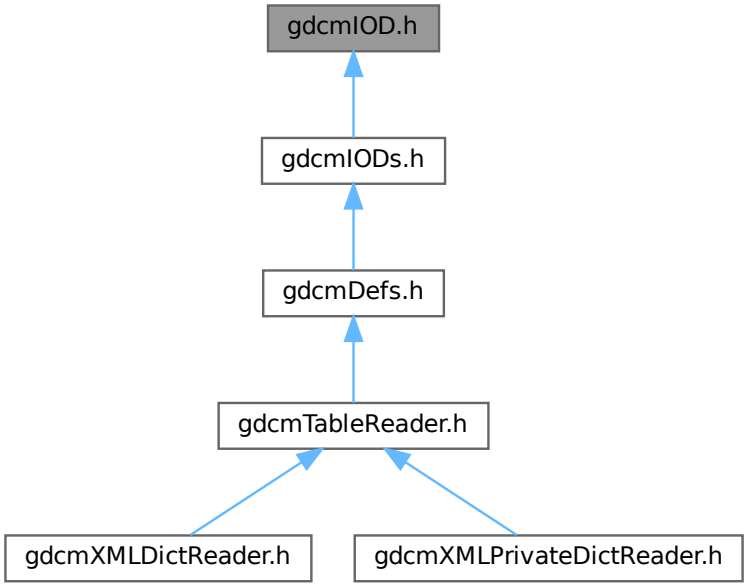
```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmIODEntry.h"
```

```
#include <vector>
```

Include dependency graph for gdcmIOD.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IOD

Class for representing a IOD.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IOD &_val)

11.206 gdcmIOD.h

Go to the documentation of this file.

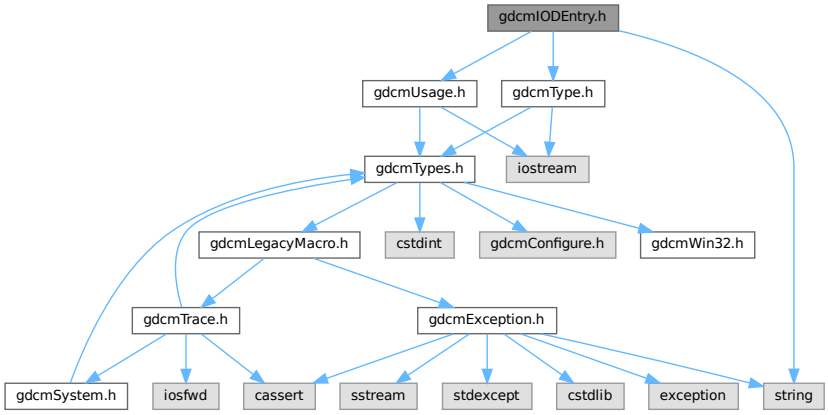
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIOD_H
#define GDCMIOD_H

#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmIODEntry.h"

#include <vector>

namespace gdcm
{
class DataSet;
class Defs;

class GDCM_EXPORT IOD
{
public:
  typedef std::vector<IODEntry> MapIODEntry;
  typedef MapIODEntry::size_type SizeType;

  IOD() = default;
  friend std::ostream& operator«(std::ostream& _os, const IOD &_val);

  void Clear() { IODInternal.clear(); }

  void AddIODEntry(const IODEntry & iode)
    {
    IODInternal.push_back(iode);
    }

  SizeType GetNumberOfIODs() const {
    return IODInternal.size();
  }

  const IODEntry& GetIODEntry(SizeType idx) const
    {
    return IODInternal[idx];
    }

  Type GetTypeFromTag(const Defs &defs, const Tag& tag) const;

```

```
private:
  //IOD &operator=(const IOD &_val); // purposely not implemented
  //IOD(const IOD &_val); // purposely not implemented

  MapIODEntry IODInternal;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const IOD &_val)
{
  IOD::MapIODEntry::const_iterator it = _val.IODInternal.begin();
  for(;it != _val.IODInternal.end(); ++it)
    {
    _os « *it « '\n';
    }

  return _os;
}

} // end namespace gdcm

#endif //GDCMIOD_H
```

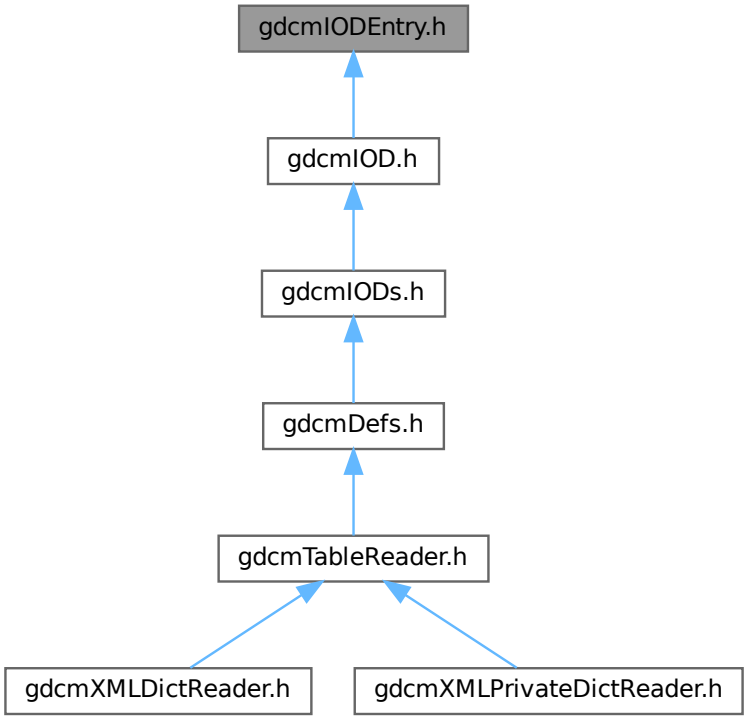
11.207 gdcmIODEntry.h File Reference

```
#include "gdcmUsage.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmIODEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODEntry

  Class for representing a IODEntry.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODEntry &_val)

11.208 gdcmIODEntry.h

Go to the documentation of this file.

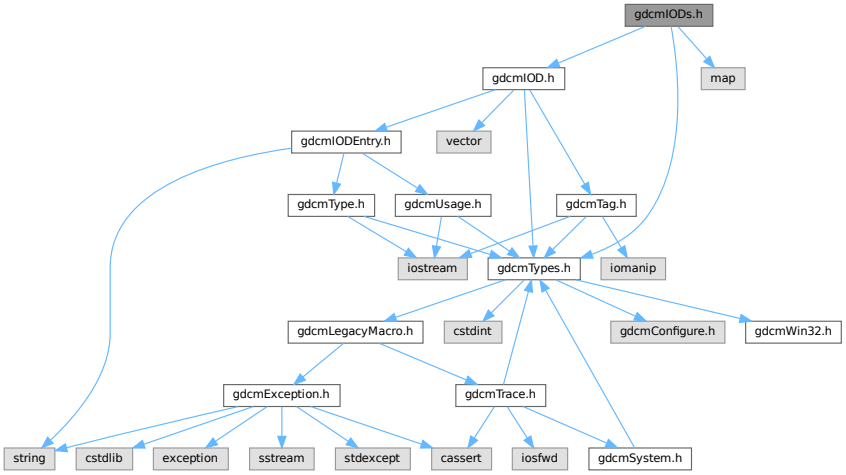
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIODENTRY_H
#define GDCMIODENTRY_H

#include "gdcmUsage.h"
#include "gdcmType.h"

#include <string>

namespace gdcm
{
class GDCM_EXPORT IODEntry
{
public:
  IODEntry(const char *name = "", const char *ref = "", const char *inUsage = ""):Name(name),Ref(ref),usage(inUsage) {
  }
  friend std::ostream& operator«(std::ostream& _os, const IODEntry &_val);

  void SetIE(const char *ie) { IE = ie; }
  const char *GetIE() const { return IE.c_str(); }

  void SetName(const char *name) { Name = name; }
  const char *GetName() const { return Name.c_str(); }

  void SetRef(const char *ref) { Ref = ref; }
  const char *GetRef() const { return Ref.c_str(); }

  void SetUsage(const char *inUsage) { usage = inUsage; }
  const char *GetUsage() const { return usage.c_str(); }
  Usage::UsageType GetUsageType() const;

private:
  std::string IE;

  std::string Name;

  std::string Ref;

  std::string usage;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const IODEntry &_val)
{
  _os « _val.IE « "\t" « _val.Name « "\t" « _val.Ref « "\t" « _val.usage;
  return _os;
}

} // end namespace gdcm

#endif //GDCMIODENTRY_H
```

11.209 gdcmIODs.h File Reference

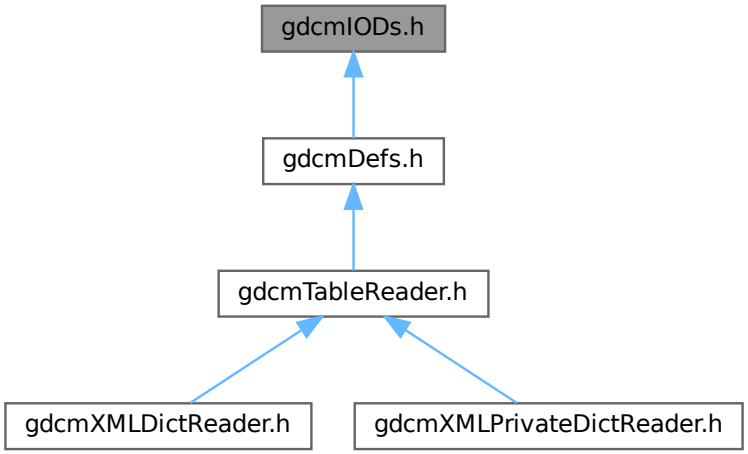
```
#include "gdcmTypes.h"
#include "gdcmIOD.h"
```

```
#include <map>
```

Include dependency graph for gdcmIODs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODs

  Class for representing a IODs.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODs &_val)

11.210 gdcmIODs.h

Go to the documentation of this file.

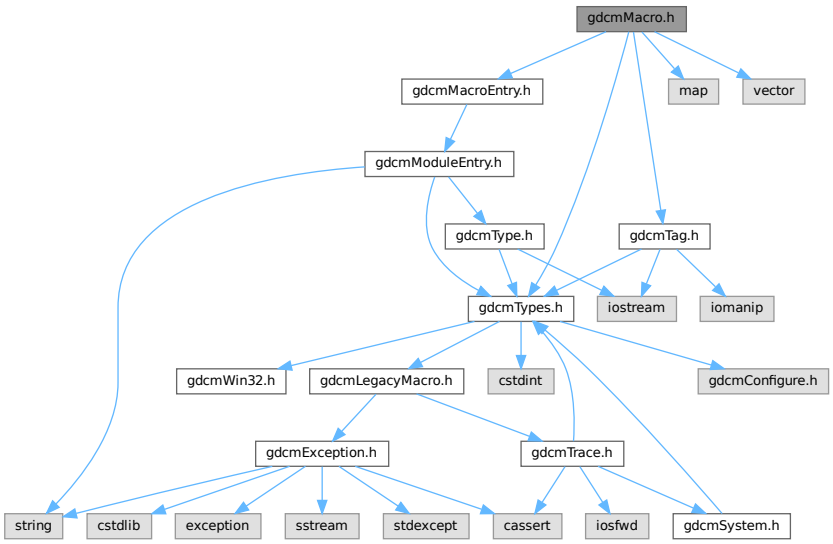
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIODS_H
#define GDCMIODS_H

#include "gdcmTypes.h"
#include "gdcmIOD.h"

#include <map>

namespace gdcm
{
class GDCM_EXPORT IODs
{
public:
  typedef std::string IODName;
  typedef std::map<IODName, IOD> IODMapType;

  IODs() = default;
  friend std::ostream& operator«(std::ostream& _os, const IODs &_val);

  void Clear() { IODsInternal.clear(); }

  void AddIOD(const char *name , const IOD & module )
    {
    IODsInternal.insert(
      IODMapType::value_type(name, module));
    }
  const IOD &GetIOD(const char *name) const
    {
    //return IODsInternal[name];
    IODMapType::const_iterator it = IODsInternal.find( name );
    assert( it != IODsInternal.end() );
    assert( it->first == name );
    return it->second;
    }

  typedef IODMapType::const_iterator IODMapTypeConstIterator;
  IODMapTypeConstIterator Begin() const { return IODsInternal.begin(); }
  IODMapTypeConstIterator End() const { return IODsInternal.end(); }

private:
  IODMapType IODsInternal;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const IODs &_val)
{
  IODs::IODMapType::const_iterator it = _val.IODsInternal.begin();
```

```
  for(;it != _val.IODsInternal.end(); ++it)
    {
    const std::string &name = it->first;
    const IOD &m = it->second;
    _os « name « " " « m « '\n';
    }

  return _os;
}


} // end namespace gdcm

#endif //GDCMIODS_H
```

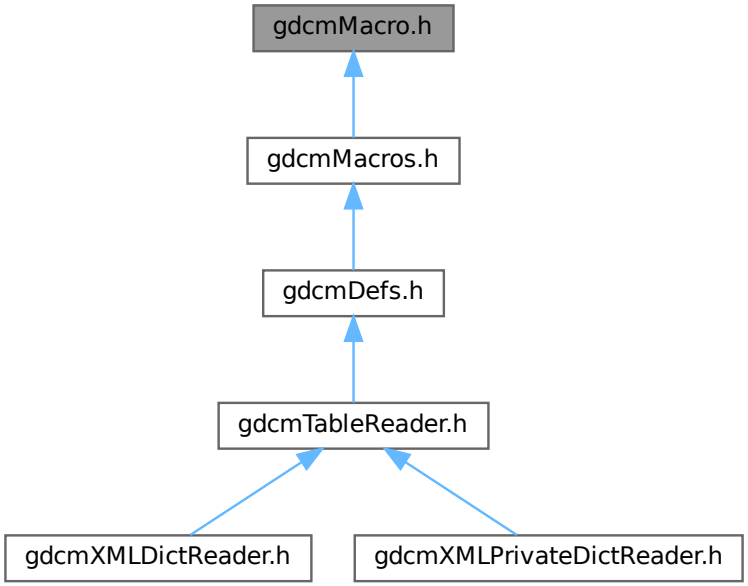
11.211 gdcmMacro.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmMacroEntry.h"
#include <map>
#include <vector>
```

Include dependency graph for gdcmMacro.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macro

  Class for representing a Macro.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macro &_val)

11.212 gdcmMacro.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

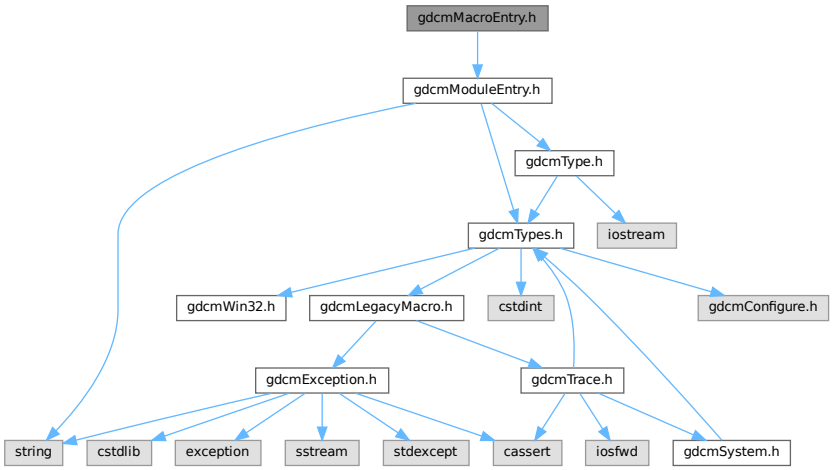
```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMACRO_H
#define GDCMMACRO_H

#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmMacroEntry.h"

#include <map>
#include <vector>

namespace gdcm
{

class DataSet;
class Usage;
class GDCM_EXPORT Macro
{
public:
  typedef std::map<Tag, MacroEntry> MapModuleEntry;
  typedef std::vector<std::string> ArrayIncludeMacrosType;

  //typedef MapModuleEntry::const_iterator ConstIterator;
  //typedef MapModuleEntry::iterator Iterator;
  //ConstIterator Begin() const { return ModuleInternal.begin(); }
  //Iterator Begin() { return ModuleInternal.begin(); }
  //ConstIterator End() const { return ModuleInternal.end(); }
  //Iterator End() { return ModuleInternal.end(); }

  Macro() = default;
  friend std::ostream& operator«(std::ostream& _os, const Macro&_val);

  void Clear() { ModuleInternal.clear(); }

  void AddMacroEntry(const Tag& tag, const MacroEntry & module)
    {
    ModuleInternal.insert(
      MapModuleEntry::value_type(tag, module));
    }

  bool FindMacroEntry(const Tag &tag) const;
  const MacroEntry& GetMacroEntry(const Tag &tag) const;

  void SetName( const char *name) { Name = name; }
  const char *GetName() const { return Name.c_str(); }

  // Verify will print on std::cerr for error
  // Upon success will return true, false otherwise
  bool Verify(const DataSet& ds, Usage const & usage) const;

private:
  //Module &operator=(const Module &_val); // purposely not implemented
  //Module(const Module &_val); // purposely not implemented

  MapModuleEntry ModuleInternal;
  std::string Name;
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const Macro &_val)
{
  _os « _val.Name « '\n';
  Macro::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
  for(;it != _val.ModuleInternal.end(); ++it)
    {
    const Tag &t = it->first;
    const MacroEntry &de = it->second;
    _os « t « " " « de « '\n';
    }

  return _os;
}

} // end namespace gdcm

```

```
00097 #endif //GDCMMACRO_H
```

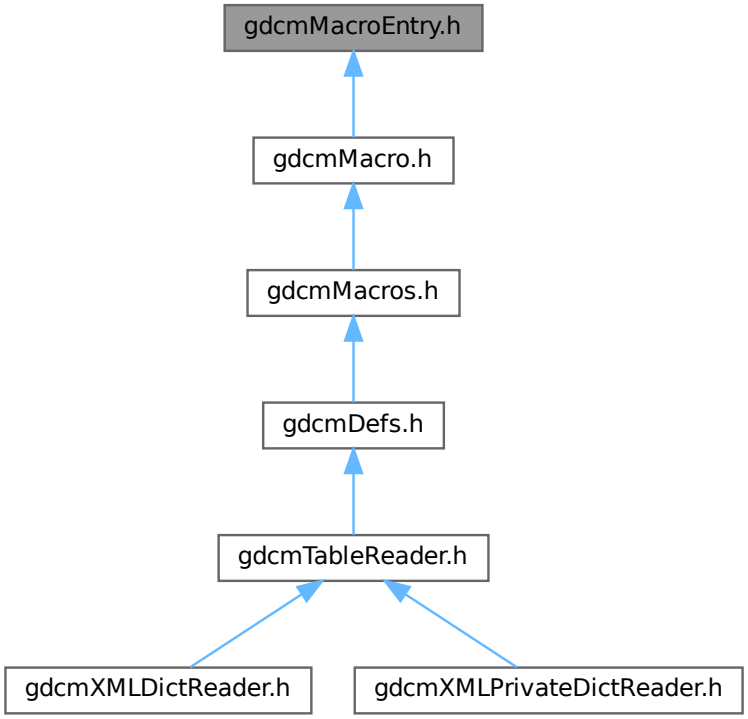
11.213 gdcmMacroEntry.h File Reference

```
#include "gdcmModuleEntry.h"
```

Include dependency graph for gdcmMacroEntry.h:



This graph shows which files directly or indirectly include this file:



Macros

- #define GDCMMACROENTRY_H

11.213.1 Macro Definition Documentation

11.213.1.1 GDCMMACROENTRY_H

```
#define GDCMMACROENTRY_H
```

11.214 gdcmMacroEntry.h

Go to the documentation of this file.

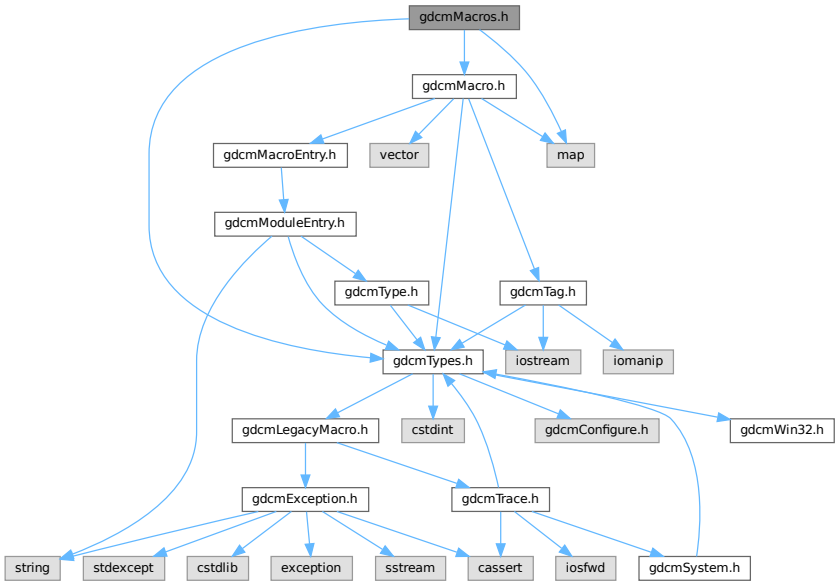
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#if 0
#ifndef GDCMMACROENTRY_H
#define GDCMMACROENTRY_H

#include "gdcmTypes.h"
#include "gdcmType.h"

#include <string>

namespace gdcm
{
class GDCM_EXPORT MacroEntry
{
public:
  MacroEntry(const char *name = "", const char *type = "3", const char *description = ""):Name(name)/*,Type(type)*/,DescriptionField(description) {
    DataElementType = Type::GetTypeType(type);
  }
  virtual ~MacroEntry() {} // important
  friend std::ostream& operator«(std::ostream& _os, const MacroEntry &_val);

  void SetName(const char *name) { Name = name; }
  const char *GetName() const { return Name.c_str(); }

  void SetType(const Type &type) { DataElementType = type; }
  const Type &GetType() const { return DataElementType; }

  /*
   * WARNING: 'Description' is currently a std::string, but it might change in the future
   * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
   * instead.
   */
  typedef std::string Description;
  void SetDescription(const char *d) { DescriptionField = d; }
  const Description & GetDescription() const { return DescriptionField; }

protected:
  // PS 3.3 repeats the name of an attribute, but often contains typos
  // for now we will not use this info, but instead access the DataDict instead
  std::string Name;

  // An attribute, encoded as a Data Element, may or may not be required in a
  // Data Set, depending on that Attribute's Data Element Type.
  Type DataElementType;

  // TODO: for now contains the raw description (with enumerated values, defined terms...)
  Description DescriptionField;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const MacroEntry &_val)
{
  _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
  return _os;
}


} // end namespace gdcm

#endif //GDCMMODULEENTRY_H
#endif

#ifndef GDCMMACROENTRY_H
#define GDCMMACROENTRY_H
#include "gdcmModuleEntry.h"
#endif
```

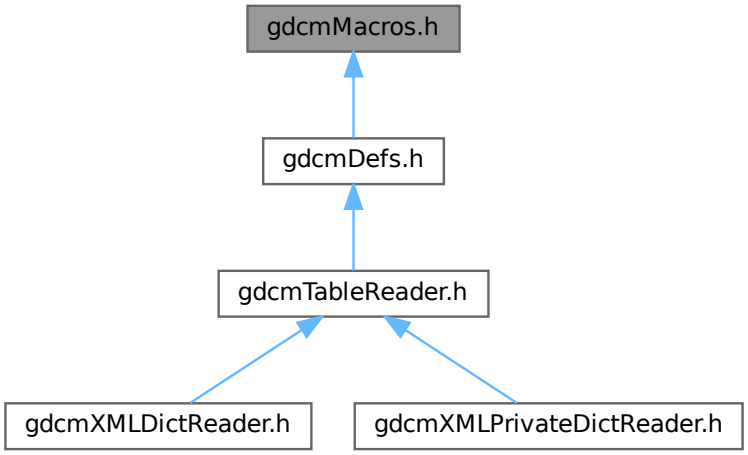
11.215 gdcmMacros.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMacro.h"
#include <map>
```

Include dependency graph for gdcmMacros.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macros

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macros &_val)

11.216 gdcmMacros.h

Go to the documentation of this file.

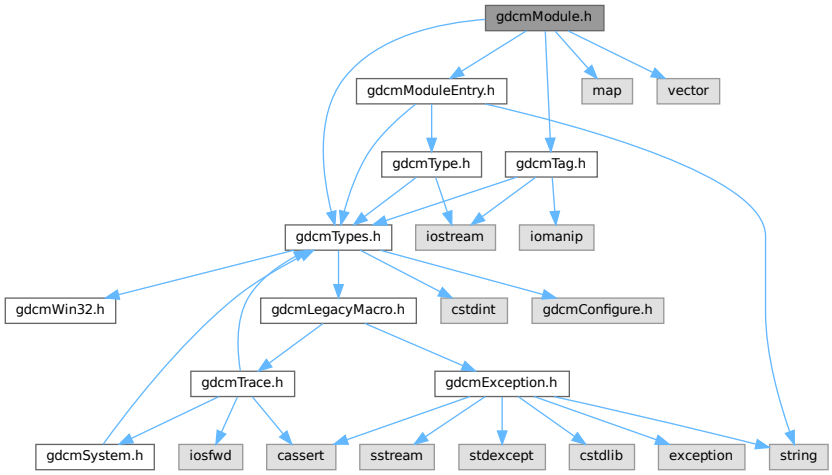
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMACROS_H
#define GDCMMACROS_H

#include "gdcmTypes.h"
#include "gdcmMacro.h"

#include <map>

namespace gdcm
{
class GDCM_EXPORT Macros
{
public:
  typedef std::map<std::string, Macro> ModuleMapType;

  Macros() = default;
  friend std::ostream& operator«(std::ostream& _os, const Macros&_val);

  void Clear() { ModulesInternal.clear(); }

  // A Module is inserted based on it's ref
  void AddMacro(const char *ref, const Macro & module )
    {
    assert( ref && *ref );
    assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
    ModulesInternal.insert(
      ModuleMapType::value_type(ref, module));
    }
  const Macro &GetMacro(const char *name) const
    {
    assert( name && *name );
    ModuleMapType::const_iterator it = ModulesInternal.find( name );
    assert( it != ModulesInternal.end() );
    assert( it->first == name );
    return it->second;
    }

```

```
  bool IsEmpty() const { return ModulesInternal.empty(); }

private:
  ModuleMapType ModulesInternal;
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const Macros &_val)
{
  Macros::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
  for(;it != _val.ModulesInternal.end(); ++it)
    {
    const std::string &name = it->first;
    const Macro &m = it->second;
    _os « name « " " « m « '\n';
    }

  return _os;
}


} // end namespace gdcm

#endif //GDCMMODULES_H
```

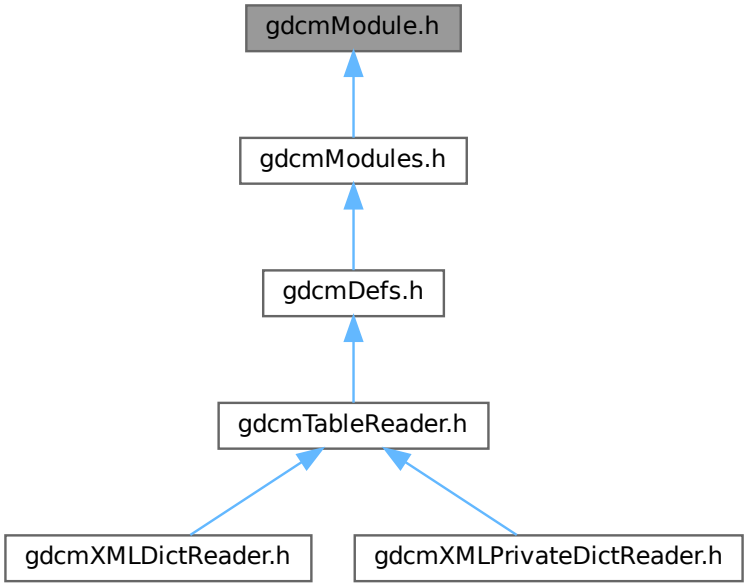
11.217 gdcmModule.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmModuleEntry.h"
#include <map>
#include <vector>
```

Include dependency graph for gdcmModule.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Module

  Class for representing a Module.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Module &_val)

11.218 gdcmModule.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

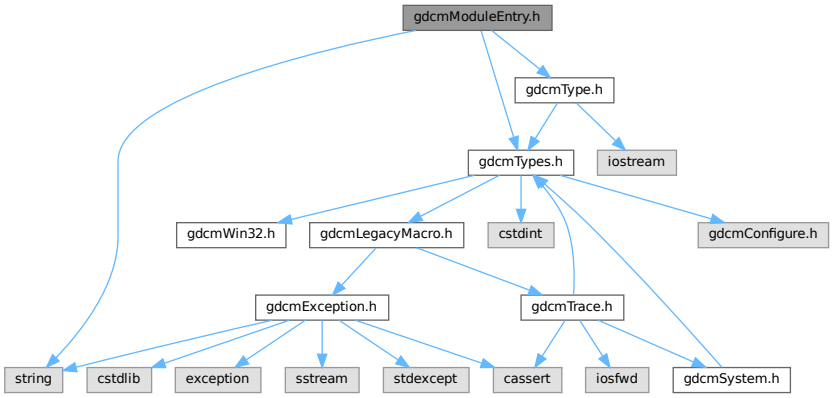
```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMODULE_H
#define GDCMMODULE_H

#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmModuleEntry.h"

#include <map>
#include <vector>

namespace gdcm
{

class DataSet;
class Usage;
class Macros;
class GDCM_EXPORT Module
{
public:
  typedef std::map<Tag, ModuleEntry> MapModuleEntry;
  typedef std::vector<std::string> ArrayIncludeMacrosType;

  //typedef MapModuleEntry::const_iterator ConstIterator;
  //typedef MapModuleEntry::iterator Iterator;
  //ConstIterator Begin() const { return ModuleInternal.begin(); }
  //Iterator Begin() { return ModuleInternal.begin(); }
  //ConstIterator End() const { return ModuleInternal.end(); }
  //Iterator End() { return ModuleInternal.end(); }

  Module() = default;
  friend std::ostream& operator«(std::ostream& _os, const Module &_val);

  void Clear() { ModuleInternal.clear(); }

  void AddModuleEntry(const Tag& tag, const ModuleEntry & module)
    {
    ModuleInternal.insert(
      MapModuleEntry::value_type(tag, module));
    }

  void AddMacro(const char *include)
    {
    ArrayIncludeMacros.push_back( include );
    }

  bool FindModuleEntryInMacros(Macros const &macros, const Tag &tag) const;
  const ModuleEntry& GetModuleEntryInMacros(Macros const &macros, const Tag &tag) const;

  void SetName( const char *name) { Name = name; }
  const char *GetName() const { return Name.c_str(); }

  // Verify will print on std::cerr for error
  // Upon success will return true, false otherwise
  bool Verify(const DataSet& ds, Usage const & usage) const;

private:
  //Module &operator=(const Module &_val); // purposely not implemented
  //Module(const Module &_val); // purposely not implemented

  MapModuleEntry ModuleInternal;
  std::string Name;
  ArrayIncludeMacrosType ArrayIncludeMacros;
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const Module &_val)
{
  _os « _val.Name « '\n';
  Module::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
  for(;it != _val.ModuleInternal.end(); ++it)
    {
    const Tag &t = it->first;
    const ModuleEntry &de = it->second;
    _os « t « " " « de « '\n';
```

```
    }

  return _os;
}

} // end namespace gdcm

#endif //GDCMMODULE_H
```

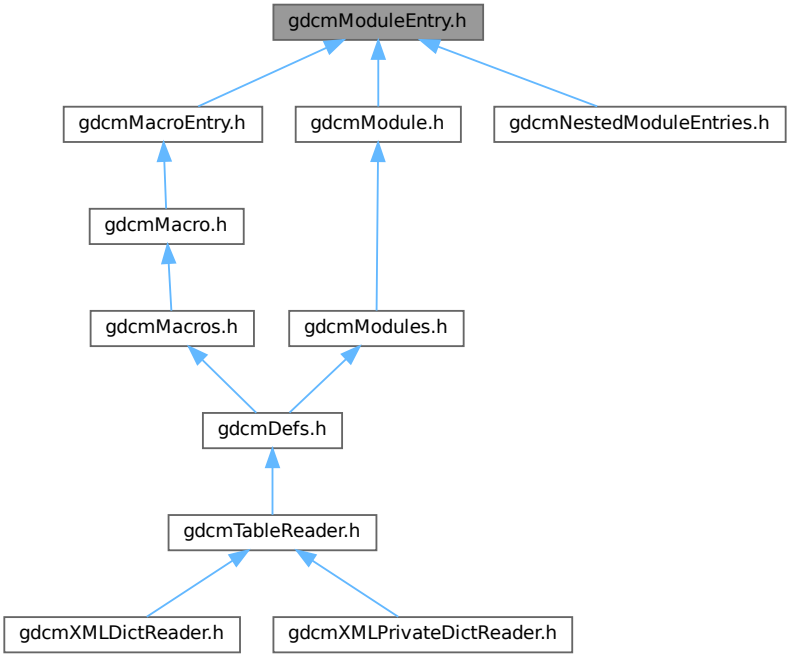
11.219 gdcmModuleEntry.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmModuleEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ModuleEntry

  Class for representing a ModuleEntry.

Namespaces

- namespace gdcm

Typedefs

- typedef ModuleEntry gdcm::MacroEntry

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const ModuleEntry &_val)

11.220 gdcmModuleEntry.h

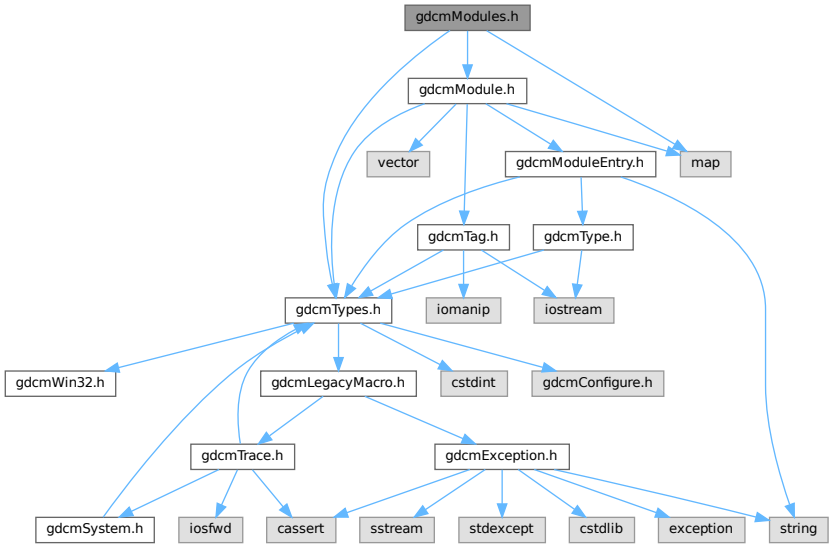
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMODULEENTRY_H
#define GDCMMODULEENTRY_H

#include "gdcmTypes.h"
#include "gdcmType.h"

#include <string>

namespace gdcm
{
class GDCM_EXPORT ModuleEntry
{
public:
  ModuleEntry(const char *name = "", const char *type = "3", const char *description = ""):Name(name)/*,Type(type)*/,DescriptionField(description) {
    DataElementType = Type::GetTypeType(type);
  }
  virtual ~ModuleEntry() = default; // important
  friend std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val);

  void SetName(const char *name) { Name = name; }
  const char *GetName() const { return Name.c_str(); }

  void SetType(const Type &type) { DataElementType = type; }
  const Type &GetType() const { return DataElementType; }

  /*
   * WARNING: 'Description' is currently a std::string, but it might change in the future
   * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
   * instead.
   */
  typedef std::string Description;
  void SetDescription(const char *d) { DescriptionField = d; }
  const Description & GetDescription() const { return DescriptionField; }

protected:
  // PS 3.3 repeats the name of an attribute, but often contains typos
  // for now we will not use this info, but instead access the DataDict instead
  std::string Name;

  // An attribute, encoded as a Data Element, may or may not be required in a
  // Data Set, depending on that Attribute's Data Element Type.
  Type DataElementType;

  // TODO: for now contains the raw description (with enumerated values, defined terms...)
  Description DescriptionField;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val)
{
  _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
  return _os;
}

typedef ModuleEntry MacroEntry;


} // end namespace gdcm

#endif //GDCMMODULEENTRY_H
```

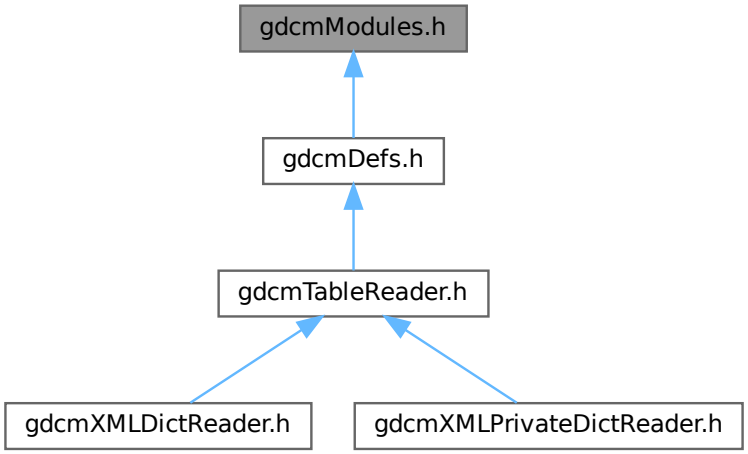
11.221 gdcmModules.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmModule.h"
#include <map>
```

Include dependency graph for gdcmModules.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Modules

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Modules &_val)

11.222 gdcmModules.h

Go to the documentation of this file.

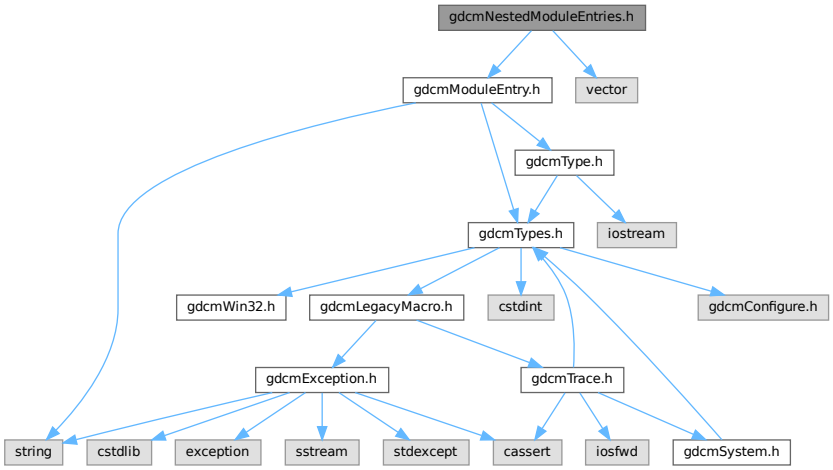
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULES_H
00015 #define GDCMMODULES_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmModule.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT Modules
00030 {
00031 public:
00032   typedef std::map<std::string, Module> ModuleMapType;
00033
00034   Modules() = default;
00035   friend std::ostream& operator«(std::ostream& _os, const Modules &_val);
00036
00037   void Clear() { ModulesInternal.clear(); }
00038
00039   // A Module is inserted based on it's ref
00040   void AddModule(const char *ref, const Module & module )
00041     {
00042     assert( ref && *ref );
00043     assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
00044     ModulesInternal.insert(
00045       ModuleMapType::value_type(ref, module));
00046     }
00047   const Module &GetModule(const char *name) const
00048     {
00049     assert( name && *name );
00050     ModuleMapType::const_iterator it = ModulesInternal.find( name );
00051     assert( it != ModulesInternal.end() );
00052     assert( it->first == name );
00053     return it->second;
00054     }
00055
```

```
  bool IsEmpty() const { return ModulesInternal.empty(); }

private:
  ModuleMapType ModulesInternal;
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const Modules &_val)
{
  Modules::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
  for(;it != _val.ModulesInternal.end(); ++it)
    {
    const std::string &name = it->first;
    const Module &m = it->second;
    _os « name « " " « m « '\n';
    }

  return _os;
}



} // end namespace gdcm

#endif //GDCMMODULES_H
```

11.223 gdcmNestedModuleEntries.h File Reference

```
#include "gdcmModuleEntry.h"
#include <vector>
```

Include dependency graph for gdcmNestedModuleEntries.h:



Classes

- class gdcm::NestedModuleEntries

  Class for representing a NestedModuleEntries.

Namespaces

- namespace gdcm

Typedefs

- typedef NestedModuleEntries gdcm::NestedMacroEntries

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const NestedModuleEntries &_val)

11.224 gdcmNestedModuleEntries.h

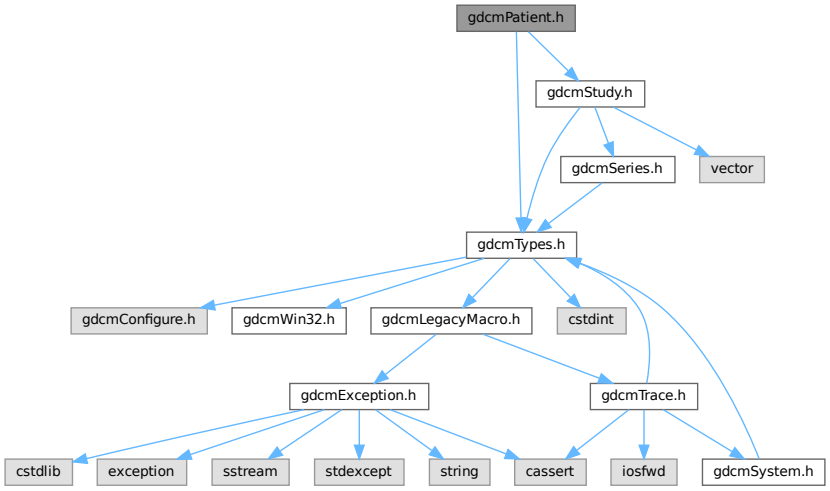
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMNESTEDMODULEENTRIES_H
#define GDCMNESTEDMODULEENTRIES_H

#include "gdcmModuleEntry.h"
#include <vector>

namespace gdcm
{
class GDCM_EXPORT NestedModuleEntries : public ModuleEntry
{
public:
  NestedModuleEntries(const char *name = "", const char *type = "3", const char *description = ""):ModuleEntry(name,type,description) { }
  friend std::ostream& operator«(std::ostream& _os, const NestedModuleEntries &_val);

  typedef std::vector<ModuleEntry>::size_type SizeType;
  SizeType GetNumberOfModuleEntries() { return ModuleEntriesList.size(); }

  const ModuleEntry &GetModuleEntry(SizeType idx) const { return ModuleEntriesList[idx]; }
  ModuleEntry &GetModuleEntry(SizeType idx) { return ModuleEntriesList[idx]; }

  void AddModuleEntry(const ModuleEntry &me) { ModuleEntriesList.push_back( me ); }

private:
  std::vector<ModuleEntry> ModuleEntriesList;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& _os, const NestedModuleEntries &_val)
{
  _os « "Nested:" « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
  return _os;
}

typedef NestedModuleEntries NestedMacroEntries;


} // end namespace gdcm

#endif //GDCMNESTEDMODULEENTRIES_H
```

11.225 gdcmPatient.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStudy.h"
```

Include dependency graph for gdcmPatient.h:



Classes

- class gdcm::Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

Namespaces

- namespace gdcm

11.226 gdcmPatient.h

Go to the documentation of this file.

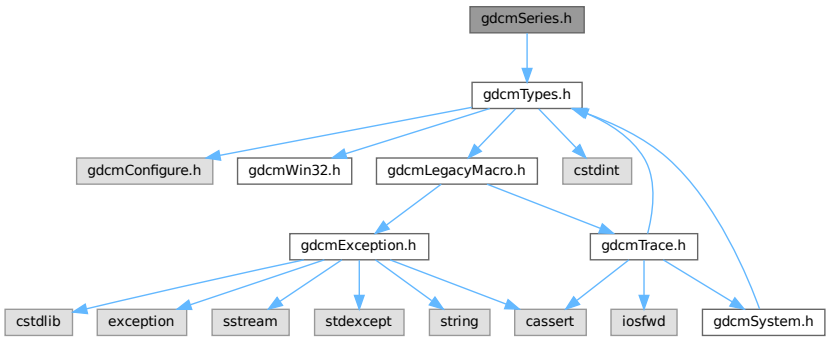
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPATIENT_H
```

```
#define GDCMPATIENT_H

#include "gdcmTypes.h"
#include "gdcmStudy.h"

namespace gdcm
{
class GDCM_EXPORT Patient
{
public:
  Patient() = default;

private:
  std::vector<Study> StudyList;
};

} // end namespace gdcm

#endif //GDCMPATIENT_H
```

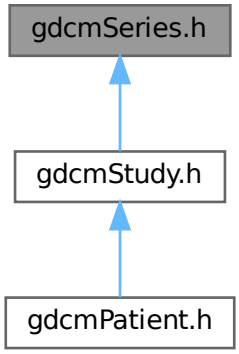
11.227 gdcmSeries.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmSeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Series

  Series.

Namespaces

- namespace gdcm

11.228 gdcmSeries.h

Go to the documentation of this file.

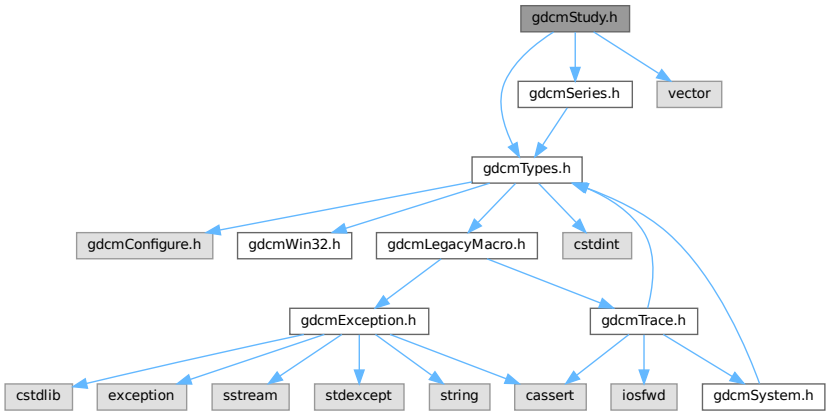
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSERIES_H
#define GDCMSERIES_H

#include "gdcmTypes.h"

namespace gdcm
{
class GDCM_EXPORT Series
{
public:
```

```
  Series() = default;
private:
  // Image, Waveform...
};

} // end namespace gdcm

#endif //GDCMSERIES_H
```

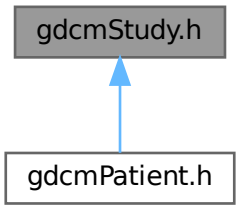
11.229 gdcmStudy.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSeries.h"
#include <vector>
```

Include dependency graph for gdcmStudy.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Study

  Study.

Namespaces

- namespace gdcm

11.230 gdcmStudy.h

Go to the documentation of this file.

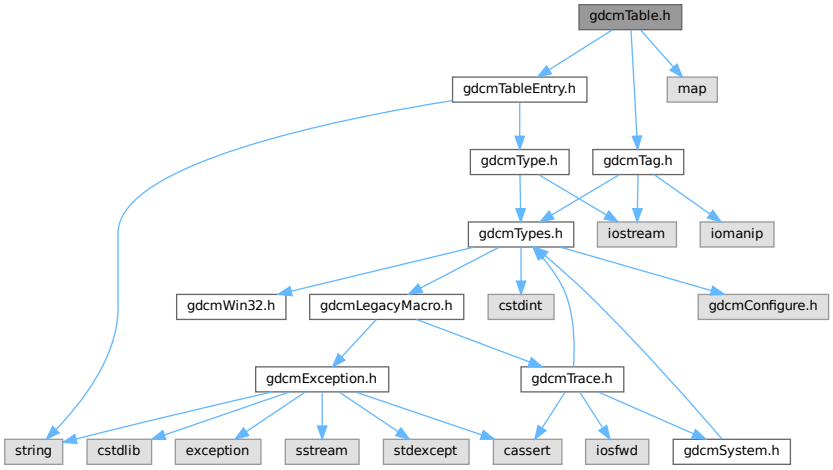
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTUDY_H
#define GDCMSTUDY_H

#include "gdcmTypes.h"
#include "gdcmSeries.h"

#include <vector>

namespace gdcm
{
class GDCM_EXPORT Study
{
public:
  Study() = default;
private:
  std::vector<Series> SeriesList;
};

} // end namespace gdcm

#endif //GDCMSTUDY_H
```

11.231 gdcmTable.h File Reference

```
#include "gdcmTableEntry.h"
#include "gdcmTag.h"
```

`#include <map>`

Include dependency graph for gdcmTable.h:



Classes

- class gdcm::Table

  Table.

Namespaces

- namespace gdcm

11.232 gdcmTable.h

Go to the documentation of this file.

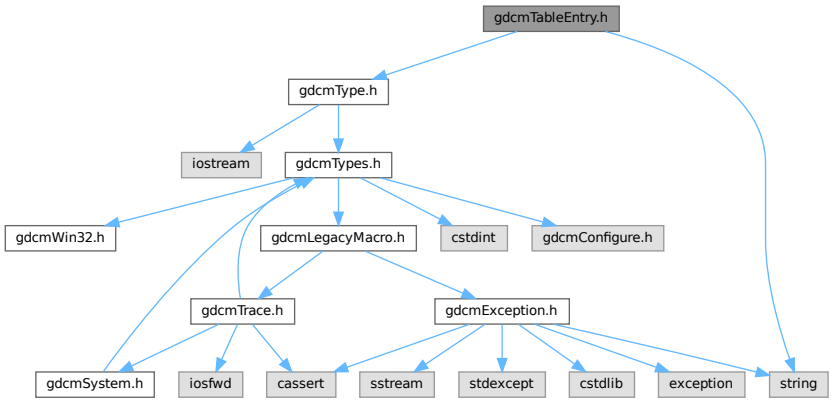
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTABLE_H
#define GDCMTABLE_H

#include "gdcmTableEntry.h"
#include "gdcmTag.h"

#include <map>

```

```
namespace gdcm
{

class Table
{
public:
  typedef std::map<Tag, TableEntry> MapTableEntry;
  Table() = default;
  ~Table() = default;
  Table &operator=(const Table &_val) = delete;
  Table(const Table&_val) = delete;

  friend std::ostream& operator«(std::ostream& _os, const Table &_val);

  void InsertEntry(Tag const &tag, TableEntry const &te)
    {
#ifndef NDEBUG
    MapTableEntry::size_type s = TableInternal.size();
#endif
    TableInternal.insert(
      MapTableEntry::value_type(tag, te));
    assert( s < TableInternal.size() );
    }

  const TableEntry &GetTableEntry(const Tag &tag) const
    {
    MapTableEntry::const_iterator it =
      TableInternal.find(tag);
    if (it == TableInternal.end())
      {
      assert( 0 && "Impossible" );
      return GetTableEntry(Tag(0,0));
      }
    return it->second;
    }

  MapTableEntry TableInternal;
};

} // end namespace gdcm

#endif //GDCMTABLE_H
```

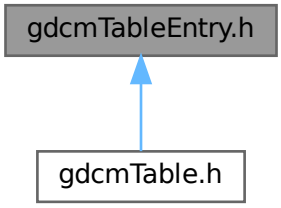
11.233 gdcmTableEntry.h File Reference

```
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmTableEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableEntry

  TableEntry.

Namespaces

- namespace gdcm

11.234 gdcmTableEntry.h

Go to the documentation of this file.

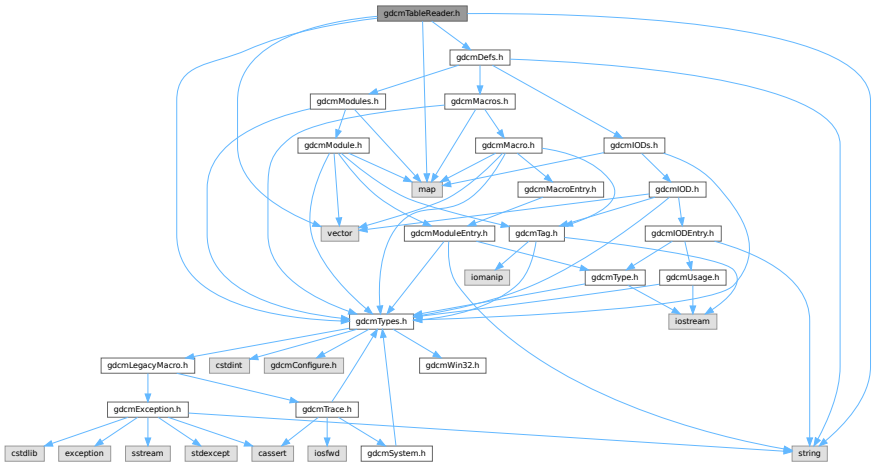
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTABLEENTRY_H
#define GDCMTABLEENTRY_H

#include "gdcmType.h"

#include <string>

namespace gdcm
{

class TableEntry
{
public:
  TableEntry(const char *attribute = nullptr,
    Type const &type = Type(), const char * des = nullptr ) :
    Attribute(attribute ? attribute : ""),TypeField(type),Description(des ? des : "") {}
  ~TableEntry() = default;
```

```
00034
00035 private:
00036   std::string Attribute;
00037   Type TypeField;
00038   std::string Description;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMTABLEENTRY_H
```

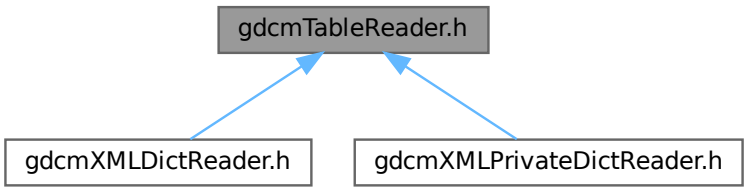
11.235 gdcmTableReader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDefs.h"
#include <string>
#include <vector>
#include <map>
```

Include dependency graph for gdcmTableReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableReader

  Class for representing a TableReader.

Namespaces

- namespace gdcm

11.236 gdcmTableReader.h

Go to the documentation of this file.

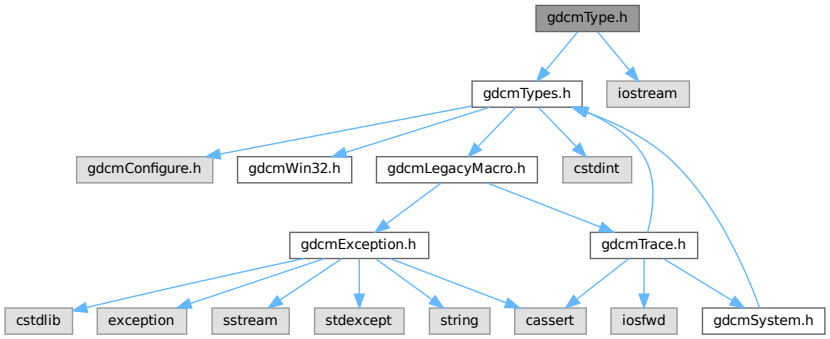
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTABLEREADER_H
#define GDCMTABLEREADER_H

#include "gdcmTypes.h"
#include "gdcmDefs.h"
//#include "gdcmModule.h"
//#include "gdcmIOD.h"
//#include "gdcmIODs.h"
//#include "gdcmModules.h"

#include <string>
#include <vector>
#include <map>

namespace gdcm
{
class GDCM_EXPORT TableReader
{
public:
  TableReader(Defs &defs):CurrentDefs(defs),ParsingModule(false),ParsingModuleEntry(false),
  ParsingModuleEntryDescription(false),
  ParsingMacro(false),
  ParsingMacroEntry(false),
  ParsingMacroEntryDescription(false),
  ParsingIOD(false),
  ParsingIODEntry(false),
  Description() {}
  virtual ~TableReader() = default;

  // Set/Get filename
  void SetFilename(const char *filename) { Filename = filename; }
  const char *GetFilename() { return Filename.c_str(); }

  int Read();

//protected:
  // You need to override those function in your subclasses:
  virtual void StartElement(const char *name, const char **atts);
  virtual void EndElement(const char *name);
  virtual void CharacterDataHandler(const char *data, int length);

void HandleModuleEntry(const char **atts);
void HandleModule(const char **atts);
void HandleModuleEntryDescription(const char **atts);
```

```
void HandleMacroEntry(const char **atts);
void HandleMacro(const char **atts);
void HandleMacroEntryDescription(const char **atts);
void HandleModuleInclude(const char **atts);
void HandleIODEntry(const char **atts);
void HandleIOD(const char **atts);

  //const Modules & GetModules() const { return CurrentModules; }
  //const Macros & GetMacros() const { return CurrentMacros; }
  //const IODs & GetIODs() const { return CurrentIODs; }
  const Defs & GetDefs() const { return CurrentDefs; }

private:
  std::string Filename;
  Defs &CurrentDefs;
  //Macros CurrentMacros;
  //Modules CurrentModules;
  //IODs CurrentIODs;
  Macro CurrentMacro;
  Module CurrentModule;
  IOD CurrentIOD;
  MacroEntry CurrentMacroEntry;
  ModuleEntry CurrentModuleEntry;
  IODEntry CurrentIODEntry;
  std::string CurrentModuleName;
  std::string CurrentModuleRef;
  std::string CurrentMacroRef;
  bool ParsingModule;
  bool ParsingModuleEntry;
  bool ParsingModuleEntryDescription;
  bool ParsingMacro;
  bool ParsingMacroEntry;
  bool ParsingMacroEntryDescription;
  bool ParsingIOD;
  bool ParsingIODEntry;
  Tag CurrentTag;
  std::string Description;
};

} // end namespace gdcm

#endif //GDCMTABLEREADER_H
```

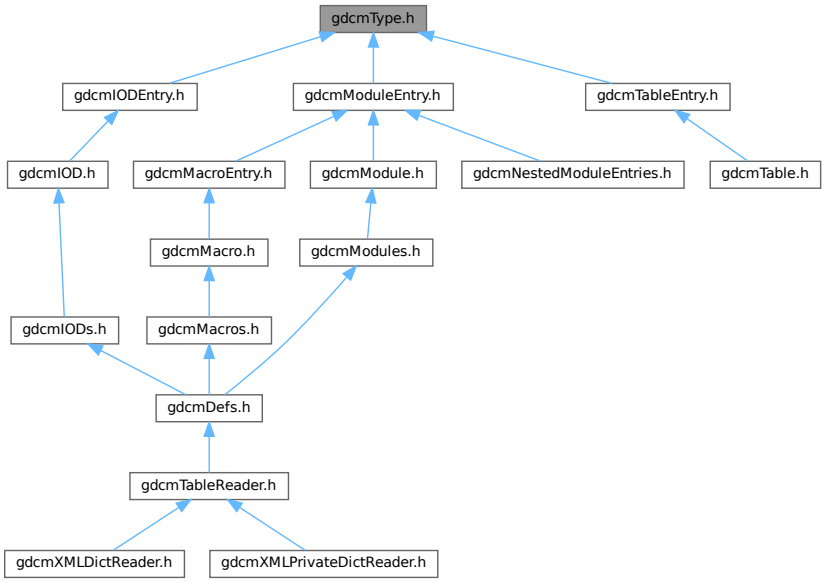
11.237 gdcmType.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmType.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Type

  Type.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Type &val)

11.238 gdcmType.h

Go to the documentation of this file.

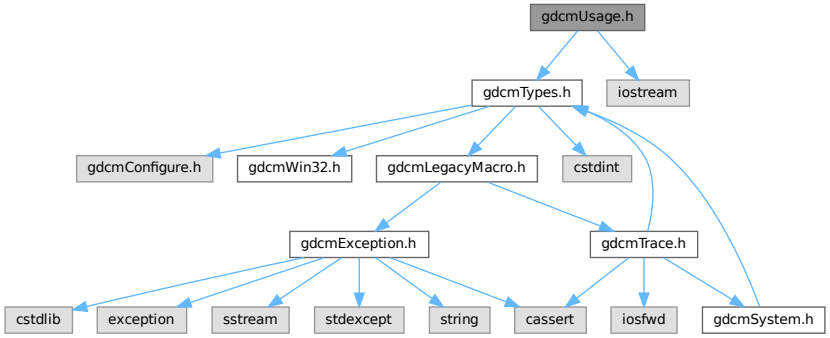
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMTYPE_H
#define GDCMTYPE_H

#include "gdcmTypes.h"

#include <iostream>

namespace gdcm
{

class GDCM_EXPORT Type
{
public:
  typedef enum {
    T1 = 0,
    T1C,
    T2,
    T2C,
    T3,
    UNKNOWN
  } TypeType;

  Type(TypeType type = UNKNOWN) : TypeField(type) { }

  operator TypeType () const { return TypeField; }
  friend std::ostream &operator«(std::ostream &os, const Type &vr);

  static const char *GetTypeString(TypeType type);
  static TypeType GetTypeType(const char *type);

private:
  TypeType TypeField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const Type &val)
{
  _os « Type::GetTypeString(val.TypeField);
  return _os;
}

} // end namespace gdcm

#endif //GDCMTYPE_H
```

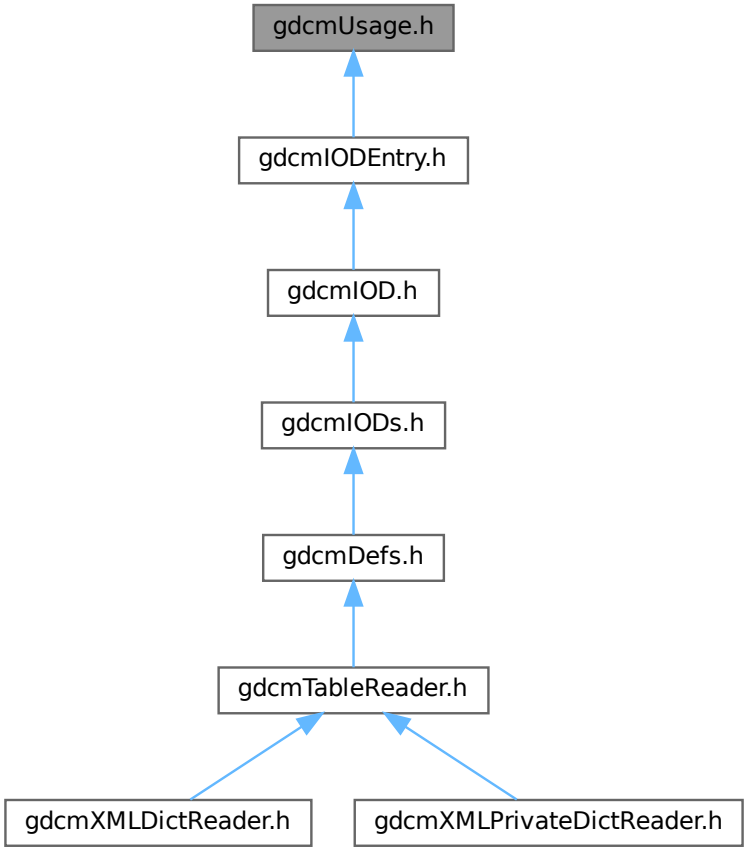
11.239 gdcmUsage.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmUsage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Usage

  Usage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Usage &val)

11.240 gdcmUsage.h

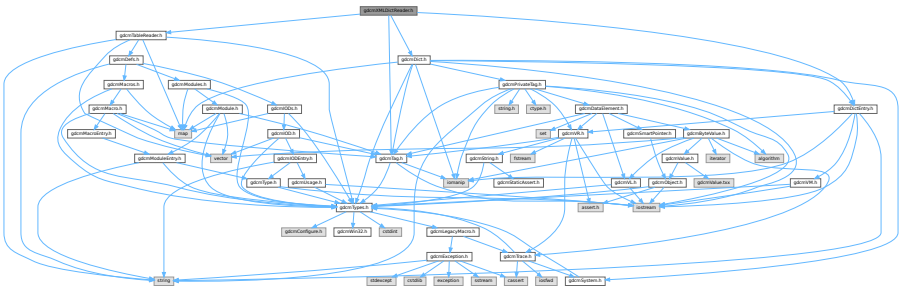
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUSAGE_H
#define GDCMUSAGE_H

#include "gdcmTypes.h"

#include <iostream>

namespace gdcm
{

class GDCM_EXPORT Usage
{
public:
  typedef enum {
    Mandatory, // (see A.1.3.1) , abbreviated M
    Conditional, // (see A.1.3.2) , abbreviated C
    UserOption, // (see A.1.3.3) , abbreviated U
    Invalid
  } UsageType;

  Usage(UsageType type = Invalid) : UsageField(type) { }

  operator UsageType () const { return UsageField; }
  friend std::ostream &operator«(std::ostream &os, const Usage &vr);

  static const char *GetUsageString(UsageType type);
  static UsageType GetUsageType(const char *type);

private:
  UsageType UsageField;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &_os, const Usage &val)
{
  _os « Usage::GetUsageString(val.UsageField);
  return _os;
}

} // end namespace gdcm

#endif //GDCMUSAGE_H
```

11.241 gdcmXMLDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLDictReader.h:



Classes

- class gdcm::XMLDictReader

  Class for representing a XMLDictReader.

Namespaces

- namespace gdcm

11.242 gdcmXMLDictReader.h

Go to the documentation of this file.

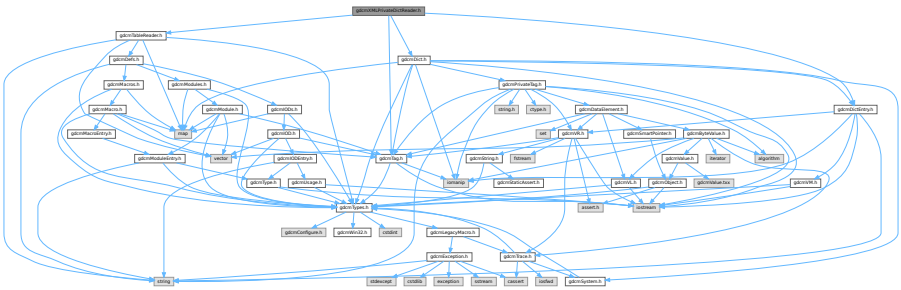
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLDICTREADER_H
00015 #define GDCMXMLDICTREADER_H
00016
00017 #include "gdcmTableReader.h"
00018 #include "gdcmDict.h"
00019 #include "gdcmDictEntry.h"
00020 #include "gdcmTag.h"
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT XMLDictReader : public TableReader
```

```
{
public:
  XMLDictReader();
  ~XMLDictReader() {}

  void StartElement(const char *name, const char **atts);
  void EndElement(const char *name);
  void CharacterDataHandler(const char *data, int length);

  const Dict & GetDict() { return DICOMDict; }

protected:
  void HandleEntry(const char **atts);
  void HandleDescription(const char **atts);

private:
  Dict DICOMDict;
  Tag CurrentTag;
  DictEntry CurrentDE;
  bool ParsingDescription;
  std::string Description;
};

} // end namespace gdcm

#endif //GDCMXMLDICTREADER_H
```

11.243 gdcmXMLPrivateDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLPrivateDictReader.h:



Classes

- class gdcm::XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Namespaces

- namespace gdcm

11.244 gdcmXMLPrivateDictReader.h

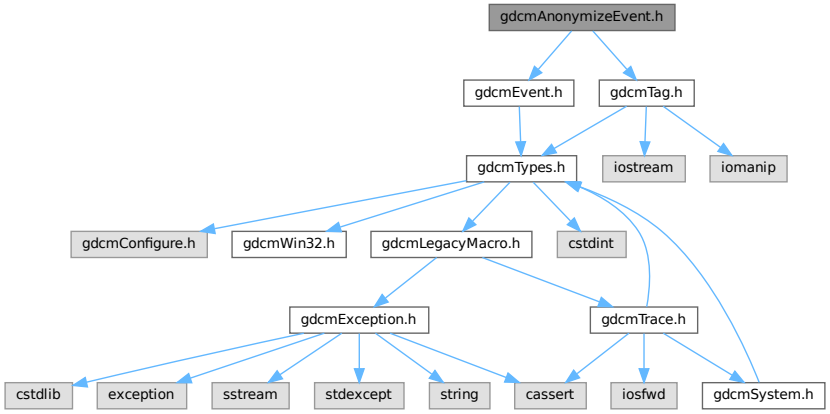
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMXMLPRIVATEDICTREADER_H
#define GDCMXMLPRIVATEDICTREADER_H

#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"

namespace gdcm
{
class GDCM_EXPORT XMLPrivateDictReader : public TableReader
{
public:
  XMLPrivateDictReader();
  ~XMLPrivateDictReader() {}

  void StartElement(const char *name, const char **atts);
  void EndElement(const char *name);
  void CharacterDataHandler(const char *data, int length);

  const PrivateDict & GetPrivateDict() { return PDict; }

protected:
  void HandleEntry(const char **atts);
  void HandleDescription(const char **atts);

private:
  PrivateDict PDict;
  PrivateTag CurrentTag;
  DictEntry CurrentDE;
  bool ParsingDescription;
  std::string Description;
};

} // end namespace gdcm

#endif //GDCMXMLPRIVATEDICTREADER_H
```

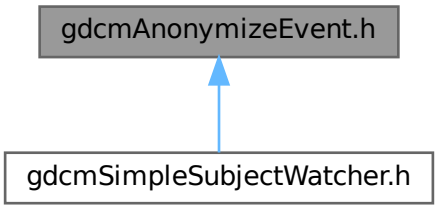
11.245 gdcmAnonymizeEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmAnonymizeEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AnonymizeEvent

  AnonymizeEvent.

Namespaces

- namespace gdcm

11.246 gdcmAnonymizeEvent.h

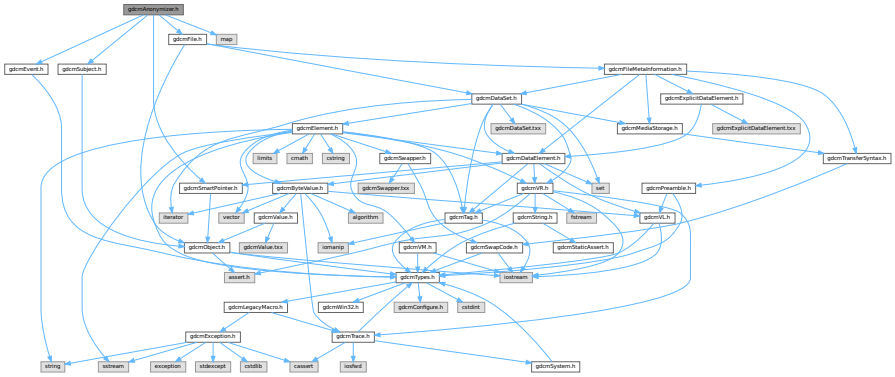
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMANONYMIZEEVENT_H
#define GDCMANONYMIZEEVENT_H

#include "gdcmEvent.h"
#include "gdcmTag.h"

namespace gdcm
{

class AnonymizeEvent : public AnyEvent
{
public:
  typedef AnonymizeEvent Self;
  typedef AnyEvent Superclass;
  AnonymizeEvent(Tag const &tag = 0):m_Tag(tag) {}
  ~AnonymizeEvent() override = default;
  AnonymizeEvent(const Self&s) : AnyEvent(s){}
  void operator=(const Self&) = delete;

  const char * GetEventName() const override { return "AnonymizeEvent"; }
  bool CheckEvent(const ::gdcm::Event* e) const override
  { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
  ::gdcm::Event* MakeObject() const override
    { return new Self; }

  void SetTag(const Tag& t ) { m_Tag = t; }
  Tag const & GetTag() const { return m_Tag; }
private:
  Tag m_Tag;
};


} // end namespace gdcm

#endif //GDCMANONYMIZEEVENT_H
```

11.247 gdcmAnonymizer.h File Reference

```
#include "gdcmFile.h"
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmSmartPointer.h"
#include <map>
```

Include dependency graph for gdcmAnonymizer.h:



Classes

- class gdcm::Anonymizer

  Anonymizer.

Namespaces

- namespace gdcm

11.248 gdcmAnonymizer.h

Go to the documentation of this file.

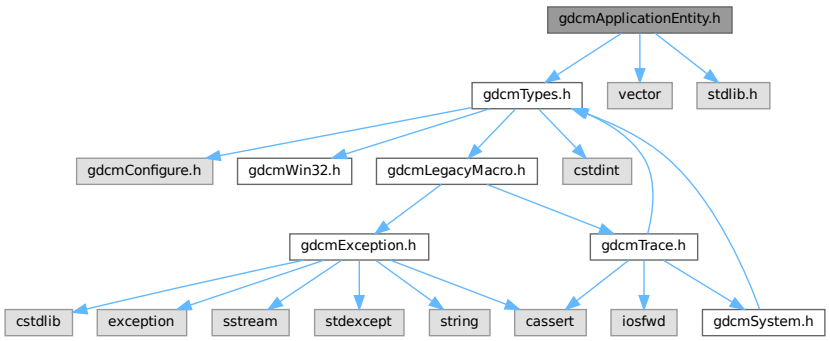
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMANONYMIZER_H
#define GDCMANONYMIZER_H

#include "gdcmFile.h"
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmSmartPointer.h"

#include <map>

namespace gdcm
{
class TagPath;
class IOD;
class CryptographicMessageSyntax;

class GDCM_EXPORT Anonymizer : public Subject
```

```
{
public:
  Anonymizer():F(new File),CMS(nullptr) {}
  ~Anonymizer() override;

  bool Empty( Tag const &t );

  bool Empty( PrivateTag const &pt );

  bool Clear( Tag const &t );
  bool Clear( PrivateTag const &pt );

  bool Remove( Tag const &t );

  bool Remove( PrivateTag const &pt );

  bool Replace( Tag const &t, const char *value );
  bool Replace( PrivateTag const &t, const char *value );

  bool Replace( Tag const &t, const char *value, VL const & vl );
  bool Replace( PrivateTag const &t, const char *value, VL const & vl );

  bool RemovePrivateTags();

  bool RemoveGroupLength();

  bool RemoveRetired();

  void SetFile(const File& f) { F = f; }
  //const File &GetFile() const { return *F; }
  File &GetFile() { return *F; }

  bool BasicApplicationLevelConfidentialityProfile(bool deidentify = true);

  void SetCryptographicMessageSyntax( CryptographicMessageSyntax *cms );
  const CryptographicMessageSyntax *GetCryptographicMessageSyntax() const;

  static SmartPointer<Anonymizer> New() { return new Anonymizer; }

  static std::vector<Tag> GetBasicApplicationLevelConfidentialityProfileAttributes();

  static void ClearInternalUIDs();

protected:
  // Internal function used to either empty a tag or set it's value to a dummy value (Type 1 vs Type 2)
  bool BALCPProtect(DataSet &ds, Tag const & tag, const IOD &iod);
  bool CanEmptyTag(Tag const &tag, const IOD &iod) const;
  void RecurseDataSet( DataSet & ds );

private:
  bool BasicApplicationLevelConfidentialityProfile1();
  bool BasicApplicationLevelConfidentialityProfile2();
  bool CheckIfSequenceContainsAttributeToAnonymize(File const &file, SequenceOfItems* sqi) const;

private:
  // I would prefer to have a smart pointer to DataSet but DataSet does not derive from Object...
  SmartPointer<File> F;
  CryptographicMessageSyntax *CMS;

  typedef std::pair< Tag, std::string > TagValueKey;
  typedef std::map< TagValueKey, std::string > DummyMapNonUIDTags;
  typedef std::map< std::string, std::string > DummyMapUIDTags;
  static DummyMapNonUIDTags dummyMapNonUIDTags;
  static DummyMapUIDTags dummyMapUIDTags;
};

} // end namespace gdcm

#endif //GDCMANONYMIZER_H
```

11.249 gdcmApplicationEntity.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
```

#include <stdlib.h>
Include dependency graph for gdcmApplicationEntity.h:



Classes

- class gdcm::ApplicationEntity

  ApplicationEntity.

Namespaces

- namespace gdcm

11.250 gdcmApplicationEntity.h

Go to the documentation of this file.

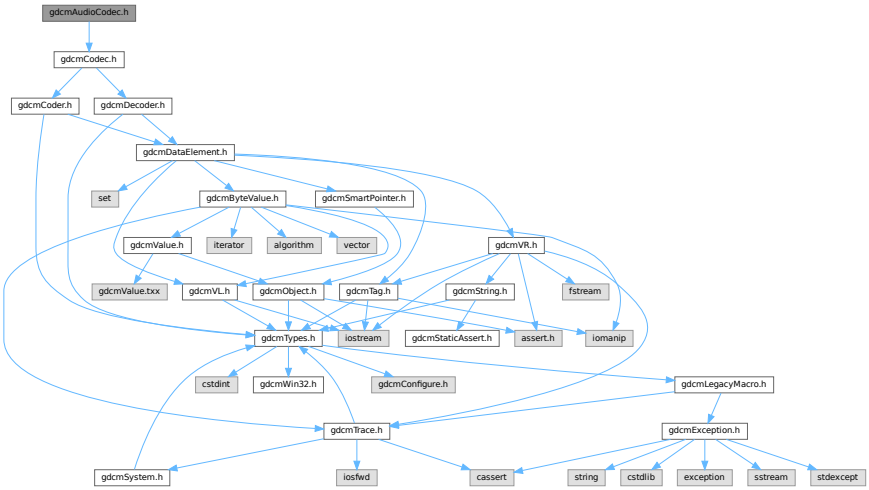
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAPPLICATIONENTITY_H
#define GDCMAPPLICATIONENTITY_H

#include "gdcmTypes.h"
#include <vector>
#include <stdlib.h> // abort

namespace gdcm
{

class GDCM_EXPORT ApplicationEntity
{
public:
  static const unsigned int MaxNumberOfComponents = 1;
```

```
  static const unsigned int MaxLength = 16;
  std::string Internal;
  static const char Separator = ' ';
  static const char Padding   = ' ';
  //static const char Excluded[5] = { '\\' /* 5CH */, '\n' /* LF */, '\f', /* FF */, '\r' /* CR */, 0x1b /* ESC */};

  bool IsValid() const {
    return true;
  }
  void Squeeze() {
    // trim leading and trailing white spaces
  }
  void SetBlob(const std::vector<char>& v) {
    (void)v;
    assert(0); //TODO
  }
  void Print(std::ostream &os) const {
  (void)os;
    assert(0); //TODO
  }
};

} // end namespace gdcm

#endif //GDCMAPPLICATIONENTITY_H
```

11.251 gdcmAudioCodec.h File Reference

`#include "gdcmCodec.h"`

Include dependency graph for gdcmAudioCodec.h:



Classes

- class gdcm::AudioCodec

  AudioCodec.

Namespaces

- namespace gdcm

11.252 gdcmAudioCodec.h

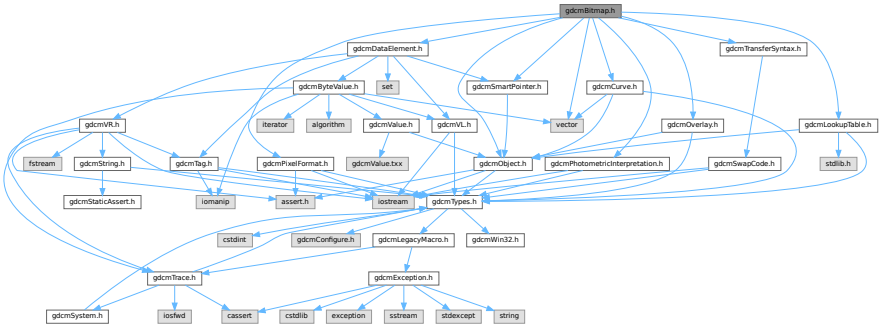
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAUDIOCODEC_H
#define GDCMAUDIOCODEC_H

#include "gdcmCodec.h"

namespace gdcm
{

class GDCM_EXPORT AudioCodec : public Codec
{
public:
  AudioCodec();
  ~AudioCodec() override;
  bool CanCode(TransferSyntax const &) const override { return false; }
  bool CanDecode(TransferSyntax const &) const override { return false; }
  bool Decode(DataElement const &is, DataElement &os) override;
};

} // end namespace gdcm

#endif //GDCMAUDIOCODEC_H
```

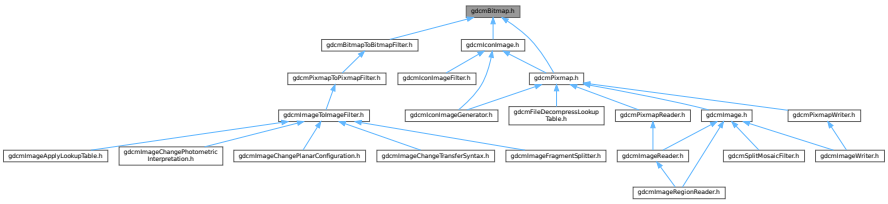
11.253 gdcmBitmap.h File Reference

```
#include "gdcmObject.h"
#include "gdcmCurve.h"
#include "gdcmDataElement.h"
#include "gdcmLookupTable.h"
#include "gdcmOverlay.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmPixelFormat.h"
#include "gdcmSmartPointer.h"
#include "gdcmTransferSyntax.h"
#include <vector>
```

Include dependency graph for gdcmBitmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Bitmap

  Bitmap class.

Namespaces

- namespace gdcm

11.254 gdcmBitmap.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

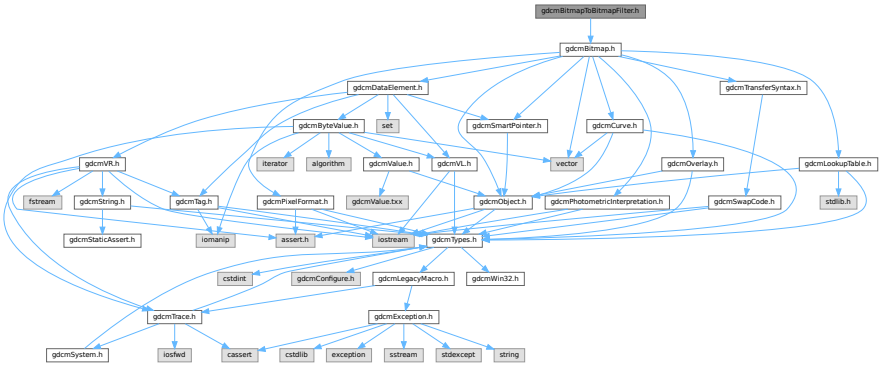
```
#ifndef GDCMBITMAP_H
#define GDCMBITMAP_H

#include "gdcmObject.h"
#include "gdcmCurve.h"
#include "gdcmDataElement.h"
//#include "gdcmIconImage.h"
#include "gdcmLookupTable.h"
#include "gdcmOverlay.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmPixelFormat.h"
#include "gdcmSmartPointer.h"
#include "gdcmTransferSyntax.h"

#include <vector>

namespace gdcm
{

class GDCM_EXPORT Bitmap : public Object
{
public:
  Bitmap();
  ~Bitmap() override;
  void Print(std::ostream &) const override;

  virtual bool AreOverlaysInPixelData() const { return false; }
  virtual bool UnusedBitsPresentInPixelData() const { return false; }

  unsigned int GetNumberOfDimensions() const;
  void SetNumberOfDimensions(unsigned int dim);

  unsigned int GetPlanarConfiguration() const;
  void SetPlanarConfiguration(unsigned int pc);

  bool GetNeedByteSwap() const
    {
    return NeedByteSwap;
    }
  void SetNeedByteSwap(bool b)
    {
    NeedByteSwap = b;
    }


  void SetTransferSyntax(TransferSyntax const &ts) {
    TS = ts;
  }
  const TransferSyntax &GetTransferSyntax() const {
    return TS;
  }
  bool IsTransferSyntaxCompatible( TransferSyntax const & ts ) const;
  void SetDataElement(DataElement const &de) {
    PixelData = de;
  }
  const DataElement& GetDataElement() const { return PixelData; }
  DataElement& GetDataElement() { return PixelData; }

  void SetLUT(LookupTable const &lut)
    {
    LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
    }
  const LookupTable &GetLUT() const
    {
    return *LUT;
    }
  LookupTable &GetLUT()
    {
    return *LUT;
    }

  const unsigned int *GetDimensions() const;
  unsigned int GetDimension(unsigned int idx) const;

  void SetColumns(unsigned int col) { SetDimension(0,col); }
  unsigned int GetColumns() const { return GetDimension(0); }
  void SetRows(unsigned int rows) { SetDimension(1,rows); }
  unsigned int GetRows() const { return GetDimension(1); }
  void SetDimensions(const unsigned int dims[3]);
  void SetDimension(unsigned int idx, unsigned int dim);
  const PixelFormat &GetPixelFormat() const
```

```
    {
    return PF;
    }
  PixelFormat &GetPixelFormat()
    {
    return PF;
    }
  void SetPixelFormat(PixelFormat const &pf)
    {
    PF = pf;
    PF.Validate();
    }

  const PhotometricInterpretation &GetPhotometricInterpretation() const;
  void SetPhotometricInterpretation(PhotometricInterpretation const &pi);

  bool IsEmpty() const { return Dimensions.empty(); }
  void Clear();

  unsigned long GetBufferLength() const;

  bool GetBuffer(char *buffer) const;

  bool IsLossy() const;

  void SetLossyFlag(bool f) { LossyFlag = f; }

protected:
  bool TryRAWCodec(char *buffer, bool &lossyflag) const;
  bool TryJPEGCodec(char *buffer, bool &lossyflag) const;
  bool TryPVRGCodec(char *buffer, bool &lossyflag) const;
  bool TryKAKADUCodec(char *buffer, bool &lossyflag) const;
  bool TryJPEGLSCodec(char *buffer, bool &lossyflag) const;
  bool TryJPEG2000Codec(char *buffer, bool &lossyflag) const;
  bool TryRLECodec(char *buffer, bool &lossyflag) const;

  bool TryJPEGCodec2(std::ostream &os) const;
  bool TryJPEG2000Codec2(std::ostream &os) const;

  bool GetBuffer2(std::ostream &os) const;

  friend class PixmapReader;
  friend class ImageChangeTransferSyntax;
  // Function to compute the lossy flag based only on the image buffer.
  // Watch out that image can be lossy but in implicit little endian format...
  bool ComputeLossyFlag();

//private:
protected:
  unsigned int PlanarConfiguration;
  unsigned int NumberOfDimensions;
  TransferSyntax TS;
  PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
  PhotometricInterpretation PI;
  // Mind dump: unsigned int is required here, since we are reading (0028,0008) Number Of Frames
  // which is VR::IS, so I cannot simply assumed that unsigned short is enough... :(
  std::vector<unsigned int> Dimensions; // Col/Row
  DataElement PixelData; // copied from 7fe0,0010

  typedef SmartPointer<LookupTable> LUTPtr;
  LUTPtr LUT;
  // I believe the following 3 ivars can be derived from TS ...
  bool NeedByteSwap; // FIXME: remove me
  bool LossyFlag;

private:
  bool GetBufferInternal(char *buffer, bool &lossyflag) const;
};

} // end namespace gdcm

#endif //GDCMBITMAP_H
```

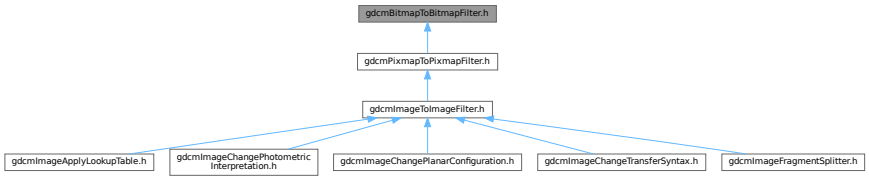
11.255 gdcmBitmapToBitmapFilter.h File Reference

`#include "gdcmBitmap.h"`

Include dependency graph for gdcmBitmapToBitmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BitmapToBitmapFilter

  BitmapToBitmapFilter class.

Namespaces

- namespace gdcm

11.256 gdcmBitmapToBitmapFilter.h

Go to the documentation of this file.

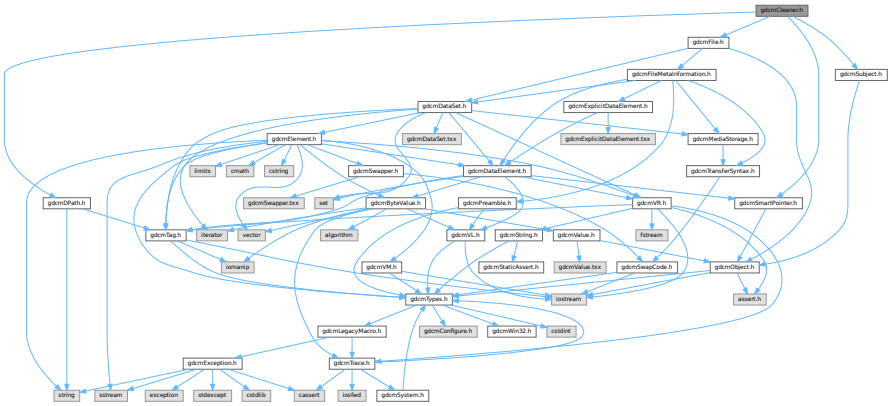
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBITMAPTOBITMAPFILTER_H
#define GDCMBITMAPTOBITMAPFILTER_H

#include "gdcmBitmap.h"

namespace gdcm
{

class GDCM_EXPORT BitmapToBitmapFilter
{
public:
  BitmapToBitmapFilter();
  ~BitmapToBitmapFilter() = default;

  void SetInput(const Bitmap& image);

  const Bitmap &GetOutput() const { return *Output; }

  // SWIG/Java hack:
  const Bitmap &GetOutputAsBitmap() const;

protected:
  SmartPointer<Bitmap> Input;
  SmartPointer<Bitmap> Output;
};

} // end namespace gdcm

#endif //GDCMBITMAPTOBITMAPFILTER_H
```

11.257 gdcmCleaner.h File Reference

```
#include "gdcmDPath.h"
#include "gdcmFile.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCleaner.h:



Classes

- class gdcm::Cleaner

  Cleaner.

Namespaces

- namespace gdcm

11.258 gdcmCleaner.h

Go to the documentation of this file.

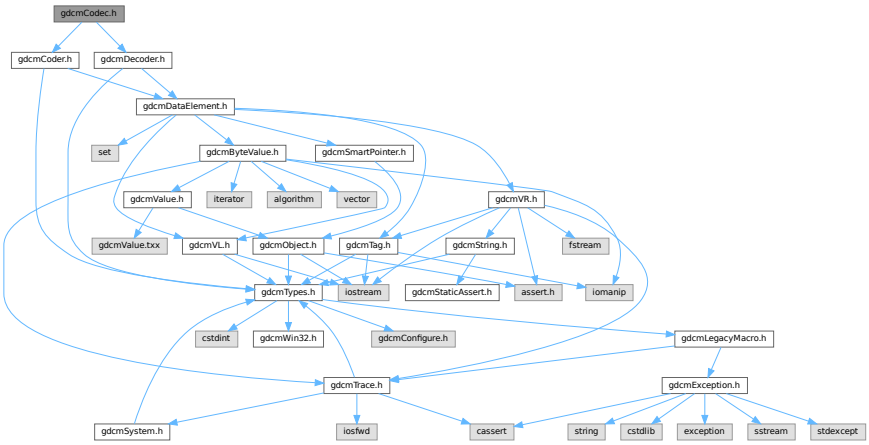
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCLEANER_H
#define GDCMCLEANER_H

#include "gdcmDPath.h"
#include "gdcmFile.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"

namespace gdcm {
class GDCM_EXPORT Cleaner : public Subject {
 public:
  Cleaner();
  ~Cleaner() override;

  bool Empty(Tag const &t);
  bool Empty(PrivateTag const &pt);
  bool Empty(DPath const &dpath);
  bool Empty(VR const &vr);

  bool Remove(Tag const &t);
  bool Remove(PrivateTag const &pt);
  bool Remove(DPath const &dpath);
  bool Remove(VR const &vr);

  bool Scrub(Tag const &t);
  bool Scrub(PrivateTag const &pt);
  bool Scrub(DPath const &dpath);
  bool Scrub(VR const &vr);

  bool Preserve(DPath const &dpath);

  void RemoveAllMissingPrivateCreator(bool remove);

  bool RemoveMissingPrivateCreator(Tag const &t);

  void RemoveAllGroupLength(bool remove);

  void RemoveAllIllegal(bool remove);

  void EmptyWhenScrubFails(bool empty);

  bool Clean();

  void SetFile(const File &f) { F = f; }
```

```
  // const File &GetFile() const { return *F; }
  File &GetFile() { return *F; }

  static SmartPointer<Cleaner> New() { return new Cleaner; }

 private:
  // I would prefer to have a smart pointer to DataSet but DataSet does not
  // derive from Object...
  SmartPointer<File> F;
  struct impl;
  // PIMPL idiom
  impl *pimpl;
};

}  // end namespace gdcm

#endif  // GDCMCLEANER_H
```

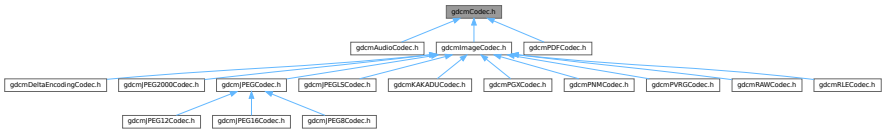
11.259 gdcmCodec.h File Reference

```
#include "gdcmCoder.h"
#include "gdcmDecoder.h"
```

Include dependency graph for gdcmCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Codec

  Codec class.

Namespaces

- namespace gdcm

11.260 gdcmCodec.h

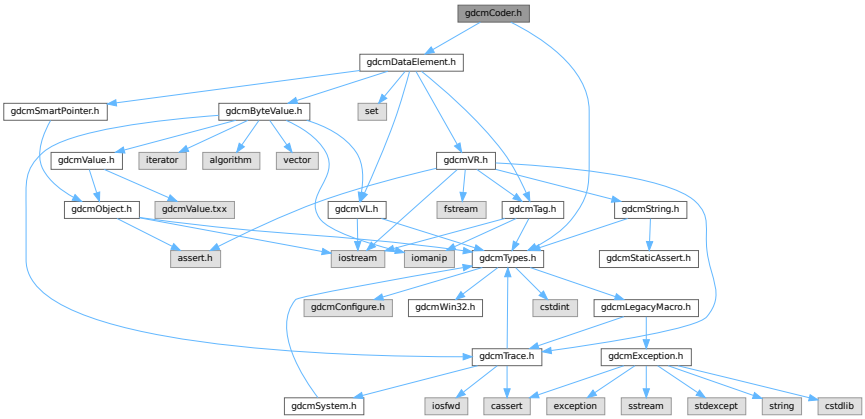
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCODEC_H
#define GDCMCODEC_H

#include "gdcmCoder.h"
#include "gdcmDecoder.h"

namespace gdcm
{

class GDCM_EXPORT Codec : public Coder, public Decoder
{
};

} // end namespace gdcm

#endif //GDCMCODEC_H
```

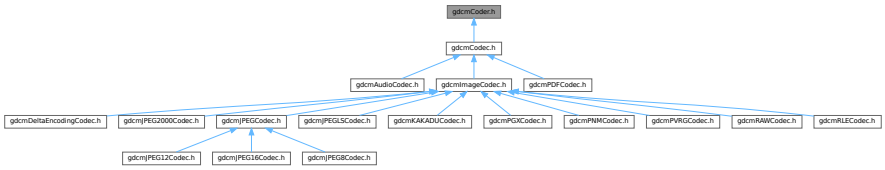
11.261 gdcmCoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Coder

  Coder.

Namespaces

- namespace gdcm

11.262 gdcmCoder.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCODER_H
#define GDCMCODER_H

#include "gdcmTypes.h"
#include "gdcmDataElement.h" // FIXME

namespace gdcm
{

class TransferSyntax;
class DataElement;
class GDCM_EXPORT Coder
{
public:
  virtual ~Coder() = default;

  virtual bool CanCode(TransferSyntax const &) const = 0;

  // Note: in / out are reserved keyword in C#. Change to in_ / out_

  virtual bool Code(DataElement const &in_, DataElement &out_) { (void)in_; (void)out_; return false; }
protected:
  virtual bool InternalCode(const char *bv, unsigned long len, std::ostream &os) {
(void)bv;(void)os;(void)len;return false; }
};

} // end namespace gdcm

#endif //GDCMCODER_H
```

11.263 gdcmConstCharWrapper.h File Reference

Classes

- class gdcm::ConstCharWrapper

  Do not use me.

Namespaces

- namespace gdcm

11.264 gdcmConstCharWrapper.h

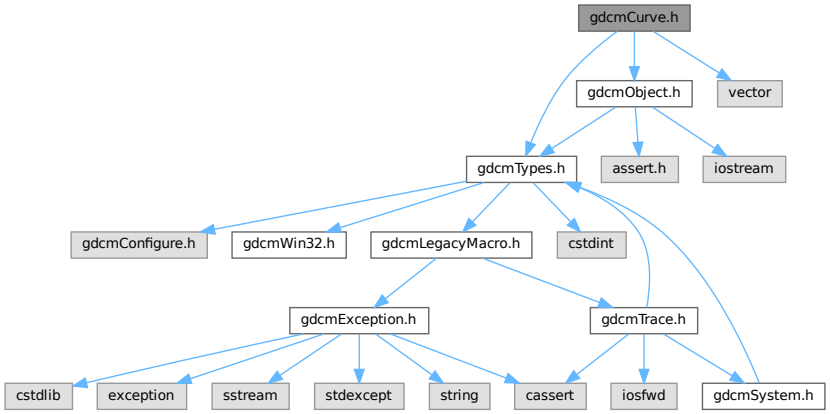
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCONSTCHARWRAPPER_H
#define GDCMCONSTCHARWRAPPER_H

namespace gdcm
{

#error

/*
 * This class is a pure hack. Its only goal is to work around a bad bug in :
 *  $ swig -version
 *  SWIG Version 1.3.31
 *
 *  See
 * - http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum_
 *
 *  As a side note there is also a problem with const reference to enum type:
 * - http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum_
 *
 *   And to keep track of an issue with swig here is the last one:
 *
 * - http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum_
 */


class ConstCharWrapper
{
public:
  ConstCharWrapper(const char *i=0):Internal(i) {}
  operator const char * () const { return Internal; }
private:
  const char *Internal;
};

} // end namespace gdcm

#endif //GDCMCONSTCHARWRAPPER_H
```

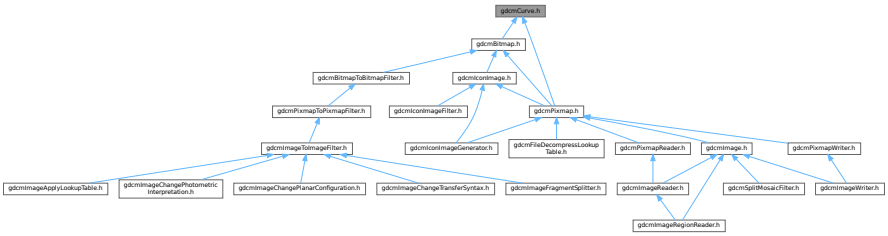
11.265 gdcmCurve.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <vector>
```

Include dependency graph for gdcmCurve.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Curve

  Curve class to handle element 50xx,3000 Curve Data.

Namespaces

- namespace gdcm

11.266 gdcmCurve.h

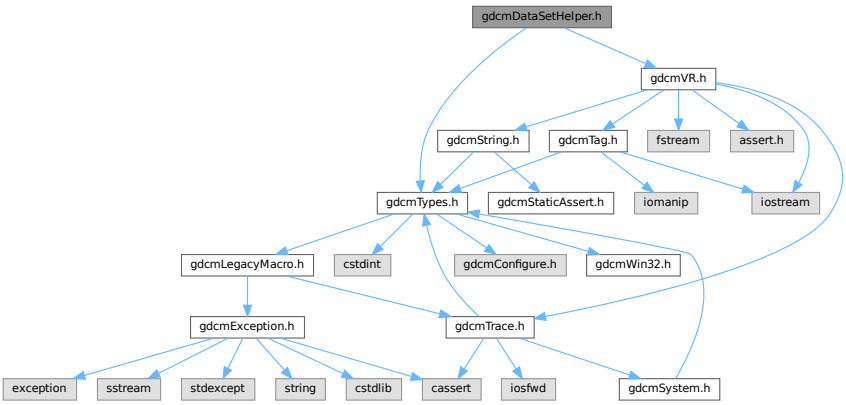
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCURVE_H
#define GDCMCURVE_H

#include "gdcmTypes.h"
#include "gdcmObject.h"

#include <vector>

namespace gdcm
{

class CurveInternal;
class ByteValue;
class DataSet;
class DataElement;
class GDCM_EXPORT Curve : public Object
{
public:
  Curve();
  ~Curve() override;
  void Print(std::ostream &) const override;

  void GetAsPoints(float *array) const;

  static unsigned int GetNumberOfCurves(DataSet const & ds);

  // Update curve data from dataelmenet de:
  void Update(const DataElement & de);

  void SetGroup(unsigned short group);
  unsigned short GetGroup() const;
  void SetDimensions(unsigned short dimensions);
  unsigned short GetDimensions() const;
  void SetNumberOfPoints(unsigned short numberofpoints);
  unsigned short GetNumberOfPoints() const;
  void SetTypeOfData(const char *typeofdata);
  const char *GetTypeOfData() const;
  // See PS 3.3 - 2004 - C.10.2.1.1 Type of data
  const char *GetTypeOfDataDescription() const;
  void SetCurveDescription(const char *curvedescription);
  void SetDataValueRepresentation(unsigned short datavaluerepresentation);
  unsigned short GetDataValueRepresentation() const;
  void SetCurveDataDescriptor(const uint16_t * values, size_t num);
  std::vector<unsigned short> const &GetCurveDataDescriptor() const;
  void SetCoordinateStartValue( unsigned short v );
  void SetCoordinateStepValue( unsigned short v );

  void SetCurve(const char *array, unsigned int length);

  bool IsEmpty() const;

  void Decode(std::istream &is, std::ostream &os);

  Curve(Curve const &ov);
private:
  double ComputeValueFromStartAndStep(unsigned int idx) const;
  CurveInternal *Internal;
};

} // end namespace gdcm

#endif //GDCMCURVE_H
```

11.267 gdcmDataSetHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
```

Include dependency graph for gdcmDataSetHelper.h:



Classes

- class gdcm::DataSetHelper

  DataSetHelper (internal class, not intended for user level)

Namespaces

- namespace gdcm

11.268 gdcmDataSetHelper.h

Go to the documentation of this file.

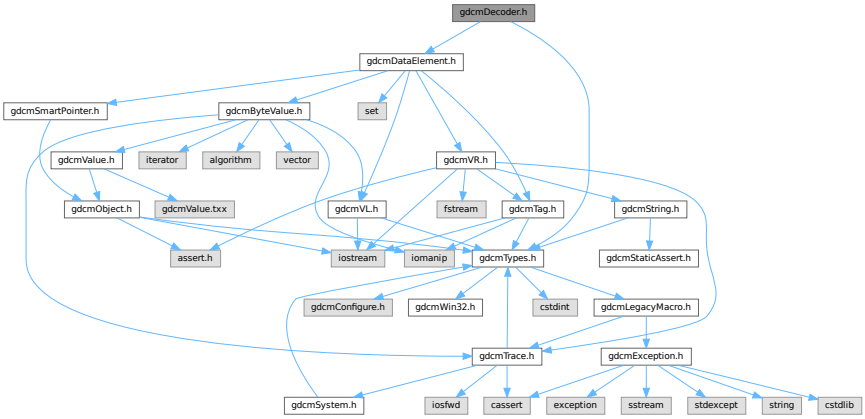
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDATASETHELPER_H
#define GDCMDATASETHELPER_H

#include "gdcmTypes.h"
#include "gdcmVR.h"

```

```
namespace gdcm
{
class DataSet;
class File;
class Tag;
class SequenceOfItems;

class GDCM_EXPORT DataSetHelper
{
public:
  static VR ComputeVR(File const & file, DataSet const &ds, const Tag& tag);

  //static SequenceOfItems* ComputeSQFromByteValue(File const & file, DataSet const &ds, const Tag &tag);

protected:
};

} // end namespace gdcm

#endif // GDCMDATASETHELPER_H
```

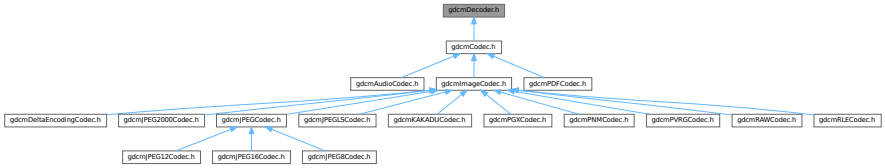
11.269 gdcmDecoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmDecoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Decoder

  Decoder.

Namespaces

- namespace gdcm

11.270 gdcmDecoder.h

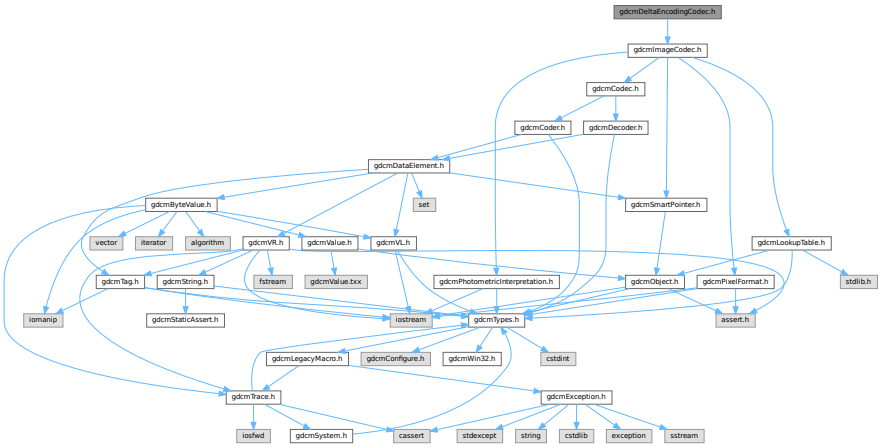
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMDECODER_H
#define GDCMDECODER_H

#include "gdcmTypes.h"
#include "gdcmDataElement.h" // FIXME

namespace gdcm
{

class TransferSyntax;
class DataElement;
class GDCM_EXPORT Decoder
{
public:
  virtual ~Decoder() = default;

  virtual bool CanDecode(TransferSyntax const &) const = 0;

  virtual bool Decode(DataElement const &, DataElement &) { return false; }
protected:
  virtual bool DecodeByStreams(std::istream &, std::ostream &) { return false; }
};

} // end namespace gdcm

#endif //GDCMDECODER_H
```

11.271 gdcmDeltaEncodingCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmDeltaEncodingCodec.h:



Classes

- class gdcm::DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.

Namespaces

- namespace gdcm

11.272 gdcmDeltaEncodingCodec.h

Go to the documentation of this file.

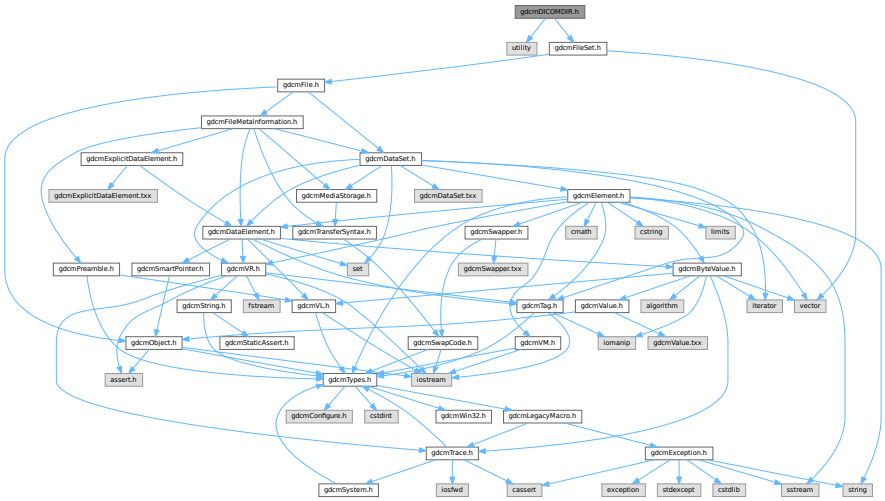
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDELTAENCODINGCODEC_H
#define GDCMDELTAENCODINGCODEC_H

#include "gdcmImageCodec.h"
#error do not use

namespace gdcm
```

```
{

class DeltaEncodingCodec : public ImageCodec
{
public:
  DeltaEncodingCodec();
  ~DeltaEncodingCodec();
  bool CanDecode(TransferSyntax const &ts);
  bool Decode(DataElement const &is, DataElement &os);
protected:
  bool Decode(std::istream &is, std::ostream &os);
};

} // end namespace gdcm

#endif //GDCMDELTAENCODINGCODEC_H
```

11.273 gdcmDICOMDIR.h File Reference

```
#include <utility>
#include "gdcmFileSet.h"
```

Include dependency graph for gdcmDICOMDIR.h:



Classes

- class gdcm::DICOMDIR

  DICOMDIR class.

Namespaces

- namespace gdcm

11.274 gdcmDICOMDIR.h

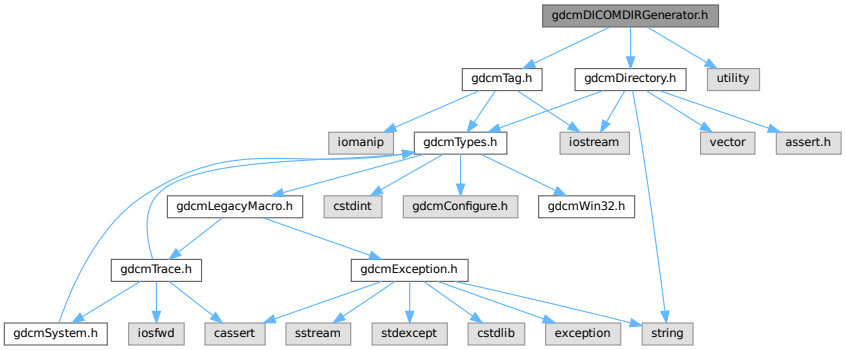
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICOMDIR_H
#define GDCMDICOMDIR_H

#include <utility>
#include "gdcmFileSet.h"

namespace gdcm
{
class GDCM_EXPORT DICOMDIR
{
public:
  DICOMDIR() = default;
  DICOMDIR(FileSet  fs):_FS(std::move(std::move(fs))) {}

private:
  FileSet _FS;
  //13 sept 2010 mmr-- added the underscore to FS to compile under Sunos gcc
};

} // end namespace gdcm

#endif //GDCMDICOMDIR_H
```

11.275 gdcmDICOMDIRGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <utility>
```

Include dependency graph for gdcmDICOMDIRGenerator.h:



Classes

- class gdcm::DICOMDIRGenerator

  DICOMDIRGenerator class.

Namespaces

- namespace gdcm

11.276 gdcmDICOMDIRGenerator.h

Go to the documentation of this file.

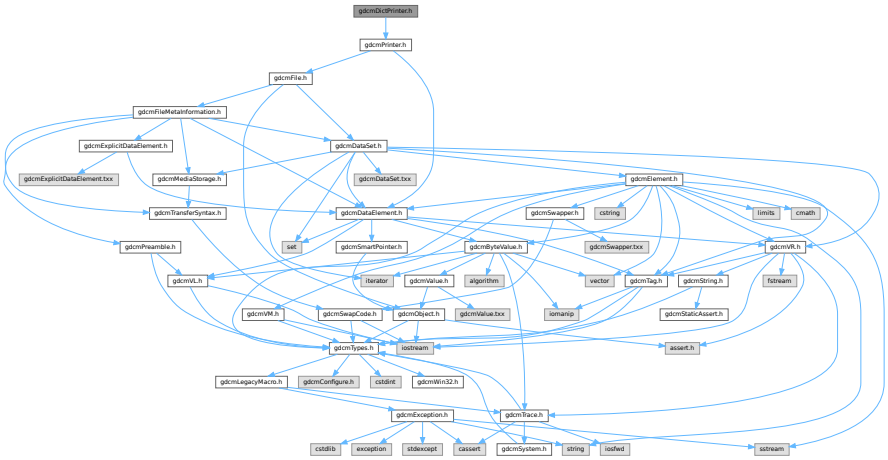
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICOMDIRGENERATOR_H
#define GDCMDICOMDIRGENERATOR_H

#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <utility> // std::pair

namespace gdcm
{
class File;
class Scanner;
class SequenceOfItems;
class VL;
class DICOMDIRGeneratorInternal;

class GDCM_EXPORT DICOMDIRGenerator
{
public:
  typedef Directory::FilenamesType  FilenamesType;
  typedef Directory::FilenameType  FilenameType;
  DICOMDIRGenerator();
  ~DICOMDIRGenerator();

  void SetFilenames( FilenamesType const & fns );

  void SetRootDirectory( FilenameType const & root );

  void SetDescriptor( const char *d );

  bool Generate();

  void SetFile(const File& f);
  File &GetFile();

protected:
  Scanner &GetScanner();
  bool AddPatientDirectoryRecord();
  bool AddStudyDirectoryRecord();
  bool AddSeriesDirectoryRecord();
  bool AddImageDirectoryRecord();

private:
  const char *ComputeFileID(const char *);
  bool TraverseDirectoryRecords(VL start );
```

```
  bool ComputeDirectoryRecordsOffset(const SequenceOfItems *sqi, VL start);
  size_t FindNextDirectoryRecord( size_t item1, const char *directorytype );
  SequenceOfItems *GetDirectoryRecordSequence();
  size_t FindLowerLevelDirectoryRecord( size_t item1, const char *directorytype );
  typedef std::pair< std::string, Tag> MyPair;
  MyPair GetReferenceValueForDirectoryType(size_t item);
  bool SeriesBelongToStudy(const char *seriesuid, const char *studyuid);
  bool ImageBelongToSeries(const char *sopuid, const char *seriesuid, Tag const &t1, Tag const &t2);
  bool ImageBelongToSameSeries(const char *sopuid, const char *seriesuid, Tag const &t);

  DICOMDIRGeneratorInternal * Internals;
};

} // end namespace gdcm

#endif //GDCMDICOMDIRGENERATOR_H
```

11.277 gdcmDictPrinter.h File Reference

`#include "gdcmPrinter.h"`

Include dependency graph for gdcmDictPrinter.h:



Classes

- class gdcm::DictPrinter

  DictPrinter class.

Namespaces

- namespace gdcm

11.278 gdcmDictPrinter.h

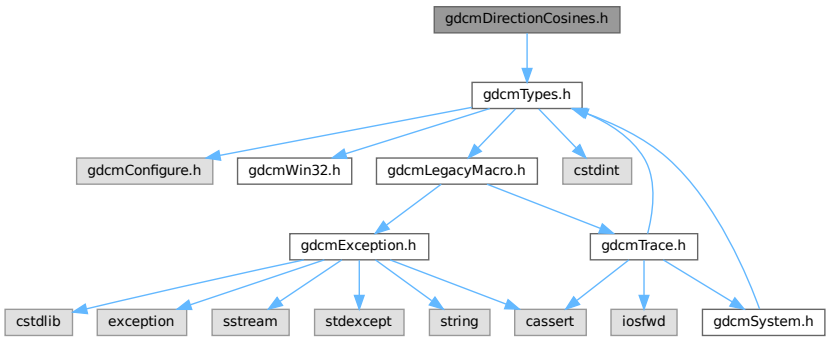
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDICTPRINTER_H
#define GDCMDICTPRINTER_H

#include "gdcmPrinter.h"

namespace gdcm
{

// It's a sink there is no output
class GDCM_EXPORT DictPrinter : public Printer
{
public:
  DictPrinter();
  ~DictPrinter() = default;

  void Print(std::ostream& os);

protected:
  void PrintDataElement2(std::ostream& os, const DataSet &ds, const DataElement &ide);
  void PrintDataSet2(std::ostream& os, const DataSet &ds);
};

} // end namespace gdcm

#endif //GDCMDICTPRINTER_H
```

11.279 gdcmDirectionCosines.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDirectionCosines.h:



Classes

- class gdcm::DirectionCosines

  class to handle DirectionCosines

Namespaces

- namespace gdcm

11.280 gdcmDirectionCosines.h

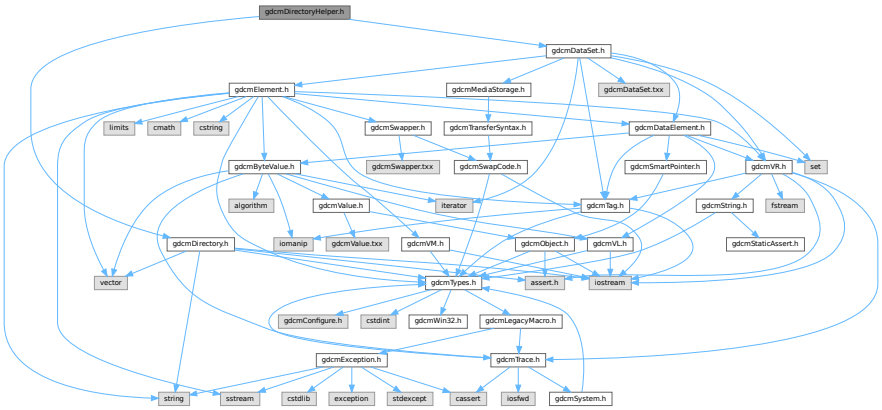
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDIRECTIONCOSINES_H
#define GDCMDIRECTIONCOSINES_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT DirectionCosines
{
public:
  DirectionCosines();
  DirectionCosines(const double dircos[6]);
  // Cannot get the following signature to be wrapped with swig...
  //DirectionCosines(const double *dircos = 0 );
  ~DirectionCosines();

  void Print(std::ostream &) const;

  void Cross(double z[3]) const;

  double Dot() const;

  static double Dot(const double x[3], const double y[3]);

  void Normalize();

  static void Normalize(double v[3]);

  static double Norm(const double v[3]);

  operator const double* () const { return Values; }

  bool IsValid() const;

  bool SetFromString(const char *str);

  double CrossDot(DirectionCosines const &dc) const;

  double ComputeDistAlongNormal(const double ipp[3]) const;

private:
  double Values[6];
};

} // end namespace gdcm

#endif //GDCMDIRECTIONCOSINES_H
```

11.281 gdcmDirectoryHelper.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDirectoryHelper.h:



Classes

- class gdcm::DirectoryHelper

  DirectoryHelper.

Namespaces

- namespace gdcm

11.282 gdcmDirectoryHelper.h

Go to the documentation of this file.

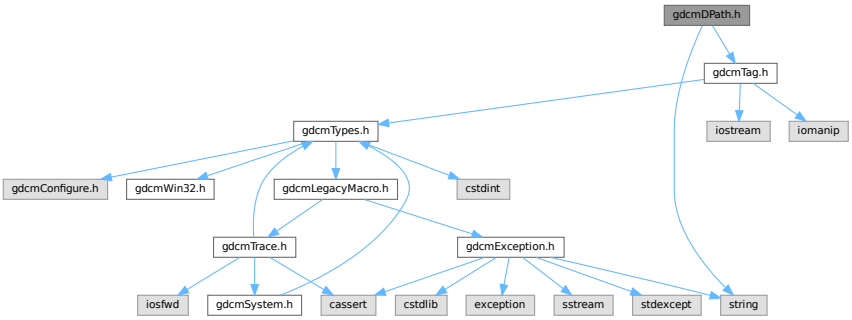
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#include "gdcmDirectory.h"
#include "gdcmDataSet.h"

namespace gdcm
{

class GDCM_EXPORT DirectoryHelper
```

```
{
public:
  //returns all series UIDs in a given directory that match a particular SOP Instance UID
  static Directory::FilenamesType GetSeriesUIDsBySOPClassUID(const std::string& inDirectory,
    const std::string& inSOPClassUID);

  //specific implementations of the SOPClassUID grabber, so you don't have to
  //remember the SOP Class UIDs of CT or MR images.
  static Directory::FilenamesType GetCTImageSeriesUIDs(const std::string& inDirectory);
  static Directory::FilenamesType GetMRImageSeriesUIDs(const std::string& inDirectory);
  static Directory::FilenamesType GetRTStructSeriesUIDs(const std::string& inDirectory);

  //given a directory and a series UID, provide all filenames with that series UID.
  static Directory::FilenamesType GetFilenamesFromSeriesUIDs(const std::string& inDirectory,
    const std::string& inSeriesUID);

  //given a series UID, load all the images associated with that series UID
  //these images will be IPP sorted, so that they can be used for gathering all
  //the necessary information for generating an RTStruct
  //this function should be called by the writer once, if the writer's dataset
  //vector is empty.  Make sure to have a new writer for new rtstructs.
  static std::vector<DataSet> LoadImageFromFiles(const std::string& inDirectory,
    const std::string& inSeriesUID);

  //When writing RTStructs, each contour will have z position defined.
  //use that z position to determine the SOPInstanceUID for that plane.
  static std::string RetrieveSOPInstanceUIDFromZPosition(double inZPos,
    const std::vector<DataSet>& inDS);

  //When writing RTStructs, the frame of reference is done by planes to start with
  static std::string RetrieveSOPInstanceUIDFromIndex(int inIndex,
   const std::vector<DataSet>& inDS);

  //each plane needs to know the SOPClassUID, and that won't change from image to image
  //so, retrieve this once at the start of writing.
  static std::string GetSOPClassUID(const std::vector<DataSet>& inDS);

  //retrieve the frame of reference from the set of datasets
  static std::string GetFrameOfReference(const std::vector<DataSet>& inDS);

  //both the image and polydata readers use these functions to get std::strings
  static std::string GetStringValueFromTag(const Tag& t, const DataSet& ds);
};

}
```

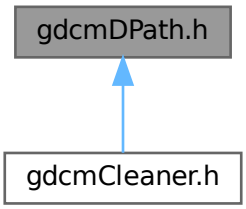
11.283 gdcmDPath.h File Reference

```
#include "gdcmTag.h"
#include <string>
```

Include dependency graph for gdcmDPath.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.↩dicom/c/IyIH0IOBMPA`

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DPath &val)

11.284 gdcmDPath.h

Go to the documentation of this file.

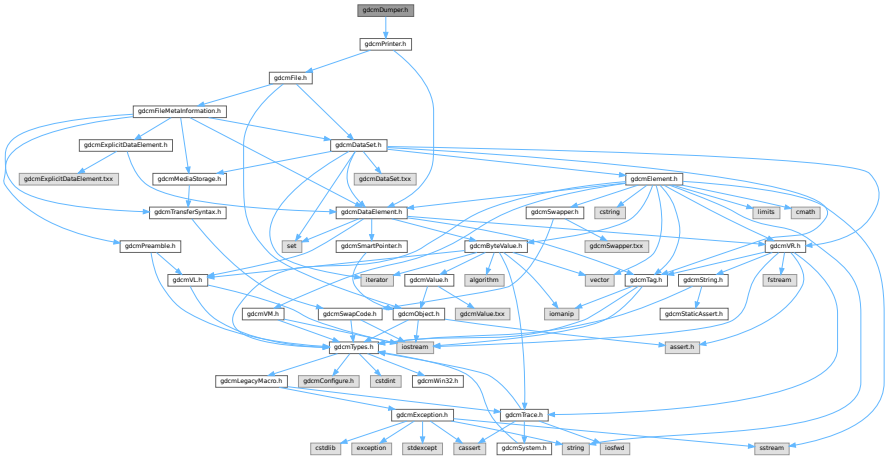
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDPATH_H
00015 #define GDCMDPATH_H
00016
00017 #include "gdcmTag.h"
00018 #include <string>
00019
00020 namespace gdcm {
```

```
00021
00028 class GDCM_EXPORT DPath {
00029   friend std::ostream &operator«(std::ostream &_os, const DPath &_val);
00030
00031  public:
00032   DPath();
00033   ~DPath();
00034   void Print(std::ostream &) const;
00035   bool operator<(const DPath &rhs) const;
00036
00037   bool ConstructFromString(const char *path);
00038
00040   bool Match(DPath const &other) const;
00041
00043   static bool IsValid(const char *path);
00044
00045  private:
00046   std::string Path;
00047 };
00048
00049 inline std::ostream &operator«(std::ostream &os, const DPath &val) {
00050   os « val.Path;
00051   return os;
00052 }
00053
00054 }  // end namespace gdcm
00055
00056 #endif  // GDCMDPATH_H
```

11.285 gdcmDumper.h File Reference

`#include "gdcmPrinter.h"`

Include dependency graph for gdcmDumper.h:



Classes

- class gdcm::Dumper

  Codec class.

Namespaces

- namespace gdcm

11.286 gdcmDumper.h

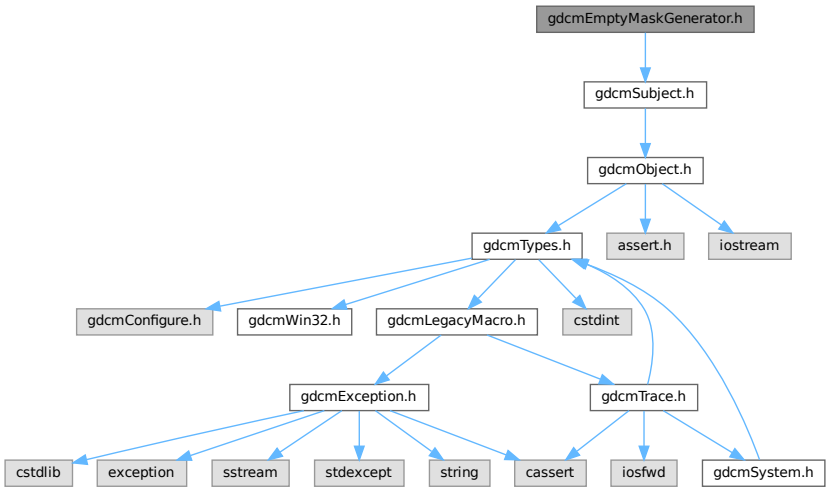
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMDUMPER_H
#define GDCMDUMPER_H

#include "gdcmPrinter.h"

namespace gdcm
{

// It's a sink there is no output
class GDCM_EXPORT Dumper : public Printer
{
public:
  Dumper() { PrintStyle = CONDENSED_STYLE; }
  ~Dumper() = default;
};

} // end namespace gdcm

#endif //GDCMDUMPER_H
```

11.287 gdcmEmptyMaskGenerator.h File Reference

`#include "gdcmSubject.h"`

Include dependency graph for gdcmEmptyMaskGenerator.h:



Classes

- class gdcm::EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

Namespaces

- namespace gdcm

11.288 gdcmEmptyMaskGenerator.h

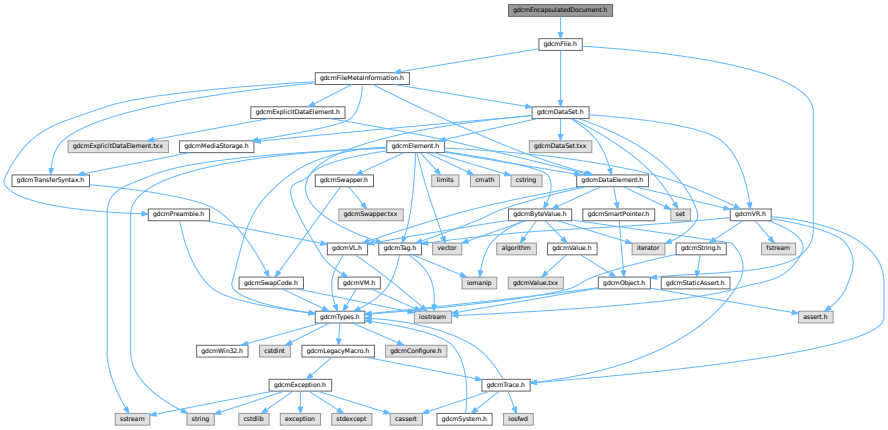
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMEMPTYMASKGENERATOR_H
#define GDCMEMPTYMASKGENERATOR_H

#include "gdcmSubject.h"

namespace gdcm {
class GDCM_EXPORT EmptyMaskGenerator
{
public:
  EmptyMaskGenerator();
  ~EmptyMaskGenerator();

  enum SOPClassUIDMode {
    UseOriginalSOPClassUID = 0, // default
    UseGrayscaleSecondaryImageStorage
  };

  void SetSOPClassUIDMode( SOPClassUIDMode mode );

  void SetInputDirectory( const char * dirname );

  void SetOutputDirectory( const char * dirname );

  bool Execute();

private:
  struct impl;
  // PIMPL idiom
  impl* pimpl;
};
} // end namespace gdcm
#endif //GDCMEMPTYMASKGENERATOR_H
```

11.289 gdcmEncapsulatedDocument.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmEncapsulatedDocument.h:



Classes

- class gdcm::EncapsulatedDocument

  EncapsulatedDocument.

Namespaces

- namespace gdcm

11.290 gdcmEncapsulatedDocument.h

Go to the documentation of this file.

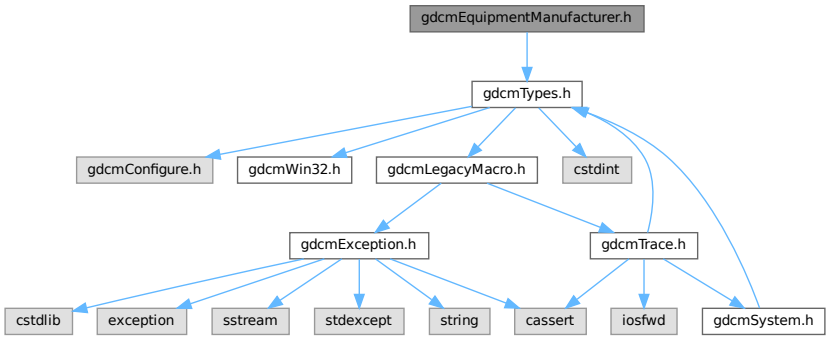
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMENCAPSULATEDDOCUMENT_H
00015 #define GDCMENCAPSULATEDDOCUMENT_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT EncapsulatedDocument
```

```
{
public:
  EncapsulatedDocument() = default;

private:
};

} // end namespace gdcm

#endif //GDCMENCAPSULATEDDOCUMENT_H
```

11.291 gdcmEquipmentManufacturer.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmEquipmentManufacturer.h:



Classes

- class gdcm::EquipmentManufacturer

Namespaces

- namespace gdcm

11.292 gdcmEquipmentManufacturer.h

Go to the documentation of this file.

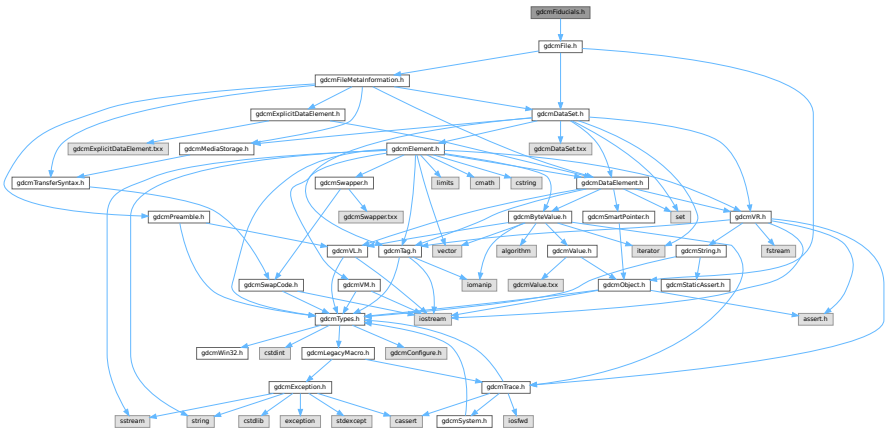
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=============================================================================*/
#ifndef GDCMEQUIPMENTMANUFACTURER_H
#define GDCMEQUIPMENTMANUFACTURER_H

#include "gdcmTypes.h"

namespace gdcm {

class DataSet;
class GDCM_EXPORT EquipmentManufacturer {
 public:
  typedef enum {
    UNKNOWN = 0,
    FUJI,
    GEMS,
    HITACHI,
    KODAK,
    MARCONI,
    PMS,
    SIEMENS,
    TOSHIBA,
    AGFA,
    SAMSUNG,
    UIH
  } Type;

  static Type Compute(DataSet const &ds);

  static const char *TypeToString(Type type);

 private:
  static EquipmentManufacturer::Type GuessFromPrivateAttributes(
      DataSet const &ds);
};

}  // end namespace gdcm

#endif  // GDCMEQUIPMENTMANUFACTURER_H
```

11.293 gdcmFiducials.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmFiducials.h:



Classes

- class gdcm::Fiducials

  Fiducials.

Namespaces

- namespace gdcm

11.294 gdcmFiducials.h

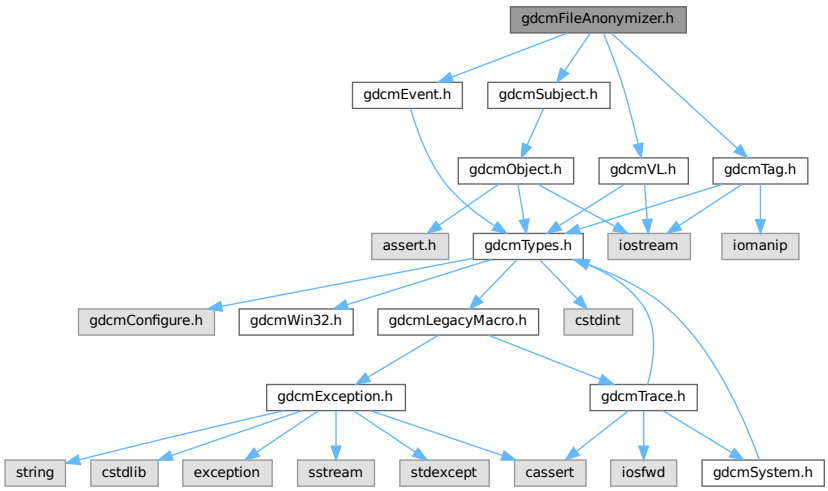
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFIDUCIALS_H
#define GDCMFIDUCIALS_H

#include "gdcmFile.h"

namespace gdcm
{
class GDCM_EXPORT Fiducials
{
public:
  Fiducials() = default;

private:
};

} // end namespace gdcm

#endif //GDCMFIDUCIALS_H
```

11.295 gdcmFileAnonymizer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

`#include "gdcmVL.h"`
Include dependency graph for gdcmFileAnonymizer.h:



Classes

- class gdcm::FileAnonymizer

  FileAnonymizer.

Namespaces

- namespace gdcm

11.296 gdcmFileAnonymizer.h

Go to the documentation of this file.

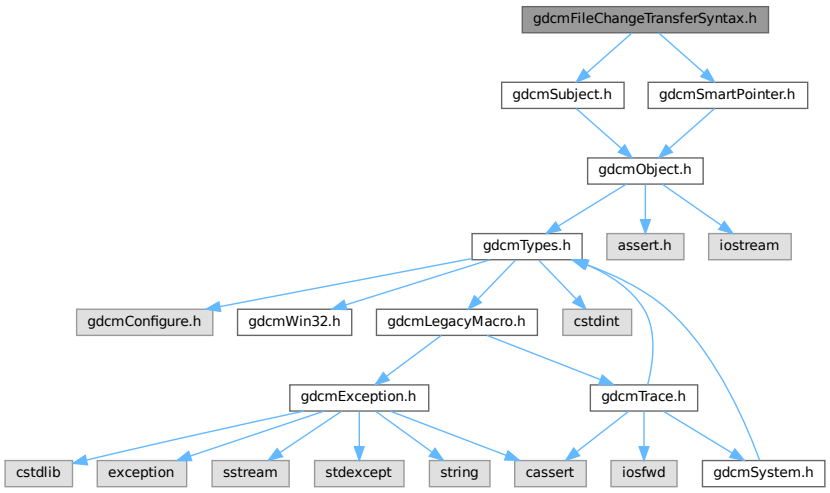
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILEANONYMIZER_H
#define GDCMFILEANONYMIZER_H

#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmTag.h"
#include "gdcmVL.h"
```

```
00021
00022 namespace gdcm
00023 {
00024 class FileAnonymizerInternals;
00025
00047 class GDCM_EXPORT FileAnonymizer : public Subject
00048 {
00049 public:
00050   FileAnonymizer();
00051   ~FileAnonymizer() override;
00052
00055   void Empty( Tag const &t );
00056
00058   void Remove( Tag const &t );
00059
00063   void Replace( Tag const &t, const char *value_str );
00064
00067   void Replace( Tag const &t, const char *value_data, VL const & vl );
00068
00070   void SetInputFileName(const char *filename_native);
00071
00073   void SetOutputFileName(const char *filename_native);
00074
00076   bool Write();
00077
00078 private:
00079   bool ComputeEmptyTagPosition();
00080   bool ComputeRemoveTagPosition();
00081   bool ComputeReplaceTagPosition();
00082   FileAnonymizerInternals *Internals;
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMFILEANONYMIZER_H
```

11.297 gdcmFileChangeTransferSyntax.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileChangeTransferSyntax.h:



Classes

- class gdcm::FileChangeTransferSyntax

  FileChangeTransferSyntax.

Namespaces

- namespace gdcm

11.298 gdcmFileChangeTransferSyntax.h

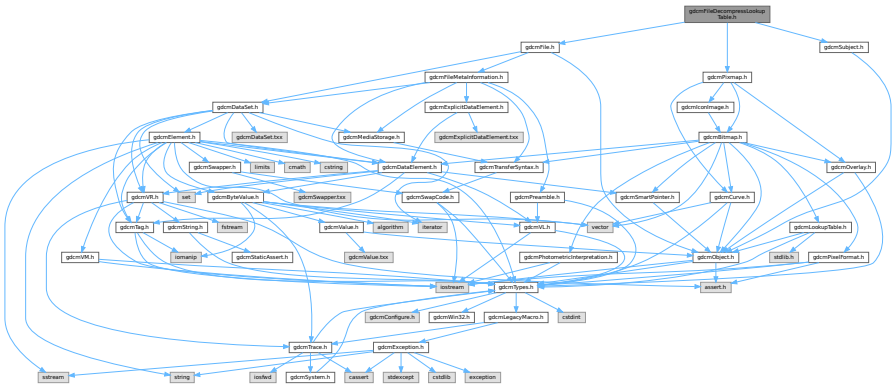
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILECHANGETRANSFERSYNTAX_H
#define GDCMFILECHANGETRANSFERSYNTAX_H

#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"

namespace gdcm
{
class FileChangeTransferSyntaxInternals;
class ImageCodec;
class TransferSyntax;

class GDCM_EXPORT FileChangeTransferSyntax : public Subject
{
public:
  FileChangeTransferSyntax();
  ~FileChangeTransferSyntax() override;

  void SetInputFileName(const char *filename_native);

  void SetOutputFileName(const char *filename_native);

  bool Change();

  void SetTransferSyntax( TransferSyntax const & ts );

  ImageCodec * GetCodec();

  static SmartPointer<FileChangeTransferSyntax> New() { return new FileChangeTransferSyntax; }

private:
  bool InitializeCopy();
  bool UpdateCompressionLevel(double level);
  FileChangeTransferSyntaxInternals *Internals;
};

} // end namespace gdcm

#endif //GDCMFILEANONYMIZER_H
```

11.299 gdcmFileDecompressLookupTable.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmFile.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmFileDecompressLookupTable.h:



Classes

- class gdcm::FileDecompressLookupTable

  FileDecompressLookupTable class.

Namespaces

- namespace gdcm

11.300 gdcmFileDecompressLookupTable.h

Go to the documentation of this file.

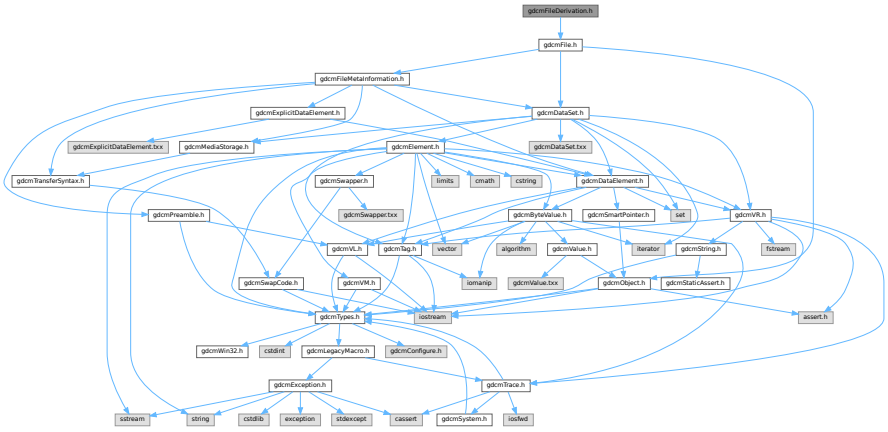
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILEDECOMPRESSLOOKUPTABLE_H
#define GDCMFILEDECOMPRESSLOOKUPTABLE_H

#include "gdcmSubject.h"
#include "gdcmFile.h"
#include "gdcmPixmap.h"

namespace gdcm
```

```
{

class DataElement;
class GDCM_EXPORT FileDecompressLookupTable : public Subject
{
public:
  FileDecompressLookupTable() = default;
  ~FileDecompressLookupTable() override = default;

  bool Change();

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }

  const Pixmap& GetPixmap() const { return *PixelData; }
  Pixmap& GetPixmap() { return *PixelData; }
  void SetPixmap(Pixmap const &img) { PixelData = img; }

protected:

private:
  SmartPointer<File> F;
  SmartPointer<Pixmap> PixelData;
};

} // end namespace gdcm

#endif //GDCMFILEDECOMPRESSLOOKUPTABLE_H
```

11.301 gdcmFileDerivation.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmFileDerivation.h:



Classes

- class gdcm::FileDerivation

  FileDerivation class.

Namespaces

- namespace gdcm

11.302 gdcmFileDerivation.h

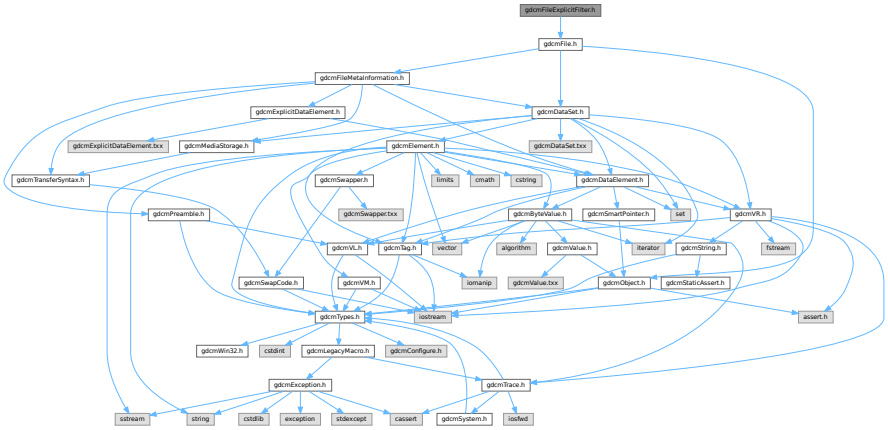
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFILEDERIVATION_H
#define GDCMFILEDERIVATION_H

#include "gdcmFile.h"

namespace gdcm
{

class FileDerivationInternals;
class DataSet;
class GDCM_EXPORT FileDerivation
{
public:
  FileDerivation();
  ~FileDerivation();

  bool AddReference(const char *referencedsopclassuid, const char *referencedsopinstanceuid);

  // CID 7202 Source Image Purposes of Reference
  // {"DCM",121320,"Uncompressed predecessor"},

  void SetPurposeOfReferenceCodeSequenceCodeValue(unsigned int codevalue);

  // CID 7203 Image Derivation
  // { "DCM",113040,"Lossy Compression" },

  void SetDerivationCodeSequenceCodeValue(unsigned int codevalue);

  void SetDerivationDescription( const char *dd );

  void SetAppendDerivationHistory(bool b);

  bool Derive();

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }
  const File &GetFile() const { return *F; }

protected:
  bool AddDerivationDescription();
  bool AddSourceImageSequence();
  bool AddPurposeOfReferenceCodeSequence(DataSet &ds);

private:
  SmartPointer<File> F;
  FileDerivationInternals *Internals;
};

} // end namespace gdcm

#endif //GDCMFILEDERIVATION_H
```

11.303 gdcmFileExplicitFilter.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmFileExplicitFilter.h:



Classes

- class gdcm::FileExplicitFilter

  FileExplicitFilter class.

Namespaces

- namespace gdcm

11.304 gdcmFileExplicitFilter.h

Go to the documentation of this file.

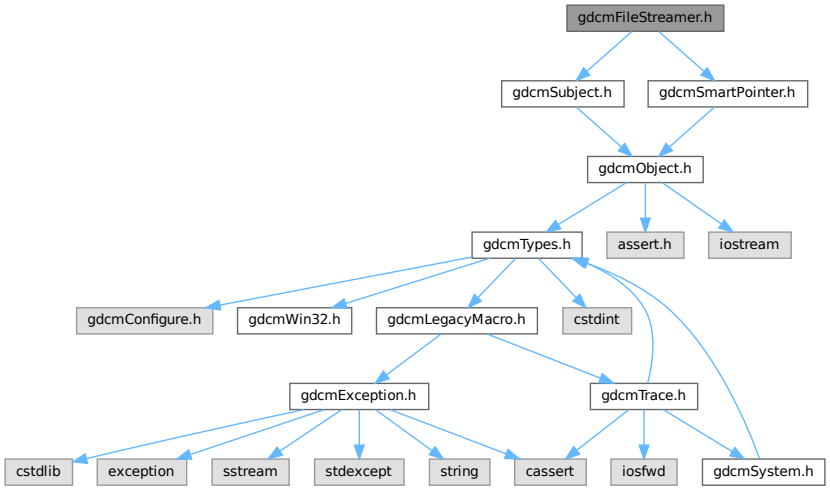
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEEXPLICITFILTER_H
00015 #define GDCMFILEEXPLICITFILTER_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00021 class Dicts;
```

```
00022
00038 class GDCM_EXPORT FileExplicitFilter
00039 {
00040 public:
00041   FileExplicitFilter():F(new
      File),ChangePrivateTags(false),UseVRUN(true),RecomputeItemLength(false),RecomputeSequenceLength(false) {}
00042   ~FileExplicitFilter() = default;
00043
00045   void SetChangePrivateTags(bool b) { ChangePrivateTags = b;}
00046
00048   void SetUseVRUN(bool b) { UseVRUN = b; }
00049
00051   void SetRecomputeItemLength(bool b);
00052   void SetRecomputeSequenceLength(bool b);
00053
00055
00057   bool Change();
00058
00060   void SetFile(const File& f) { F = f; }
00061   File &GetFile() { return *F; }
00062
00063 protected:
00064   bool ProcessDataSet(DataSet &ds, Dicts const & dicts);
00065   bool ChangeFMI();
00066
00067 private:
00068   SmartPointer<File> F;
00069   bool ChangePrivateTags;
00070   bool UseVRUN;
00071   bool RecomputeItemLength;
00072   bool RecomputeSequenceLength;
00073 };
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMFILEEXPLICITFILTER_H
```

11.305 gdcmFileStreamer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileStreamer.h:



Classes

- class gdcm::FileStreamer

  FileStreamer.

Namespaces

- namespace gdcm

11.306 gdcmFileStreamer.h

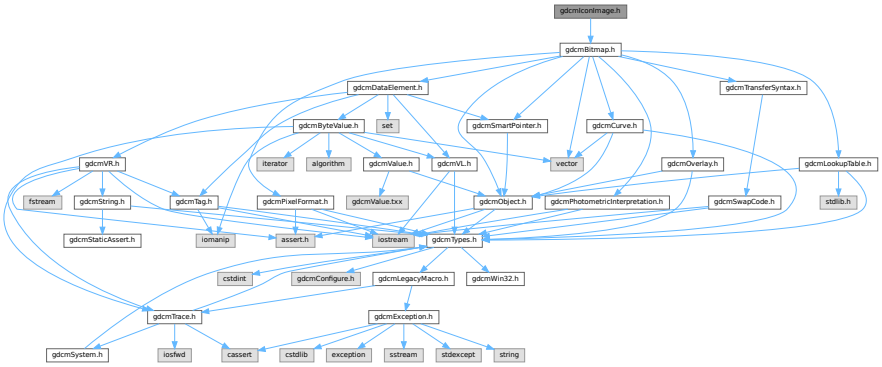
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILESTREAMER_H
00015 #define GDCMFILESTREAMER_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmSmartPointer.h"
00019
00020 namespace gdcm
00021 {
00022 class FileStreamerInternals;
00023
00024 class Tag;
00025 class PrivateTag;
00041 class GDCM_EXPORT FileStreamer : public Subject
00042 {
00043 public:
00044   FileStreamer();
00045   ~FileStreamer() override;
00046
00048   void SetTemplateFileName(const char *filename_native);
00049
00050   // Decide to check template or not (default: false)
00055   void CheckTemplateFileName(bool check);
00056
00058   void SetOutputFileName(const char *filename_native);
00059
00064   bool CheckDataElement( const Tag & t );
00065
00068   bool StartDataElement( const Tag & t );
00070   bool AppendToDataElement( const Tag & t, const char *array, size_t len );
00072   bool StopDataElement( const Tag & t );
00076   bool ReserveDataElement( size_t len );
00077
00085   bool StartGroupDataElement( const PrivateTag & pt, size_t maxsizede = 0, uint8_t startoffset = 0 );
00087   bool AppendToGroupDataElement( const PrivateTag & pt, const char *array, size_t len );
00089   bool StopGroupDataElement( const PrivateTag & pt );
00092   bool ReserveGroupDataElement( unsigned short ndataelement );
00093
00095   static SmartPointer<FileStreamer> New() { return new FileStreamer; }
00096
00097 private:
00098   bool InitializeCopy();
00099   FileStreamerInternals *Internals;
00100 };
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMFILESTREAMER_H
```

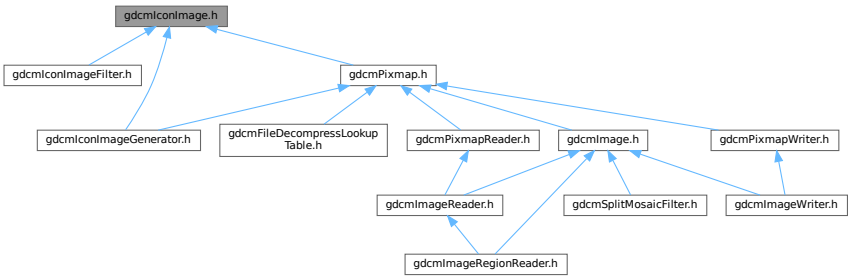
11.307 gdcmIconImage.h File Reference

`#include "gdcmBitmap.h"`

Include dependency graph for gdcmIconImage.h:



This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm

Typedefs

- typedef Bitmap gdcm::IconImage

11.308 gdcmIconImage.h

Go to the documentation of this file.

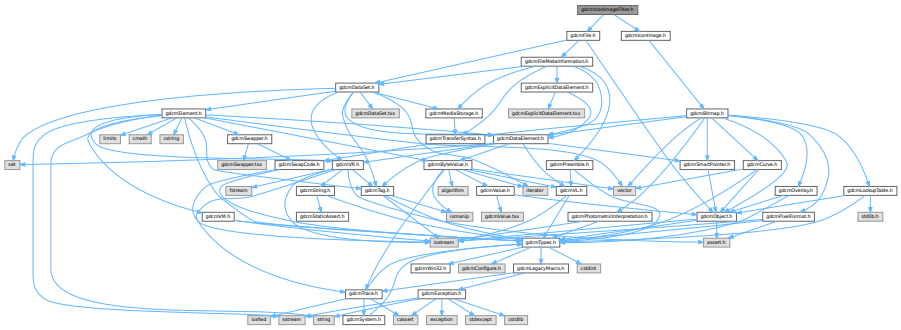
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMICONIMAGE_H
#define GDCMICONIMAGE_H

#if 0
#include "gdcmObject.h"
#include "gdcmDataElement.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmPixelFormat.h"
#include "gdcmTransferSyntax.h"

#include <vector>

namespace gdcm
{

class GDCM_EXPORT IconImage : public Object
{
public:
  IconImage();
  ~IconImage();
  void Print(std::ostream &) const {}

  void SetTransferSyntax(TransferSyntax const &ts) {
    TS = ts;
  }
  const TransferSyntax &GetTransferSyntax() const {
    return TS;
  }
  void SetDataElement(DataElement const &de) {
    PixelData = de;
  }
  const DataElement& GetDataElement() const { return PixelData; }

  void SetColumns(unsigned int col) { SetDimension(0,col); }
  void SetRows(unsigned int rows) { SetDimension(1,rows); }
  void SetDimension(unsigned int idx, unsigned int dim);
  int GetColumns() const { return Dimensions[0]; }
  int GetRows() const { return Dimensions[1]; }
  // Get/Set PixelFormat
  const PixelFormat &GetPixelFormat() const
    {
    return PF;
    }
  void SetPixelFormat(PixelFormat const &pf)
    {
    PF = pf;
    }

  const PhotometricInterpretation &GetPhotometricInterpretation() const;
  void SetPhotometricInterpretation(PhotometricInterpretation const &pi);

  bool IsEmpty() const { return Dimensions.size() == 0; }
  void Clear();

  bool GetBuffer(char *buffer) const;

private:
  TransferSyntax TS;
  PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
  PhotometricInterpretation PI;
  std::vector<unsigned int> Dimensions; // Col/Row
  std::vector<double> Spacing; // PixelAspectRatio ?
  DataElement PixelData; // copied from 7fe0,0010
```

```
  static const unsigned int NumberOfDimensions = 2;
};

} // end namespace gdcm
#endif
#include "gdcmBitmap.h"

namespace gdcm
{
  //class GDCM_EXPORT IconImage : public Pixmap {};
  typedef Bitmap IconImage;
}

#endif //GDCMICONIMAGE_H
```

11.309 gdcmIconImageFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageFilter.h:



Classes

- class gdcm::IconImageFilter

  IconImageFilter.

Namespaces

- namespace gdcm

11.310 gdcmIconImageFilter.h

Go to the documentation of this file.

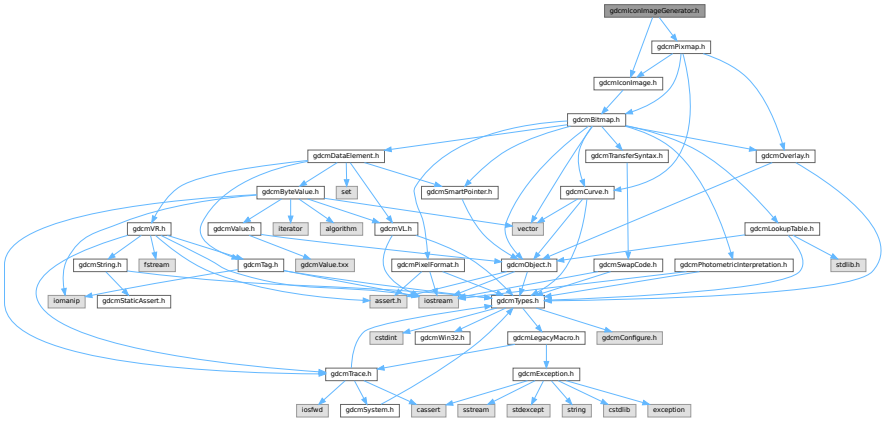
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMICONIMAGEFILTER_H
#define GDCMICONIMAGEFILTER_H

#include "gdcmFile.h"
#include "gdcmIconImage.h"

namespace gdcm
{
class IconImageFilterInternals;

class GDCM_EXPORT IconImageFilter
{
public:
  IconImageFilter();
  ~IconImageFilter();

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }
  const File &GetFile() const { return *F; }

  bool Extract();

  unsigned int GetNumberOfIconImages() const;
  IconImage& GetIconImage( unsigned int i ) const;

protected:
  void ExtractIconImages();
  void ExtractVeproIconImages();

private:
  SmartPointer<File> F;
  IconImageFilterInternals *Internals;
};

} // end namespace gdcm

#endif //GDCMICONIMAGEFILTER_H
```

11.311 gdcmIconImageGenerator.h File Reference

```
#include "gdcmPixmap.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageGenerator.h:



Classes

- class gdcm::IconImageGenerator

  IconImageGenerator.

Namespaces

- namespace gdcm

11.312 gdcmIconImageGenerator.h

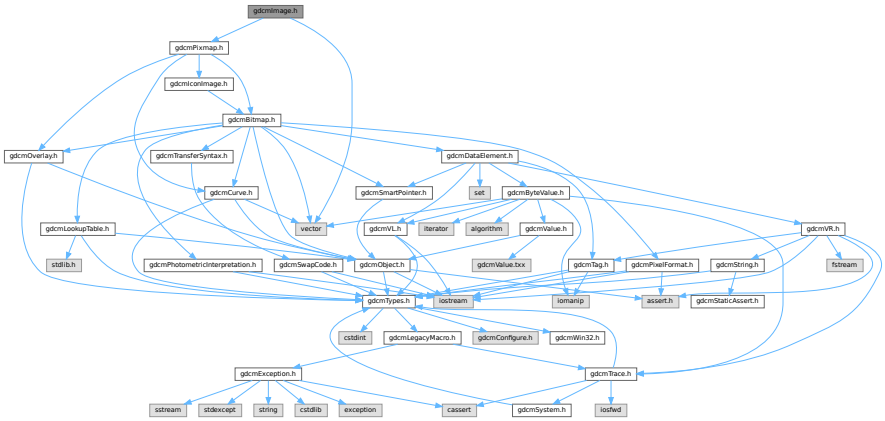
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMICONIMAGEGENERATOR_H
#define GDCMICONIMAGEGENERATOR_H

#include "gdcmPixmap.h"
#include "gdcmIconImage.h"

namespace gdcm
{
class IconImageGeneratorInternals;
class GDCM_EXPORT IconImageGenerator
{
public:
  IconImageGenerator();
  ~IconImageGenerator();

  void SetPixmap(const Pixmap& p) { P = p; }
  Pixmap &GetPixmap() { return *P; }
  const Pixmap &GetPixmap() const { return *P; }

  void SetOutputDimensions(const unsigned int dims[2]);

  void SetPixelMinMax(double min, double max);

  void AutoPixelMinMax(bool b);

  void ConvertRGBToPaletteColor(bool b);

  void SetOutsideValuePixel(double v);

  bool Generate();

  const IconImage& GetIconImage() const { return *I; }

protected:

private:
  void BuildLUT( Bitmap & bitmap, unsigned int maxcolor );

  SmartPointer<Pixmap> P;
  SmartPointer<IconImage> I;
  IconImageGeneratorInternals *Internals;
};

} // end namespace gdcm

#endif //GDCMICONIMAGEGENERATOR_H
```

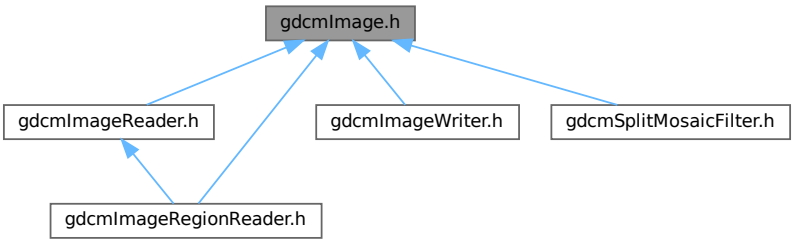
11.313 gdcmImage.h File Reference

```
#include "gdcmPixmap.h"
#include <vector>
```

Include dependency graph for gdcmImage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Image

  Image.

Namespaces

- namespace gdcm

11.314 gdcmImage.h

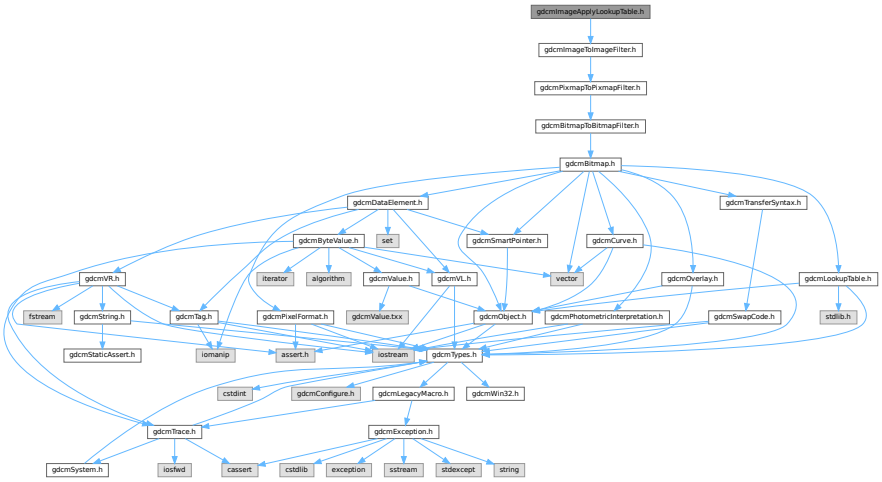
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGE_H
#define GDCMIMAGE_H

#include "gdcmPixmap.h"

#include <vector>

namespace gdcm
{

class GDCM_EXPORT Image : public Pixmap
{
public:
  Image ():Spacing(),SC(),Intercept(0),Slope(1) {
    //DirectionCosines.resize(6);
  Origin.resize( 3 /*NumberOfDimensions*/ ); // fill with 0
  DirectionCosines.resize( 6 ); // fill with 0
  DirectionCosines[0] = 1;
  DirectionCosines[4] = 1;
  Spacing.resize( 3 /*NumberOfDimensions*/, 1 ); // fill with 1

  }
  ~Image() override = default;

  const double *GetSpacing() const;
  double GetSpacing(unsigned int idx) const;
  void SetSpacing(const double spacing[3]);
  void SetSpacing(unsigned int idx, double spacing);

  const double *GetOrigin() const;
  double GetOrigin(unsigned int idx) const;
  void SetOrigin(const float origin[3]);
  void SetOrigin(const double origin[3]);
  void SetOrigin(unsigned int idx, double ori);

  const double *GetDirectionCosines() const;
  double GetDirectionCosines(unsigned int idx) const;
  void SetDirectionCosines(const float dircos[6]);
  void SetDirectionCosines(const double dircos[6]);
  void SetDirectionCosines(unsigned int idx, double dircos);

  void Print(std::ostream &os) const override;

  void SetIntercept(double intercept) { Intercept = intercept; }
  double GetIntercept() const { return Intercept; }

  void SetSlope(double slope) { Slope = slope; }
  double GetSlope() const { return Slope; }

private:
  std::vector<double> Spacing;
  std::vector<double> Origin;
  std::vector<double> DirectionCosines;

  // I believe the following 3 ivars can be derived from TS ...
  SwapCode SC;
  double Intercept;
  double Slope;
};

} // end namespace gdcm

#endif //GDCMIMAGE_H
```

11.315 gdcmImageApplyLookupTable.h File Reference

`#include "gdcmImageToImageFilter.h"`

Include dependency graph for gdcmImageApplyLookupTable.h:



Classes

- class gdcm::ImageApplyLookupTable

  ImageApplyLookupTable class.

Namespaces

- namespace gdcm

11.316 gdcmImageApplyLookupTable.h

Go to the documentation of this file.

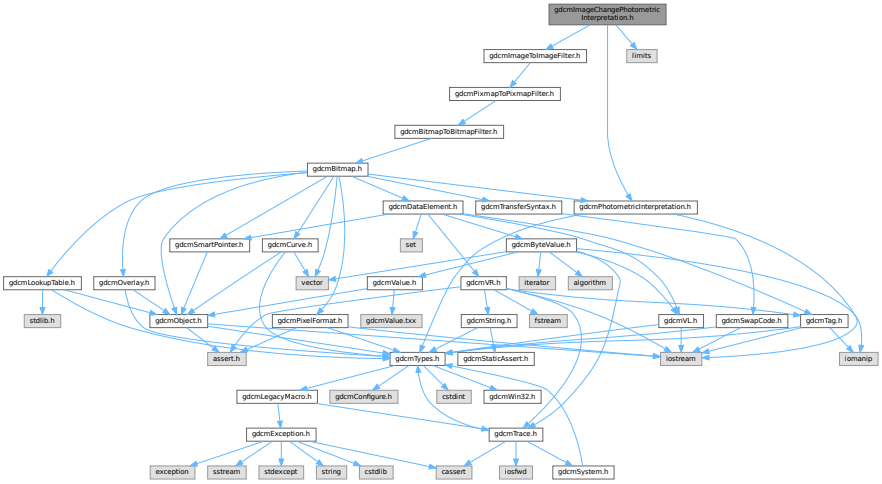
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGEAPPLYLOOKUPTABLE_H
#define GDCMIMAGEAPPLYLOOKUPTABLE_H

#include "gdcmImageToImageFilter.h"

namespace gdcm
```

```
{

class DataElement;
class GDCM_EXPORT ImageApplyLookupTable : public ImageToImageFilter
{
public:
  ImageApplyLookupTable();
  ~ImageApplyLookupTable();

  bool Apply();

  void SetRGB8(bool b);

protected:

private:
  struct impl;
  // PIMPL idiom
  impl* pimpl;
};

} // end namespace gdcm

#endif //GDCMIMAGEAPPLYLOOKUPTABLE_H
```

11.317 gdcmImageChangePhotometricInterpretation.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmPhotometricInterpretation.h"
#include <limits>
```

Include dependency graph for gdcmImageChangePhotometricInterpretation.h:



Classes

- class gdcm::ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.

Namespaces

- namespace gdcm

Functions

- template<typename T >
  static T gdcm::Clamp (int v)
- template<typename T >
  static int gdcm::Round (T x)

11.318 gdcmImageChangePhotometricInterpretation.h

Go to the documentation of this file.

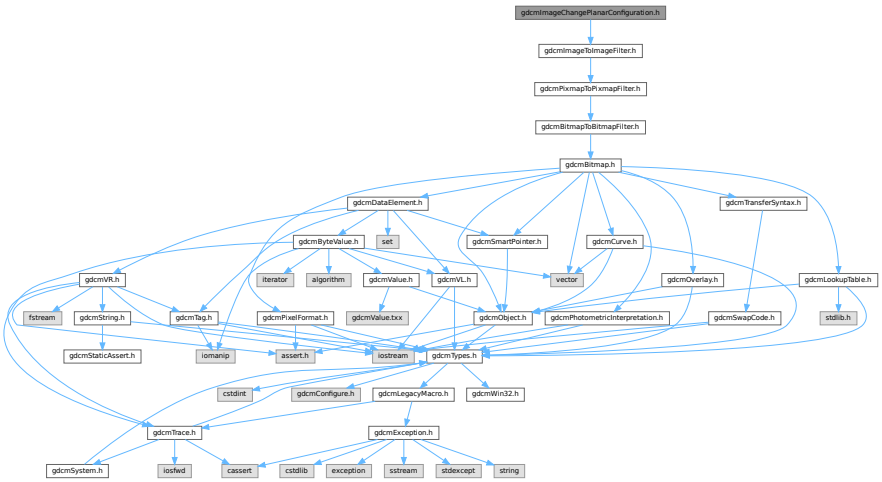
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
#define GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H

#include "gdcmImageToImageFilter.h"
#include "gdcmPhotometricInterpretation.h"
#include <limits>

namespace gdcm
{

class DataElement;
class GDCM_EXPORT ImageChangePhotometricInterpretation : public ImageToImageFilter
{
public:
  ImageChangePhotometricInterpretation():PI() {}
  ~ImageChangePhotometricInterpretation() = default;

  void SetPhotometricInterpretation(PhotometricInterpretation const &pi) { PI = pi; }
  const PhotometricInterpretation &GetPhotometricInterpretation() const { return PI; }

  bool Change();

  template <typename T>
  static void RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits = 8);
  template <typename T>
  static void YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits = 8);

protected:
  bool ChangeMonochrome();
  bool ChangeYBR2RGB();
  bool ChangeRGB2YBR();

private:
  PhotometricInterpretation PI;
};

template <typename T>
static inline int Round(T x)
{
  return (int)(x+0.5);
}

template <typename T>
static inline T Clamp(int v)
{
  assert( std::numeric_limits<T>::min() == 0 );
  return v < 0 ? 0 : (v > std::numeric_limits<T>::max() ? std::numeric_limits<T>::max() : v);
}

```

```
template <typename T>
void ImageChangePhotometricInterpretation::RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits)
{
  // Implementation details, since the equations from:
  // http://dicom.nema.org/medical/dicom/current/output/chtml/part03/sect_C.7.6.3.html#sect_C.7.6.3.1.2
  // are rounded to the 4th decimal precision, prefer the exact equation from the original document at:
  // CCIR Recommendation 601-2, also found in T.871 (Section §7, page 4)
  const double R = rgb[0];
  const double G = rgb[1];
  const double B = rgb[2];
  assert( storedbits <= sizeof(T) * 8 );
  const int halffullscale = 1 « (storedbits - 1);
  const int Y  = Round(  0.299 * R + 0.587 * G + 0.114 * B                        );
  const int CB = Round((-0.299 * R - 0.587 * G + 0.886 * B)/1.772 + halffullscale);
  const int CR = Round(( 0.701 * R - 0.587 * G - 0.114 * B)/1.402 + halffullscale);
  ybr[0] = Clamp<T>(Y );
  ybr[1] = Clamp<T>(CB);
  ybr[2] = Clamp<T>(CR);
}

template <typename T>
void ImageChangePhotometricInterpretation::YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits)
{
  const double Y  = ybr[0];
  const double Cb = ybr[1];
  const double Cr = ybr[2];
  assert( storedbits <= sizeof(T) * 8 );
  const int halffullscale = 1 « (storedbits - 1);
  const int R = Round(Y                                        + 1.402 * (Cr-halffullscale)
);
  const int G = Round(Y -( 0.114 * 1.772 * (Cb-halffullscale) + 0.299 * 1.402 *
(Cr-halffullscale))/0.587);
  const int B = Round(Y          + 1.772 * (Cb-halffullscale)
);
  rgb[0] = Clamp<T>(R);
  rgb[1] = Clamp<T>(G);
  rgb[2] = Clamp<T>(B);
}

} // end namespace gdcm

#endif //GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
```

11.319 gdcmImageChangePlanarConfiguration.h File Reference

`#include "gdcmImageToImageFilter.h"`

Include dependency graph for gdcmImageChangePlanarConfiguration.h:



Classes

- class gdcm::ImageChangePlanarConfiguration

  ImageChangePlanarConfiguration class.

Namespaces

- namespace gdcm

11.320 gdcmImageChangePlanarConfiguration.h

Go to the documentation of this file.

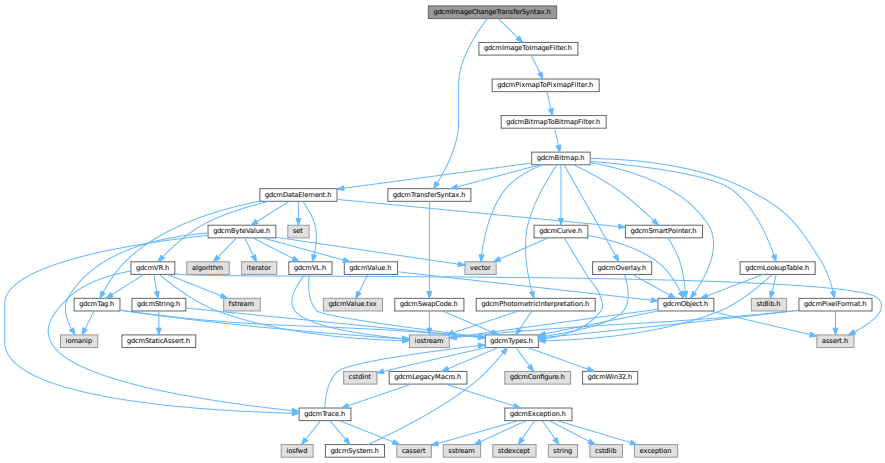
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGECHANGEPLANARCONFIGURATION_H
#define GDCMIMAGECHANGEPLANARCONFIGURATION_H

#include "gdcmImageToImageFilter.h"

namespace gdcm
{

class DataElement;
class GDCM_EXPORT ImageChangePlanarConfiguration : public ImageToImageFilter
{
public:
  ImageChangePlanarConfiguration():PlanarConfiguration(0) {}
  ~ImageChangePlanarConfiguration() = default;

  void SetPlanarConfiguration(unsigned int pc) { PlanarConfiguration = pc; }
  unsigned int GetPlanarConfiguration() const { return PlanarConfiguration; }

  template <typename T>
  static size_t RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b, size_t s);

  template <typename T>
  static size_t RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T* rgb, size_t s);

  bool Change();

protected:

private:
  unsigned int PlanarConfiguration;
};

template <typename T>
size_t ImageChangePlanarConfiguration::RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b,
    size_t s)
{
  T *pout = out;
  for(size_t i = 0; i < s; ++i )
    {
    *pout++ = *r++;
    *pout++ = *g++;
    *pout++ = *b++;
    }

```

```
  assert( (size_t)(pout - out) == 3 * s );
  return pout - out;
}

template <typename T>
size_t ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T *rgb, size_t s)
{
  const T *prgb = rgb;
  for(size_t i = 0; i < s; ++i )
    {
    *r++ = *prgb++;
    *g++ = *prgb++;
    *b++ = *prgb++;
    }
  assert( (size_t)(prgb - rgb) == 3 * s );
  return prgb - rgb;
}


} // end namespace gdcm

#endif //GDCMIMAGECHANGEPLANARCONFIGURATION_H
```

11.321 gdcmImageChangeTransferSyntax.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmTransferSyntax.h"
```

Include dependency graph for gdcmImageChangeTransferSyntax.h:



Classes

- class gdcm::ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.

Namespaces

- namespace gdcm

11.322 gdcmImageChangeTransferSyntax.h

Go to the documentation of this file.

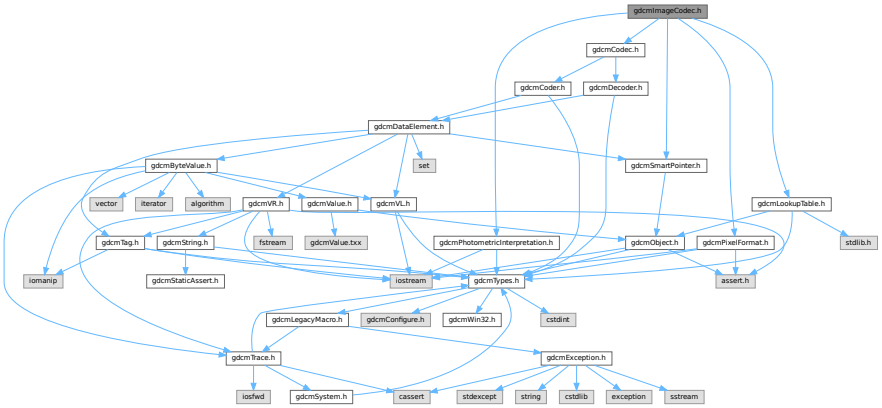
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGECHANGETRANSFERSYNTAX_H
#define GDCMIMAGECHANGETRANSFERSYNTAX_H

#include "gdcmImageToImageFilter.h"
#include "gdcmTransferSyntax.h"

namespace gdcm
{

class DataElement;
class ImageCodec;
class GDCM_EXPORT ImageChangeTransferSyntax : public ImageToImageFilter
{
public:

ImageChangeTransferSyntax():TS(TransferSyntax::TS_END),Force(false),CompressIconImage(false),UserCodec(nullptr)
{}
  ~ImageChangeTransferSyntax() = default;

  void SetTransferSyntax(const TransferSyntax &ts) { TS = ts; }
  const TransferSyntax &GetTransferSyntax() const { return TS; }

  bool Change();

  void SetCompressIconImage(bool b) { CompressIconImage = b; }

  void SetForce( bool f ) { Force = f; }

  void SetUserCodec(ImageCodec *ic) { UserCodec = ic; }

protected:
  bool TryJPEGCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
  bool TryJPEG2000Codec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
  bool TryJPEGLSCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
  bool TryRAWCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
  bool TryRLECodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);

private:
  TransferSyntax TS;
  bool Force;
  bool CompressIconImage;

  ImageCodec *UserCodec;
};

} // end namespace gdcm

#endif //GDCMIMAGECHANGETRANSFERSYNTAX_H
```

11.323 gdcmImageCodec.h File Reference

```
#include "gdcmCodec.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmLookupTable.h"
#include "gdcmSmartPointer.h"
```

```
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmImageCodec.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ImageCodec

  ImageCodec.

Namespaces

- namespace gdcm

11.324 gdcmImageCodec.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

```

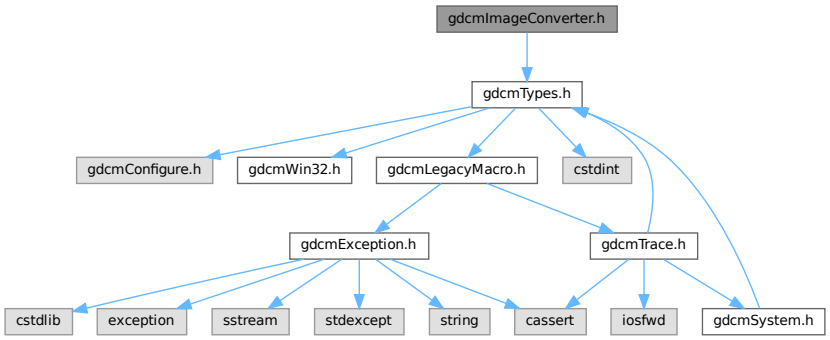
```
=========================================================================*/
#ifndef GDCMIMAGECODEC_H
#define GDCMIMAGECODEC_H

#include "gdcmCodec.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmLookupTable.h"
#include "gdcmSmartPointer.h"
#include "gdcmPixelFormat.h"

namespace gdcm
{

class GDCM_EXPORT ImageCodec : public Codec
{
  friend class ImageChangePhotometricInterpretation;
public:
  ImageCodec();
  ~ImageCodec() override;
  bool CanCode(TransferSyntax const &) const override { return false; }
  bool CanDecode(TransferSyntax const &) const override { return false; }
  bool Decode(DataElement const &is_, DataElement &os) override;
  bool IsLossy() const;
  void SetLossyFlag(bool l);
  bool GetLossyFlag() const;

  virtual bool GetHeaderInfo(std::istream &is_, TransferSyntax &ts);

  virtual ImageCodec * Clone() const = 0;

protected:
  bool DecodeByStreams(std::istream &is_, std::ostream &os) override;
  virtual bool IsValid(PhotometricInterpretation const &pi);
public:

  unsigned int GetPlanarConfiguration() const
    {
    return PlanarConfiguration;
    }
  void SetPlanarConfiguration(unsigned int pc)
    {
    assert( pc == 0 || pc == 1 );
    PlanarConfiguration = pc;
    }

  PixelFormat &GetPixelFormat()
    {
    return PF;
    }
  const PixelFormat &GetPixelFormat() const
    {
    return PF;
    }
  virtual void SetPixelFormat(PixelFormat const &pf)
    {
    PF = pf;
    }
  const PhotometricInterpretation &GetPhotometricInterpretation() const;
  void SetPhotometricInterpretation(PhotometricInterpretation const &pi);

  bool GetNeedByteSwap() const
    {
    return NeedByteSwap;
    }
  void SetNeedByteSwap(bool b)
    {
    NeedByteSwap = b;
    }
  void SetNeedOverlayCleanup(bool b)
    {
    NeedOverlayCleanup = b;
    }
  void SetLUT(LookupTable const &lut)
    {
    LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
    }
  const LookupTable &GetLUT() const
    {
    return *LUT;
    }

```

```
  void SetDimensions(const unsigned int d[3]);
  void SetDimensions(const std::vector<unsigned int> & d);
  const unsigned int *GetDimensions() const { return Dimensions; }
  void SetNumberOfDimensions(unsigned int dim);
  unsigned int GetNumberOfDimensions() const;

  bool CleanupUnusedBits(char * data, size_t datalen);

protected:
  // Streaming (write) API:
  friend class FileChangeTransferSyntax;
  virtual bool StartEncode( std::ostream & os );
  virtual bool IsRowEncoder();
  virtual bool IsFrameEncoder();
  virtual bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen );
  virtual bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen );
  virtual bool StopEncode( std::ostream & os);

protected:
  bool RequestPlanarConfiguration;
  bool RequestPaddedCompositePixelCode;
//private:
  unsigned int PlanarConfiguration;
  PhotometricInterpretation PI;
  PixelFormat PF;
  bool NeedByteSwap;
  bool NeedOverlayCleanup;

  typedef SmartPointer<LookupTable> LUTPtr;
  LUTPtr LUT;
  unsigned int Dimensions[3]; // FIXME
  unsigned int NumberOfDimensions;
  bool LossyFlag;

  bool DoOverlayCleanup(std::istream &is_, std::ostream &os);
  bool DoByteSwap(std::istream &is_, std::ostream &os);
  bool DoYBR(std::istream &is_, std::ostream &os);
  bool DoYBRFull422(std::istream &is_, std::ostream &os);
  bool DoPlanarConfiguration(std::istream &is_, std::ostream &os);
  bool DoSimpleCopy(std::istream &is_, std::ostream &os);
  bool DoPaddedCompositePixelCode(std::istream &is_, std::ostream &os);
  bool DoInvertMonochrome(std::istream &is_, std::ostream &os);

  //template <typename T>
  //bool DoInvertPlanarConfiguration(T *output, const T *input, uint32_t length);
};

} // end namespace gdcm

#endif //GDCMIMAGECODEC_H
```

11.325 gdcmImageConverter.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImageConverter.h:



Classes

- class gdcm::ImageConverter

  Image Converter.

Namespaces

- namespace gdcm

11.326 gdcmImageConverter.h

Go to the documentation of this file.

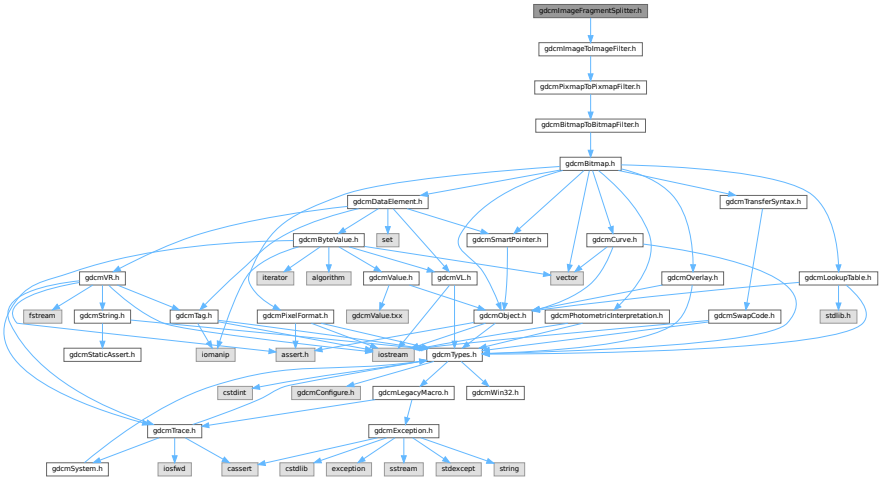
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMIMAGECONVERTER_H
#define GDCMIMAGECONVERTER_H

#include "gdcmTypes.h"

namespace gdcm
{

class Image;
```

```
class GDCM_EXPORT ImageConverter
{
public:
  ImageConverter();
  ~ImageConverter();

  void SetInput(Image const &input);
  const Image& GetOuput() const;

  void Convert();

private:
  Image *Input;
  Image *Output;
};

} // end namespace gdcm

#endif //GDCMIMAGECONVERTER_H
```

11.327 gdcmImageFragmentSplitter.h File Reference

`#include "gdcmImageToImageFilter.h"`

Include dependency graph for gdcmImageFragmentSplitter.h:



Classes

- class gdcm::ImageFragmentSplitter

  ImageFragmentSplitter class.

Namespaces

- namespace gdcm

11.328 gdcmImageFragmentSplitter.h

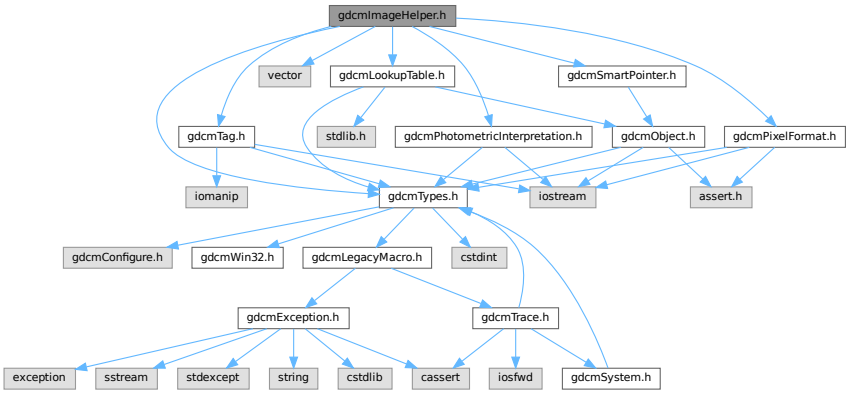
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGEFRAGMENTSPLITTER_H
#define GDCMIMAGEFRAGMENTSPLITTER_H

#include "gdcmImageToImageFilter.h"

namespace gdcm
{

class DataElement;
class GDCM_EXPORT ImageFragmentSplitter : public ImageToImageFilter
{
public:
  ImageFragmentSplitter():FragmentSizeMax(0),Force(false) {}
  ~ImageFragmentSplitter() = default;

  bool Split();

  void SetFragmentSizeMax(unsigned int fragsize);
  unsigned int GetFragmentSizeMax() const { return FragmentSizeMax; }

  void SetForce( bool f ) { Force = f; }

protected:

private:
  unsigned int FragmentSizeMax;
  bool Force;
};

} // end namespace gdcm

#endif //GDCMIMAGEFRAGMENTSPLITTER_H
```

11.329 gdcmImageHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include <vector>
#include "gdcmPixelFormat.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmSmartPointer.h"
#include "gdcmLookupTable.h"
```

Include dependency graph for gdcmImageHelper.h:



Classes

- class gdcm::ImageHelper

  ImageHelper (internal class, not intended for user level)
- struct gdcm::RealWorldValueMappingContent

Namespaces

- namespace gdcm

11.330 gdcmImageHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEHELPER_H
00015 #define GDCMIMAGEHELPER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include <vector>
00020 #include "gdcmPixelFormat.h"
00021 #include "gdcmPhotometricInterpretation.h"
00022 #include "gdcmSmartPointer.h"
00023 #include "gdcmLookupTable.h"
00024
00025 namespace gdcm
00026 {
```

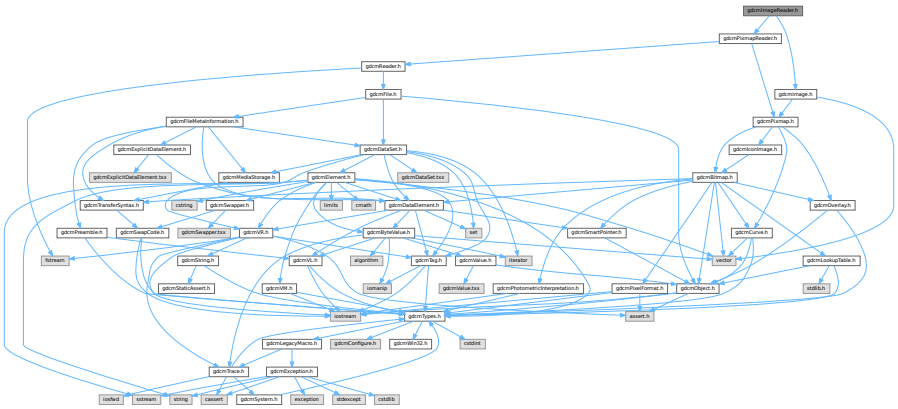
```
00027
00028 class MediaStorage;
00029 class DataSet;
00030 class File;
00031 class Image;
00032 class Pixmap;
00033 class ByteValue;
00034
00035 // minimal struct:
00036 struct RealWorldValueMappingContent {
00037   double RealWorldValueIntercept;
00038   double RealWorldValueSlope;
00039   // http://dicom.nema.org/MEDICAL/DICOM/2014c/output/chtml/part16/sect_CID_7181.html
00040   std::string CodeValue;
00041   std::string CodeMeaning;
00042 };
00043
00059 class GDCM_EXPORT ImageHelper
00060 {
00061 public:
00068   static void SetForceRescaleInterceptSlope(bool);
00069   static bool GetForceRescaleInterceptSlope();
00070
00076   static void SetPMSRescaleInterceptSlope(bool);
00077   static bool GetPMSRescaleInterceptSlope();
00078
00085   static void SetForcePixelSpacing(bool);
00086   static bool GetForcePixelSpacing();
00087
00092   static void SetSecondaryCaptureImagePlaneModule(bool);
00093   static bool GetSecondaryCaptureImagePlaneModule();
00094
00098   static std::vector<unsigned int> GetDimensionsValue(const File& f);
00099   static void SetDimensionsValue(File& f, const Pixmap & img);
00100
00103   static PixelFormat GetPixelFormatValue(const File& f);
00104
00109   static std::vector<double> GetRescaleInterceptSlopeValue(File const & f);
00110   static void SetRescaleInterceptSlopeValue(File & f, const Image & img);
00111
00112   // read only for now
00113   static bool GetRealWorldValueMappingContent(File const & f, RealWorldValueMappingContent & rwvmc);
00114
00116   static std::vector<double> GetOriginValue(File const & f);
00117   static void SetOriginValue(DataSet & ds, const Image & img);
00118
00121   static std::vector<double> GetDirectionCosinesValue(File const & f);
00127   // FIXME: There is a major issue for image with multiple IOP (eg. Enhanced * Image Storage).
00128   static void SetDirectionCosinesValue(DataSet & ds, const std::vector<double> & dircos);
00129
00131   static std::vector<double> GetSpacingValue(File const & f);
00133   static void SetSpacingValue(DataSet & ds, const std::vector<double> & spacing);
00134
00136   static bool ComputeSpacingFromImagePositionPatient(const std::vector<double> &imageposition,
      std::vector<double> & spacing);
00137
00138   static bool GetDirectionCosinesFromDataSet(DataSet const & ds, std::vector<double> & dircos);
00139
00140   //functions to get more information from a file
00141   //useful for the stream image reader, which fills in necessary image information
00142   //distinctly from the reader-style data input
00143   static PhotometricInterpretation GetPhotometricInterpretationValue(File const& f);
00144   //returns the configuration of colors in a plane, either RGB RGB RGB or RRR GGG BBB
00145   static unsigned int GetPlanarConfigurationValue(const File& f);
00146
00148   static SmartPointer<LookupTable> GetLUT(File const& f);
00149
00150   // Moved from PixampReader to here. Generally used for photometric interpretation.
00151   static const ByteValue* GetPointerFromElement(Tag const &tag, File const& f);
00152
00154   static MediaStorage ComputeMediaStorageFromModality(const char *modality,
00155     unsigned int dimension = 2, PixelFormat const & pf = PixelFormat(),
00156     PhotometricInterpretation const & pi = PhotometricInterpretation(),
00157     double rescaleintercept = 0, double rescaleslope = 1 );
00158
00159 protected:
00160   static Tag GetSpacingTagFromMediaStorage(MediaStorage const &ms);
00161   static Tag GetZSpacingTagFromMediaStorage(MediaStorage const &ms);
00162
00163 private:
00164   static bool ForceRescaleInterceptSlope;
```

```
  static bool PMSRescaleInterceptSlope;
  static bool ForcePixelSpacing;
  static bool SecondaryCaptureImagePlaneModule;
};

} // end namespace gdcm

#endif // GDCMIMAGEHELPER_H
```

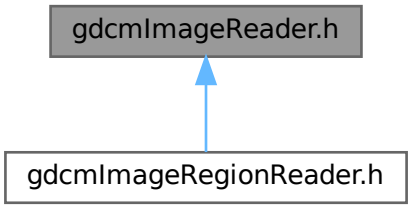
11.331 gdcmImageReader.h File Reference

```
#include "gdcmPixmapReader.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageReader

  ImageReader.

Namespaces

- namespace gdcm

11.332 gdcmImageReader.h

Go to the documentation of this file.

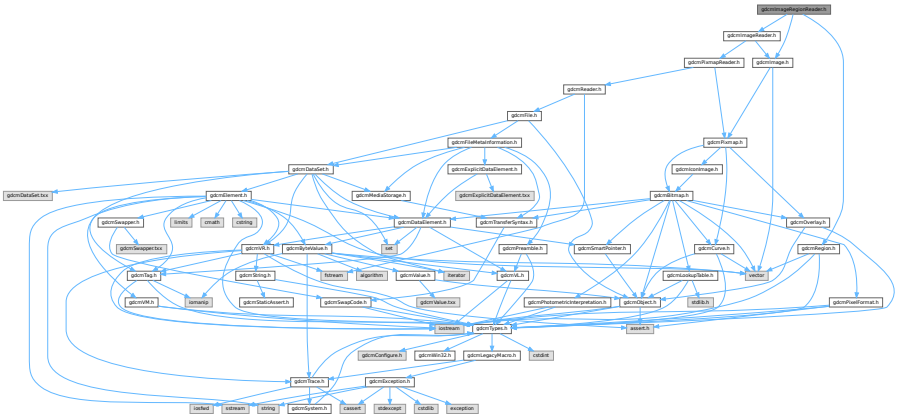
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGEREADER_H
#define GDCMIMAGEREADER_H

#include "gdcmPixmapReader.h"
#include "gdcmImage.h"

namespace gdcm
{

class MediaStorage;
class GDCM_EXPORT ImageReader : public PixmapReader
{
public:
  ImageReader();
  ~ImageReader() override;//needs to be virtual to ensure lack of memory leaks


  bool Read() override;

  // Following methods are valid only after a call to 'Read'

  const Image& GetImage() const;
  Image& GetImage();
  //void SetImage(Image const &img);

protected:
  bool ReadImage(MediaStorage const &ms) override;
  bool ReadACRNEMAImage() override;
};

} // end namespace gdcm

#endif //GDCMIMAGEREADER_H
```

11.333 gdcmImageRegionReader.h File Reference

```
#include "gdcmImageReader.h"
#include "gdcmImage.h"
```

```
#include "gdcmRegion.h"
```

Include dependency graph for gdcmImageRegionReader.h:



Classes

- class gdcm::ImageRegionReader

  ImageRegionReader.

Namespaces

- namespace gdcm

11.334 gdcmImageRegionReader.h

Go to the documentation of this file.

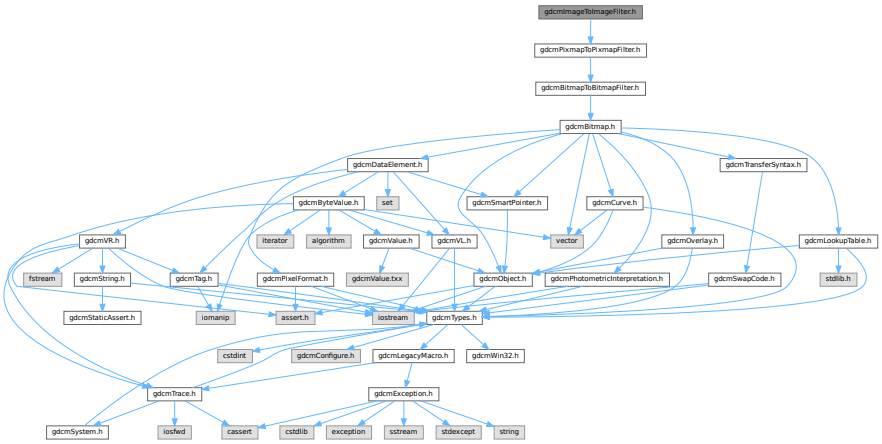
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEEXTENTREADER_H
00015 #define GDCMIMAGEEXTENTREADER_H
00016
00017 #include "gdcmImageReader.h"
00018 #include "gdcmImage.h"
00019 #include "gdcmRegion.h"
00020
00021 namespace gdcm
00022 {
00023
00024 class ImageRegionReaderInternals;
00034 class GDCM_EXPORT ImageRegionReader : public ImageReader
00035 {
00036 public:
```

```
  ImageRegionReader();
  ~ImageRegionReader() override;

  void SetRegion(Region const & region);
  Region const &GetRegion() const;

  size_t ComputeBufferLength() const;

  bool ReadInformation();

  bool ReadIntoBuffer(char *inreadbuffer, size_t buflen);

protected:
  bool Read() override;

private:
  BoxRegion ComputeBoundingBox();
  bool ReadRAWIntoBuffer(char *buffer, size_t buflen);
  bool ReadRLEIntoBuffer(char *buffer, size_t buflen);
  bool ReadJPEG2000IntoBuffer(char *buffer, size_t buflen);
  bool ReadJPEGIntoBuffer(char *buffer, size_t buflen);
  bool ReadJPEGLSIntoBuffer(char *buffer, size_t buflen);
  ImageRegionReaderInternals *Internals;
};

} // end namespace gdcm

#endif //GDCMIMAGEEXTENTREADER_H
```

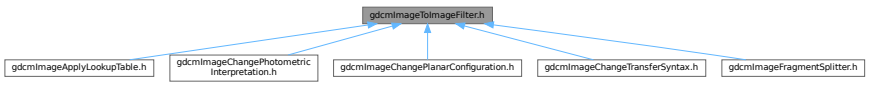
11.335 gdcmImageToImageFilter.h File Reference

`#include "gdcmPixmapToPixmapFilter.h"`

Include dependency graph for gdcmImageToImageFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageToImageFilter

  ImageToImageFilter class.

Namespaces

- namespace gdcm

11.336 gdcmImageToImageFilter.h

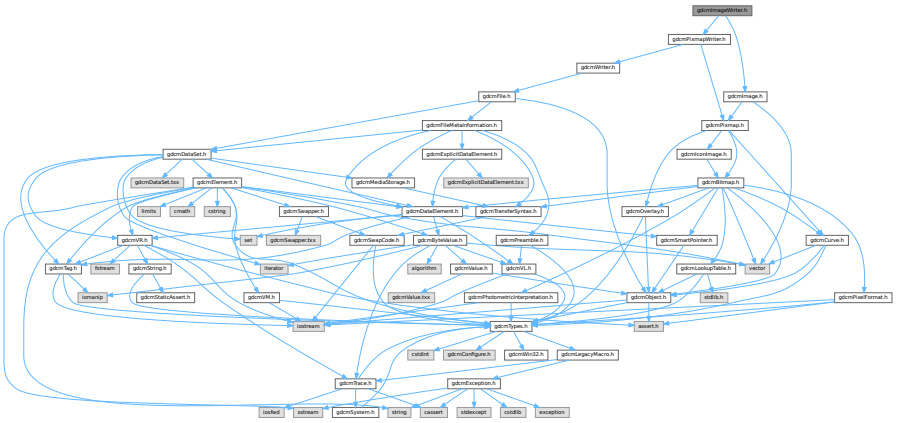
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGETOIMAGEFILTER_H
#define GDCMIMAGETOIMAGEFILTER_H

#include "gdcmPixmapToPixmapFilter.h"

namespace gdcm
{

class Image;
class GDCM_EXPORT ImageToImageFilter : public PixmapToPixmapFilter
{
public:
  ImageToImageFilter();
  ~ImageToImageFilter() = default;

  Image &GetInput();

  // NOTE: covariant return-type to preserve backward compatible API
  const Image &GetOutput() const;

protected:
};

} // end namespace gdcm

#endif //GDCMIMAGETOIMAGEFILTER_H
```

11.337 gdcmImageWriter.h File Reference

```
#include "gdcmPixmapWriter.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageWriter.h:



Classes

- class gdcm::ImageWriter

  ImageWriter.

Namespaces

- namespace gdcm

11.338 gdcmImageWriter.h

Go to the documentation of this file.

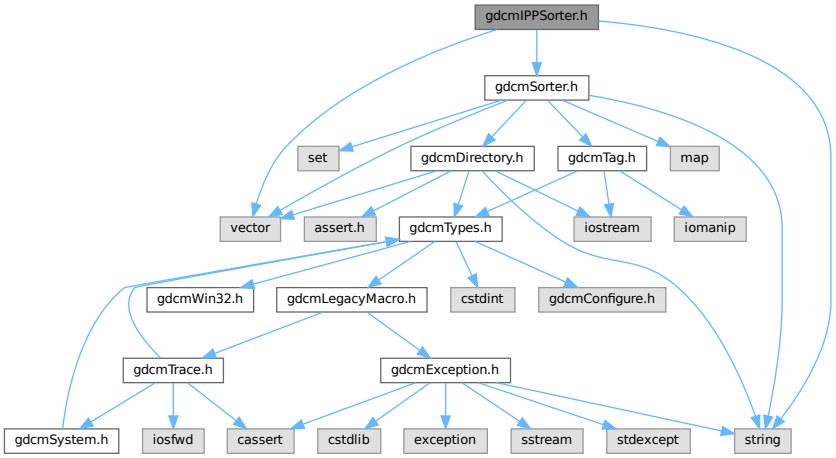
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMAGEWRITER_H
#define GDCMIMAGEWRITER_H

#include "gdcmPixmapWriter.h"
#include "gdcmImage.h"

namespace gdcm
{

class Image;
class GDCM_EXPORT ImageWriter : public PixmapWriter
{
public:
  ImageWriter();
  ~ImageWriter() override;
```

```
00037
00041   const Image& GetImage() const override { return dynamic_cast<const Image&>(*PixelData); }
00042   Image& GetImage() override { return dynamic_cast<Image&>(*PixelData); } // FIXME
00043   //void SetImage(Image const &img);
00044
00046   bool Write() override; // Execute()
00047
00050   MediaStorage ComputeTargetMediaStorage();
00051 protected:
00052
00053 private:
00054 };
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMIMAGEWRITER_H
```

11.339 gdcmIPPSorter.h File Reference

```
#include "gdcmSorter.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmIPPSorter.h:



Classes

- class gdcm::IPPSorter

  IPPSorter.

Namespaces

- namespace gdcm

11.340 gdcmIPPSorter.h

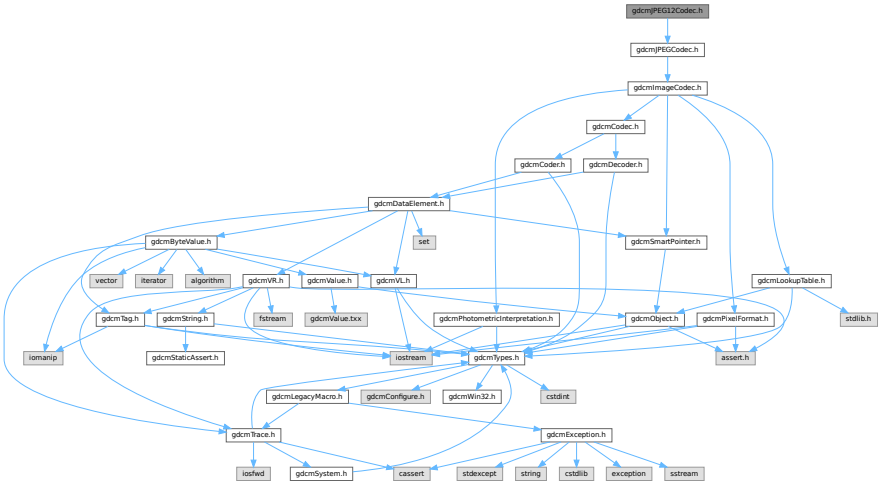
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIPPSORTER_H
#define GDCMIPPSORTER_H

#include "gdcmSorter.h"

#include <vector>
#include <string>

namespace gdcm
{
class GDCM_EXPORT IPPSorter : public Sorter
{
public:
  IPPSorter();

  // FIXME: I do not like public virtual function...
  bool Sort(std::vector<std::string> const & filenames) override;

  void SetComputeZSpacing(bool b) { ComputeZSpacing = b; }
  void SetZSpacingTolerance(double tol) { ZTolerance = tol; }
  double GetZSpacingTolerance() const { return ZTolerance; }

  void SetDirectionCosinesTolerance(double tol) { DirCosTolerance = tol; }
  double GetDirectionCosinesTolerance() const { return DirCosTolerance; }

  void SetDropDuplicatePositions(bool b) { DropDuplicatePositions = b; }

  double GetZSpacing() const { return ZSpacing; }

protected:
  bool ComputeZSpacing;
  bool DropDuplicatePositions;
  double ZSpacing;
  double ZTolerance;
  double DirCosTolerance;

private:
  GDCM_LEGACY(bool ComputeSpacing(std::vector<std::string> const & filenames))
};


} // end namespace gdcm

#endif //GDCMIPPSORTER_H
```

11.341 gdcmJPEG12Codec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEG12Codec.h:



Classes

- class gdcm::JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless)

Namespaces

- namespace gdcm

11.342 gdcmJPEG12Codec.h

Go to the documentation of this file.

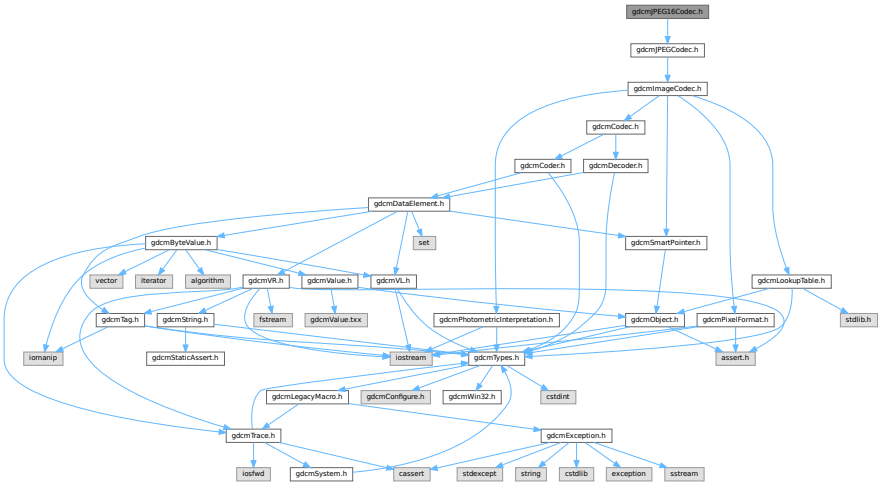
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJPEG12CODEC_H
#define GDCMJPEG12CODEC_H

#include "gdcmJPEGCodec.h"

namespace gdcm
```

```
{

class JPEGInternals_12BIT;
class ByteValue;
class JPEG12Codec : public JPEGCodec
{
public:
  JPEG12Codec();
  ~JPEG12Codec() override;

  bool DecodeByStreams(std::istream &is, std::ostream &os) override;
  bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;

protected:
  bool IsStateSuspension() const override;
  bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;

private:
  JPEGInternals_12BIT *Internals;
};

} // end namespace gdcm

#endif //GDCMJPEG12CODEC_H
```

11.343 gdcmJPEG16Codec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEG16Codec.h:



Classes

- class gdcm::JPEG16Codec

  Class to do JPEG 16bits (lossless)

Namespaces

- namespace gdcm

11.344 gdcmJPEG16Codec.h

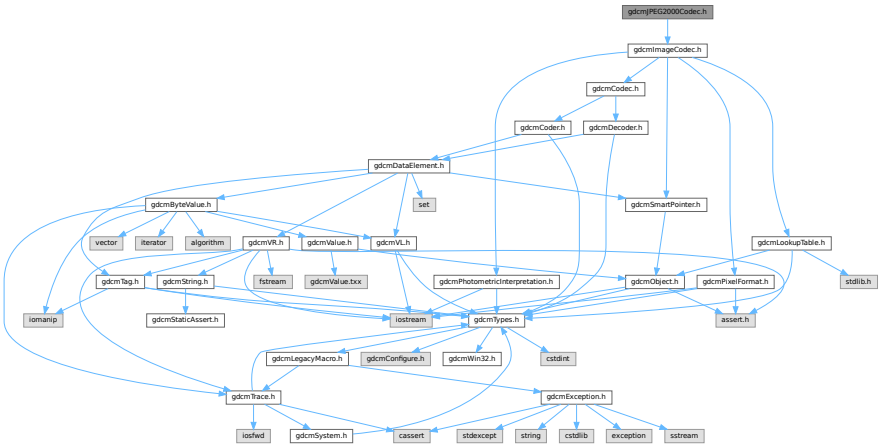
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJPEG16CODEC_H
#define GDCMJPEG16CODEC_H

#include "gdcmJPEGCodec.h"

namespace gdcm
{

class JPEGInternals_16BIT;
class ByteValue;
class JPEG16Codec : public JPEGCodec
{
public:
  JPEG16Codec();
  ~JPEG16Codec() override;

  bool DecodeByStreams(std::istream &is, std::ostream &os) override;
  bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;

protected:
  bool IsStateSuspension() const override;
  bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;

private:
  JPEGInternals_16BIT *Internals;
};

} // end namespace gdcm

#endif //GDCMJPEG16CODEC_H
```

11.345 gdcmJPEG2000Codec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmJPEG2000Codec.h:



Classes

- class gdcm::JPEG2000Codec

  Class to do JPEG 2000.

Namespaces

- namespace gdcm

11.346 gdcmJPEG2000Codec.h

Go to the documentation of this file.

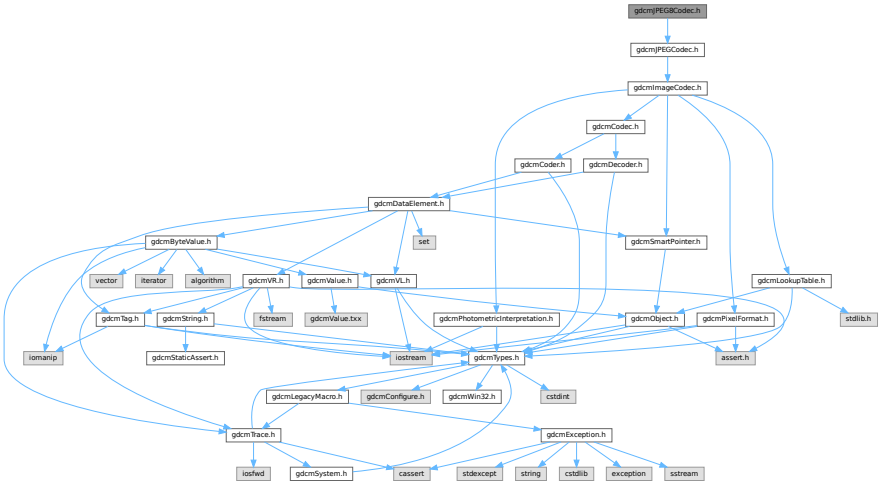
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG2000CODEC_H
00015 #define GDCMJPEG2000CODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
```

```
class JPEG2000Internals;
class GDCM_EXPORT JPEG2000Codec : public ImageCodec
{
friend class ImageRegionReader;
  friend class Bitmap;
public:
  JPEG2000Codec();
  ~JPEG2000Codec() override;

  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  bool Decode(DataElement const &is, DataElement &os) override;
  bool Code(DataElement const &in, DataElement &out) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  // JPEG-2000 / OpenJPEG specific way of encoding lossy-ness
  // ref: http://www.openjpeg.org/index.php?menu=doc#encoder
  void SetRate(unsigned int idx, double rate);
  double GetRate(unsigned int idx = 0) const;

  void SetQuality(unsigned int idx, double q);
  double GetQuality(unsigned int idx = 0) const;

  void SetTileSize(unsigned int tx, unsigned int ty);

  void SetNumberOfResolutions(unsigned int nres);

  void SetNumberOfThreadsForDecompression(int nThreads);

  void SetReversible(bool res);
  void SetMCT(unsigned int mct);

protected:
  bool DecodeExtent(
    char *buffer,
    unsigned int xmin, unsigned int xmax,
    unsigned int ymin, unsigned int ymax,
    unsigned int zmin, unsigned int zmax,
    std::istream & is
  );

  bool DecodeByStreams(std::istream &is, std::ostream &os) override;

  bool StartEncode( std::ostream & ) override;
  bool IsRowEncoder() override;
  bool IsFrameEncoder() override;
  bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool StopEncode( std::ostream & ) override;

private:
  std::pair<char *, size_t> DecodeByStreamsCommon(char *dummy_buffer, size_t buf_size);
  bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t
inlen );
  bool GetHeaderInfo(const char * dummy_buffer, size_t len, TransferSyntax &ts);
  JPEG2000Internals *Internals;
};

} // end namespace gdcm

#endif //GDCMJPEG2000CODEC_H
```

11.347 gdcmJPEG8Codec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEG8Codec.h:



Classes

- class gdcm::JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless)

Namespaces

- namespace gdcm

11.348 gdcmJPEG8Codec.h

Go to the documentation of this file.

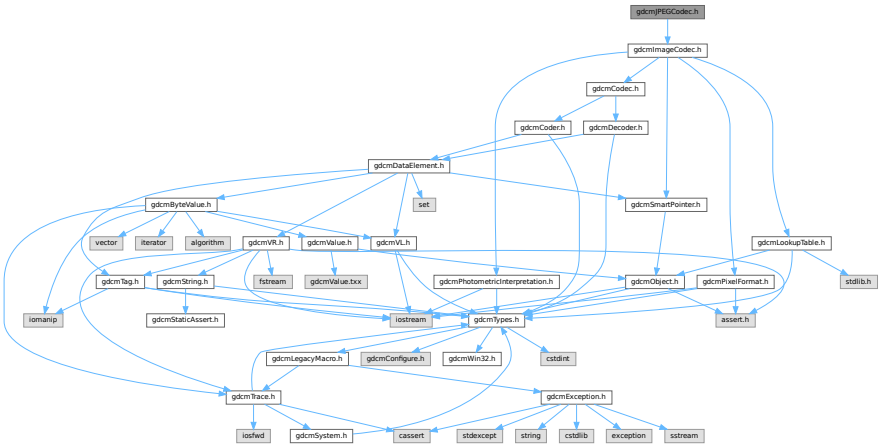
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJPEG8CODEC_H
#define GDCMJPEG8CODEC_H

#include "gdcmJPEGCodec.h"

namespace gdcm
```

```
{

class JPEGInternals_8BIT;
class ByteValue;
class JPEG8Codec : public JPEGCodec
{
public:
  JPEG8Codec();
  ~JPEG8Codec() override;

  bool DecodeByStreams(std::istream &is, std::ostream &os) override;
  bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;

protected:
  bool IsStateSuspension() const override;
  bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;

private:
  JPEGInternals_8BIT *Internals;
};

} // end namespace gdcm

#endif //GDCMJPEG8CODEC_H
```

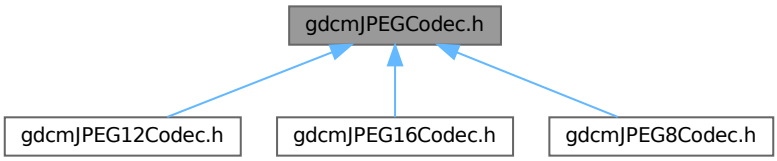
11.349 gdcmJPEGCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmJPEGCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::JPEGCodec

  JPEG codec.

Namespaces

- namespace gdcm

11.350 gdcmJPEGCodec.h

Go to the documentation of this file.

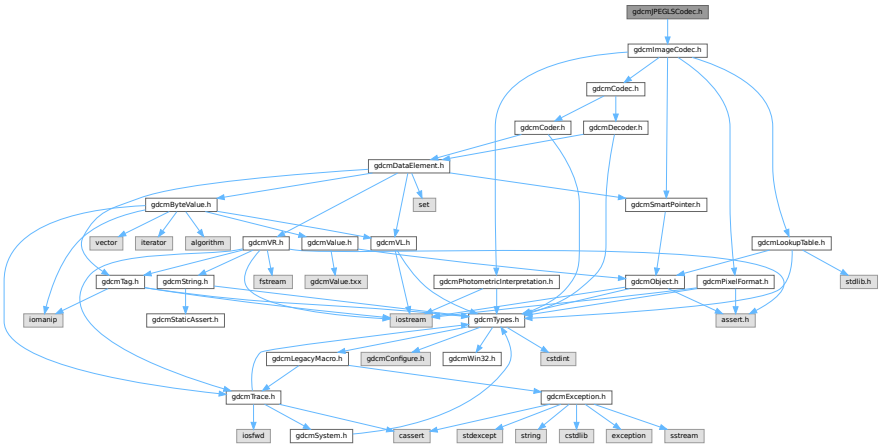
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJPEGCODEC_H
#define GDCMJPEGCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class PixelFormat;
class TransferSyntax;
class GDCM_EXPORT JPEGCodec : public ImageCodec
{
friend class ImageRegionReader;
public:
  JPEGCodec();
  ~JPEGCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;
  bool Decode(DataElement const &is, DataElement &os) override;
  void SetPixelFormat(PixelFormat const &pf) override;

  void ComputeOffsetTable(bool b);
```

```

  bool Code(DataElement const &in, DataElement &out) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  //void SetReversible(bool res);

  void SetQuality(double q);
  double GetQuality() const;

  void SetLossless(bool l);
  bool GetLossless() const;

  virtual bool EncodeBuffer( std::ostream & out,
    const char *inbuffer, size_t inlen);

protected:
  bool DecodeExtent(
    char *buffer,
    unsigned int xmin, unsigned int xmax,
    unsigned int ymin, unsigned int ymax,
    unsigned int zmin, unsigned int zmax,
    std::istream & is
  );

  bool DecodeByStreams(std::istream &is, std::ostream &os) override;
  bool IsValid(PhotometricInterpretation const &pi) override;

  bool StartEncode( std::ostream & ) override;
  bool IsRowEncoder() override;
  bool IsFrameEncoder() override;
  bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool StopEncode( std::ostream & ) override;

protected:
  // Internal method called by SetPixelFormat
  // Instantiate the right jpeg codec (8, 12 or 16)
  void SetBitSample(int bit);

  virtual bool IsStateSuspension() const;

protected:
  int BitSample;
  //bool Lossless;
  int Quality;

private:
  void SetupJPEGBitCodec(int bit);
  JPEGCodec *Internal;
};

} // end namespace gdcm

#endif //GDCMJPEGCODEC_H
```

11.351 gdcmJPEGLSCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmJPEGLSCodec.h:



Classes

- class gdcm::JPEGLSCodec

  JPEG-LS.

Namespaces

- namespace gdcm

11.352 gdcmJPEGLSCodec.h

Go to the documentation of this file.

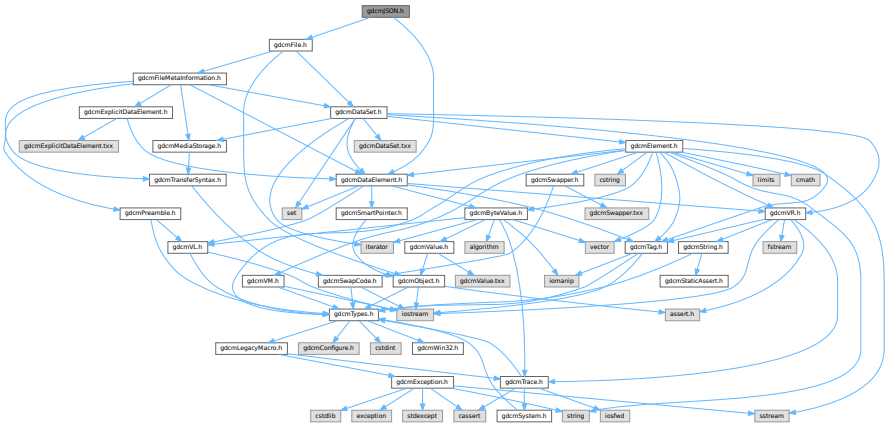
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJPEGLSCODEC_H
#define GDCMJPEGLSCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{
```

```
class JPEGLSInternals;
class GDCM_EXPORT JPEGLSCodec : public ImageCodec
{
friend class ImageRegionReader;
public:
  JPEGLSCodec();
  ~JPEGLSCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  unsigned long GetBufferLength() const { return BufferLength; }
  void SetBufferLength(unsigned long l) { BufferLength = l; }

  bool Decode(DataElement const &is, DataElement &os) override;
  bool Decode(DataElement const &in, char* outBuffer, size_t inBufferLength,
              uint32_t inXMin, uint32_t inXMax, uint32_t inYMin,
              uint32_t inYMax, uint32_t inZMin, uint32_t inZMax);
  bool Code(DataElement const &in, DataElement &out) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  void SetLossless(bool l);
  bool GetLossless() const;

/*
 * test.acr can look pretty bad, even with a lossy error of 2. Explanation follows:
 * I agree that the test image looks ugly. In this particular case I can
 * explain though.
 *
 * The image is 8 bit, but it does not use the full 8 bit dynamic range. The
 * black pixels have value 234 and the white 255. If you set allowed lossy
 * error to 2, you allow an error of about 10% of the actual dynamic range.
 * That is of course very visible.
 */
  void SetLossyError(int error);

protected:
  bool DecodeExtent(
    char *buffer,
    unsigned int xmin, unsigned int xmax,
    unsigned int ymin, unsigned int ymax,
    unsigned int zmin, unsigned int zmax,
    std::istream & is
  );

  bool StartEncode( std::ostream & ) override;
  bool IsRowEncoder() override;
  bool IsFrameEncoder() override;
  bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
  bool StopEncode( std::ostream & ) override;

private:
  bool DecodeByStreamsCommon(const char *buffer, size_t totalLen, std::vector<unsigned char> &rgbyteOut);
  bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t inlen );

  unsigned long BufferLength;
  int LossyError;
};

} // end namespace gdcm

#endif //GDCMJPEGLSCODEC_H
```

11.353 gdcmJSON.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmJSON.h:



Classes

- class gdcm::JSON

Namespaces

- namespace gdcm

11.354 gdcmJSON.h

Go to the documentation of this file.

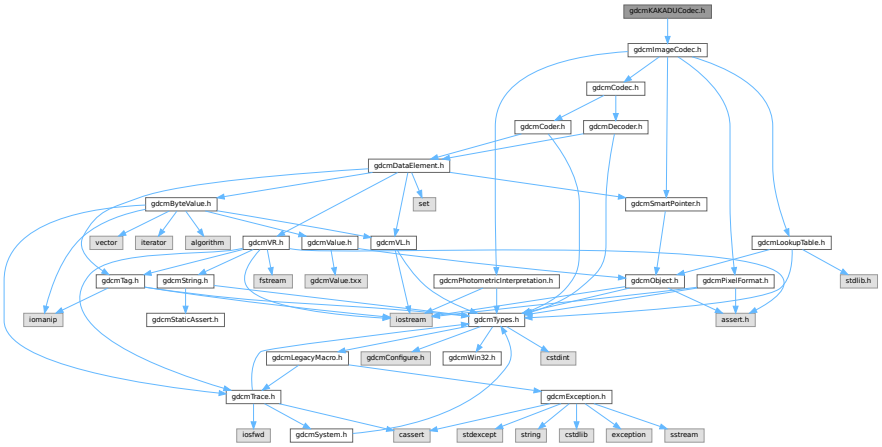
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMJSON_H
#define GDCMJSON_H

/*
See Sup 166 (QIDO-RS)
http://www.dclunie.com/dicom-status/status.html#Supplement166
*/

#include "gdcmFile.h"
#include "gdcmDataElement.h"

namespace gdcm
{

class JSONInternal;
class GDCM_EXPORT JSON
```

```
{
public:
  JSON();
  ~JSON();

  bool GetPrettyPrint() const;
  void SetPrettyPrint(bool onoff);
  void PrettyPrintOn();
  void PrettyPrintOff();

  bool Code(DataSet const & in, std::ostream & os);
  bool Decode(std::istream & is, DataSet & out);

private:
  JSONInternal *Internals;
};

} // end namespace gdcm

#endif //GDCMXMLPRINTER_H
```

11.355 gdcmKAKADUCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmKAKADUCodec.h:



Classes

- class gdcm::KAKADUCodec

  KAKADUCodec.

Namespaces

- namespace gdcm

11.356 gdcmKAKADUCodec.h

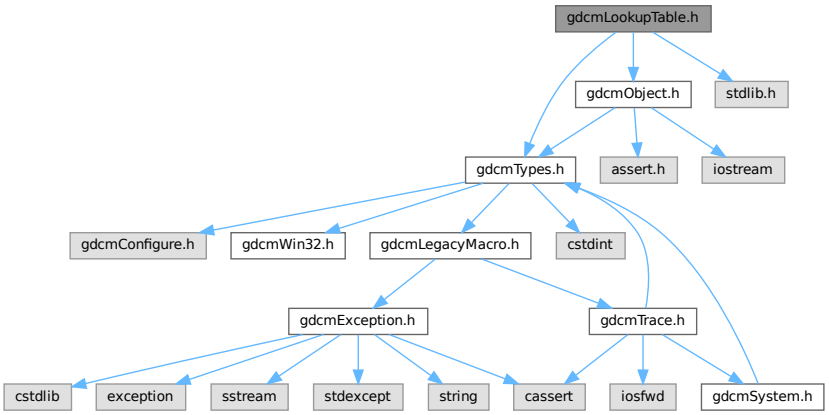
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMKAKADUCODEC_H
#define GDCMKAKADUCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class KAKADUCodec : public ImageCodec
{
public:
  KAKADUCodec();
  ~KAKADUCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  bool Decode(DataElement const &is, DataElement &os) override;
  bool Code(DataElement const &in, DataElement &out) override;

  ImageCodec * Clone() const override;
private:
};

} // end namespace gdcm

#endif //GDCMKAKADUCODEC_H
```

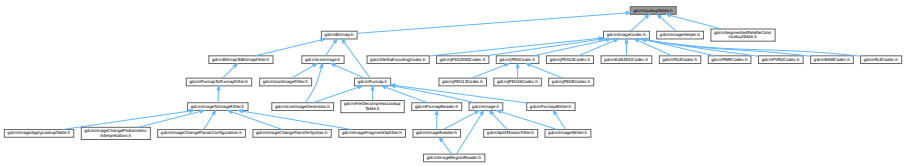
11.357 gdcmLookupTable.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <stdlib.h>
```

Include dependency graph for gdcmLookupTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::LookupTable

  LookupTable class.

Namespaces

- namespace gdcm

11.358 gdcmLookupTable.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
```

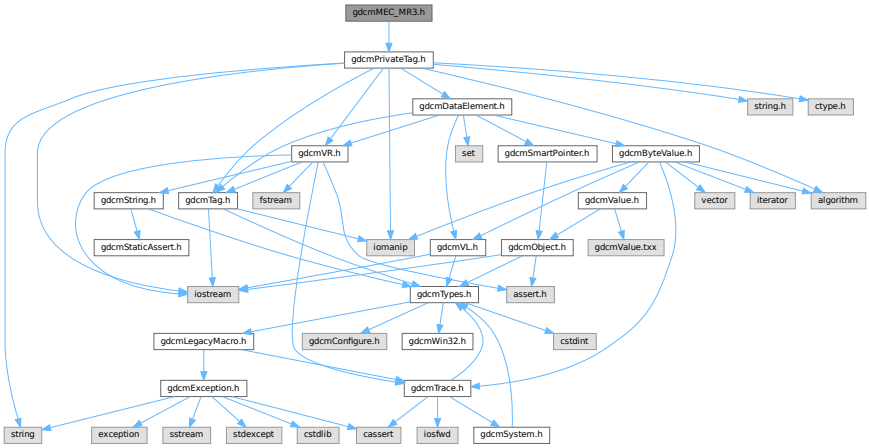
```
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMLOOKUPTABLE_H
#define GDCMLOOKUPTABLE_H

#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <stdlib.h>

namespace gdcm
{

class LookupTableInternal;
class GDCM_EXPORT LookupTable : public Object
{
public:
  typedef enum {
    RED = 0,  // Keep RED == 0
    GREEN,
    BLUE,
    GRAY,
    UNKNOWN
  } LookupTableType;

  LookupTable();
  ~LookupTable() override;
  void Print(std::ostream &) const override;

  void Allocate( unsigned short bitsample = 8 );
  //TODO: check to see if length should be unsigned short, unsigned int, or whatever
  void InitializeLUT(LookupTableType type, unsigned short length,
    unsigned short subscript, unsigned short bitsize);
  unsigned int GetLUTLength(LookupTableType type) const;
  virtual void SetLUT(LookupTableType type, const unsigned char *array,
    unsigned int length);
  void GetLUT(LookupTableType type, unsigned char *array, unsigned int &length) const;
  void GetLUTDescriptor(LookupTableType type, unsigned short &length,
    unsigned short &subscript, unsigned short &bitsize) const;

  void InitializeRedLUT(unsigned short length, unsigned short subscript,
    unsigned short bitsize);
  void SetRedLUT(const unsigned char *red, unsigned int length);
  void InitializeGreenLUT(unsigned short length, unsigned short subscript,
    unsigned short bitsize);
  void SetGreenLUT(const unsigned char *green, unsigned int length);
  void InitializeBlueLUT(unsigned short length, unsigned short subscript,
    unsigned short bitsize);
  void SetBlueLUT(const unsigned char *blue, unsigned int length);

  void Clear();

  void Decode(std::istream &is, std::ostream &os) const;

  bool Decode(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;

  bool IsRGB8() const;

  bool Decode8(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;

  LookupTable(LookupTable const &lut):Object(lut)
    {
    assert(0);
    }

  bool GetBufferAsRGBA(unsigned char *rgba) const;

  const unsigned char *GetPointer() const;

  bool WriteBufferAsRGBA(const unsigned char *rgba);

  unsigned short GetBitSample() const { return BitSample; }

  bool Initialized() const;

private:
  void Encode(std::istream &is, std::ostream &os);

protected:
```

```
  LookupTableInternal *Internal;
  unsigned short BitSample; // refer to the pixel type (not the bit size of LUT)
  bool IncompleteLUT:1;
};

} // end namespace gdcm

#endif //GDCMLOOKUPTABLE_H
```

11.359 gdcmMEC_MR3.h File Reference

`#include "gdcmPrivateTag.h"`

Include dependency graph for gdcmMEC_MR3.h:



Classes

- class gdcm::MEC_MR3

  Class for MEC_MR3.

Namespaces

- namespace gdcm

11.360 gdcmMEC_MR3.h

Go to the documentation of this file.

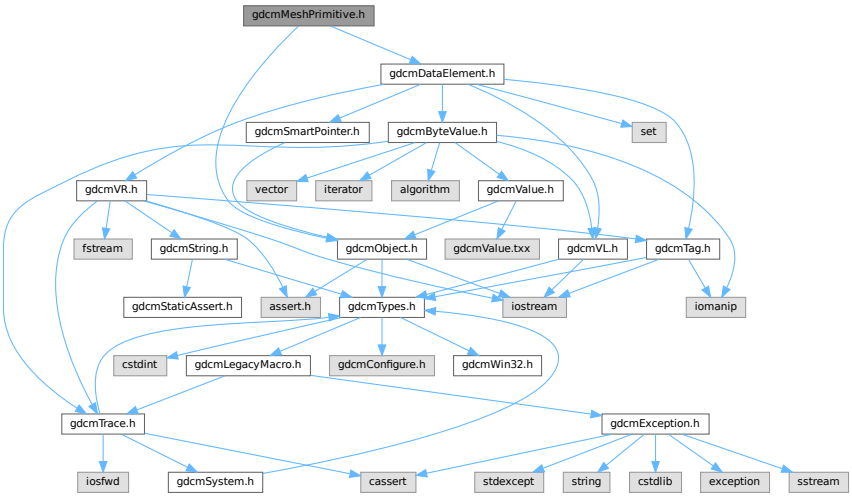
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMEC_MR3_H
00015 #define GDCMMEC_MR3_H
00016
00017 #include "gdcmPrivateTag.h"
00018
00019 namespace gdcm {
00024 class GDCM_EXPORT MEC_MR3 {
00025  public:
00026   static bool Print(const char *src, size_t srclen);
00027
00030   static const PrivateTag &GetPMTFInformationDataTag();
00031
00034   static const PrivateTag &GetCanonMECMR3Tag();
00035
00038   static const PrivateTag &GetToshibaMECMR3Tag();
00039 };
00040
00041 }  // end namespace gdcm
00042
00043 #endif  // GDCMMEC_MR3_H
```

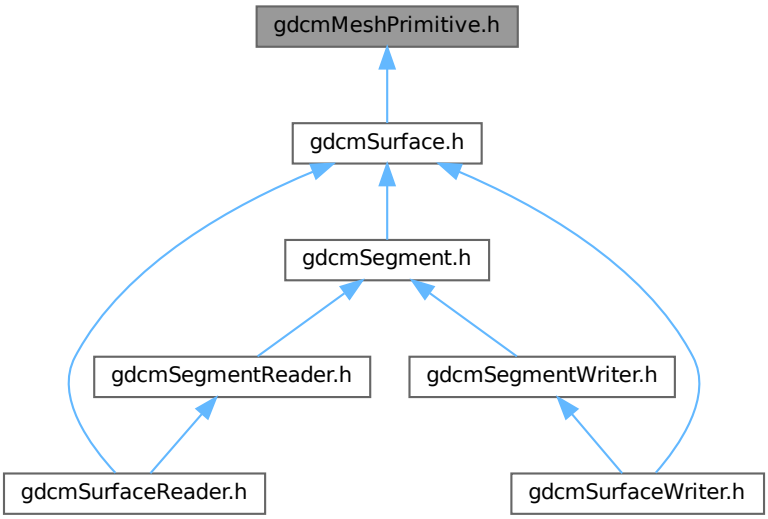
11.361 gdcmMeshPrimitive.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
```

Include dependency graph for gdcmMeshPrimitive.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MeshPrimitive

  This class defines surface mesh primitives.

Namespaces

- namespace gdcm

11.362 gdcmMeshPrimitive.h

Go to the documentation of this file.

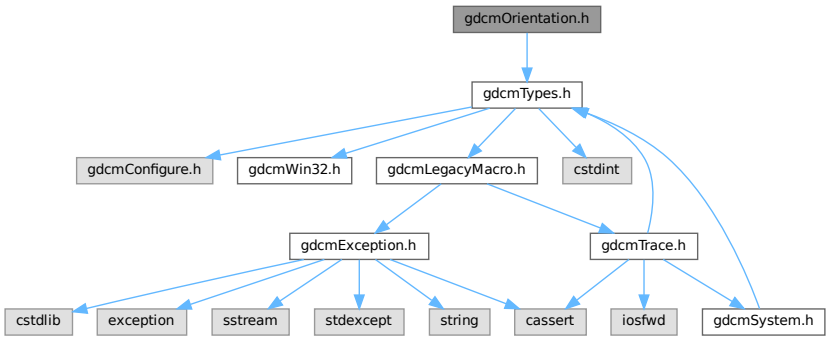
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMMESHPRIMITIVE_H
#define GDCMMESHPRIMITIVE_H

#include <gdcmObject.h>
```

```
#include <gdcmDataElement.h>

namespace gdcm
{

class GDCM_EXPORT MeshPrimitive : public Object
{
public:

  typedef std::vector< DataElement > PrimitivesData;

    typedef enum {
        VERTEX = 0,
        EDGE,
        TRIANGLE,
        TRIANGLE_STRIP,
        TRIANGLE_FAN,
        LINE,
        FACET,
        MPType_END
        } MPType;

    static const char * GetMPTypeString(const MPType type);

    static MPType GetMPType(const char * type);

    MeshPrimitive();

    ~MeshPrimitive() override;

    MPType GetPrimitiveType() const;
    void SetPrimitiveType(const MPType type);

    const DataElement & GetPrimitiveData() const;
    DataElement & GetPrimitiveData();
    void SetPrimitiveData(DataElement const & de);

    const PrimitivesData & GetPrimitivesData() const;
    PrimitivesData & GetPrimitivesData();
    void SetPrimitivesData(PrimitivesData const & DEs);

    const DataElement & GetPrimitiveData(const unsigned int idx) const;
    DataElement & GetPrimitiveData(const unsigned int idx);
    void SetPrimitiveData(const unsigned int idx, DataElement const & de);
    void AddPrimitiveData(DataElement const & de);

    unsigned int GetNumberOfPrimitivesData() const;

protected:

    // Use to define tag where PrimitiveData will be put.
    MPType          PrimitiveType;

    // PrimitiveData contains point index list.
    // It shall have 1 or 1-n DataElement following PrimitiveType.
    PrimitivesData  PrimitiveData;
};

}

#endif // GDCMMESHPRIMITIVE_H
```

11.363 gdcmOrientation.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmOrientation.h:



Classes

- class gdcm::Orientation

  class to handle Orientation

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Orientation &o)

11.364 gdcmOrientation.h

Go to the documentation of this file.

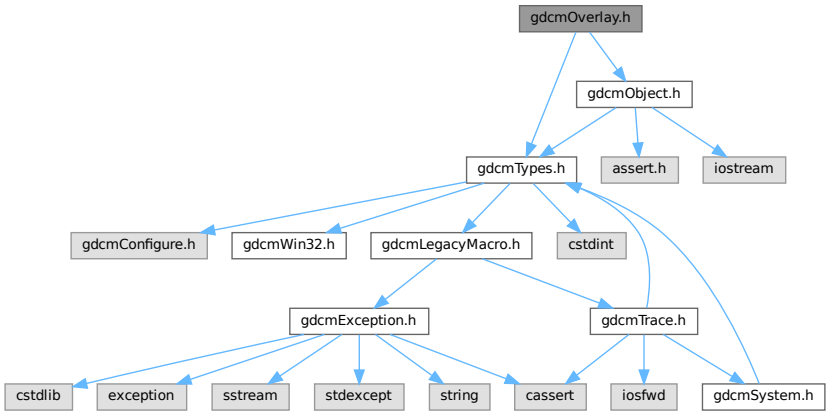
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMORIENTATION_H
#define GDCMORIENTATION_H
```

```
#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT Orientation
{
  friend std::ostream& operator«(std::ostream &_os, const Orientation &o);
public:
  Orientation();
  ~Orientation() = default;

  void Print(std::ostream &) const;

  typedef enum {
    UNKNOWN,
    AXIAL,
    CORONAL,
    SAGITTAL,
    OBLIQUE
  } OrientationType;

  static OrientationType GetType(const double dircos[6]);

  static void SetObliquityThresholdCosineValue(double val);
  static double GetObliquityThresholdCosineValue();

  static const char *GetLabel(OrientationType type);

protected:
  static char GetMajorAxisFromPatientRelativeDirectionCosine(double x, double y, double z);

private:
  static double ObliquityThresholdCosineValue;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Orientation &o)
{
  o.Print( os );
  return os;
}

} // end namespace gdcm

#endif //GDCMORIENTATION_H
```

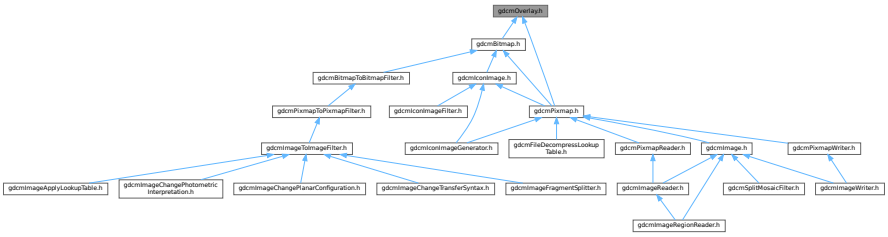
11.365 gdcmOverlay.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmOverlay.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Overlay

  Overlay class.

Namespaces

- namespace gdcm

11.366 gdcmOverlay.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
```

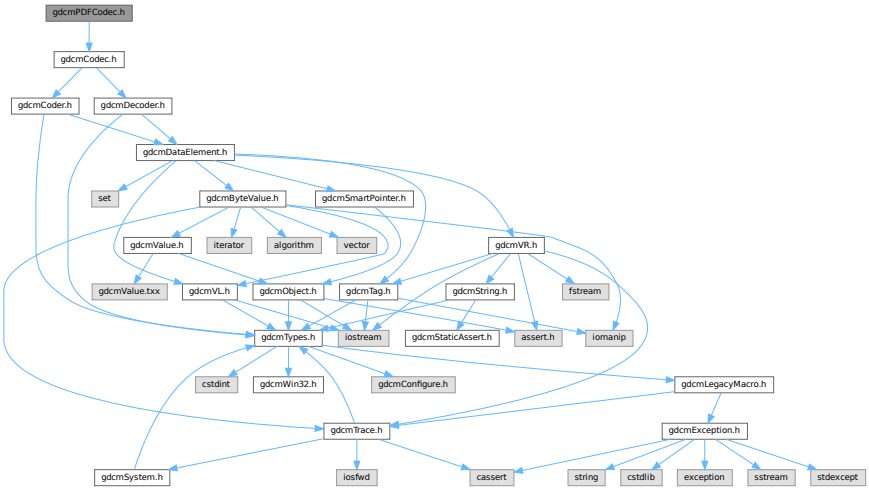
```
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOVERLAY_H
00015 #define GDCMOVERLAY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmObject.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class OverlayInternal;
00024 class ByteValue;
00025 class DataSet;
00026 class DataElement;
00038 class GDCM_EXPORT Overlay : public Object
00039 {
00040 public:
00041   Overlay();
00042   ~Overlay() override;
00044   void Print(std::ostream &) const override;
00045
00047   void Update(const DataElement & de);
00048
00050   void SetGroup(unsigned short group);
00052   unsigned short GetGroup() const;
00054   void SetRows(unsigned short rows);
00056   unsigned short GetRows() const;
00058   void SetColumns(unsigned short columns);
00060   unsigned short GetColumns() const;
00062   void SetNumberOfFrames(unsigned int numberofframes);
00064   void SetDescription(const char* description);
00066   const char *GetDescription() const;
00067   typedef enum {
00068     Invalid  = 0,
00069     Graphics = 1,
00070     ROI      = 2
00071   } OverlayType;
00073   void SetType(const char* type);
00075   const char *GetType() const;
00076   OverlayType GetTypeAsEnum() const;
00077   static const char *GetOverlayTypeAsString(OverlayType ot);
00078   static OverlayType GetOverlayTypeFromString(const char *);
00080   void SetOrigin(const signed short origin[2]);
00082   const signed short * GetOrigin() const;
00084   void SetFrameOrigin(unsigned short frameorigin);
00086   void SetBitsAllocated(unsigned short bitsallocated);
00088   unsigned short GetBitsAllocated() const;
00090   void SetBitPosition(unsigned short bitposition);
00092   unsigned short GetBitPosition() const;
00093
00095   void SetOverlay(const char *array, size_t length);
00097   bool GrabOverlayFromPixelData(DataSet const &ds);
00098
00101   const ByteValue &GetOverlayData() const;
00102
00104   bool IsEmpty() const;
00105
00107   bool IsZero() const;
00108
00110   bool IsInPixelData() const;
00111
00113   void IsInPixelData(bool b);
00114
00116   void Decompress(std::ostream &os) const;
00117
00120   size_t GetUnpackBufferLength() const;
00121
00124   bool GetUnpackBuffer(char *buffer, size_t len) const;
00125
00126   Overlay(Overlay const &ov);
00127   Overlay &operator=(Overlay const &ov);
00128
00129 private:
00130   OverlayInternal *Internal;
```

```
};

} // end namespace gdcm

#endif //GDCMOVERLAY_H
```

11.367 gdcmPDFCodec.h File Reference

`#include "gdcmCodec.h"`

Include dependency graph for gdcmPDFCodec.h:



Classes

- class gdcm::PDFCodec

  PDFCodec class.

Namespaces

- namespace gdcm

11.368 gdcmPDFCodec.h

Go to the documentation of this file.

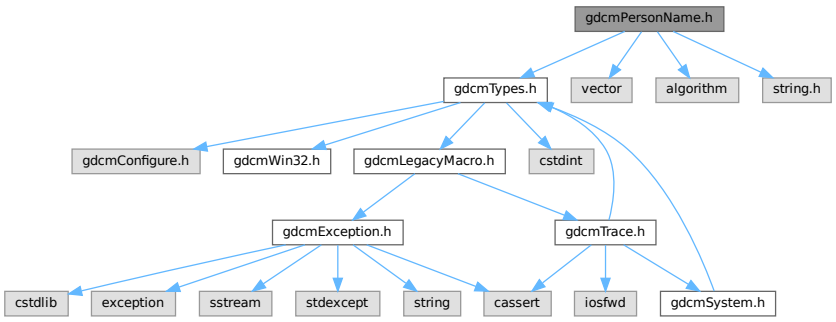
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPDFCODEC_H
#define GDCMPDFCODEC_H

#include "gdcmCodec.h"

namespace gdcm
{

class GDCM_EXPORT PDFCodec : public Codec
{
public:
  PDFCodec();
  ~PDFCodec() override;
  bool CanCode(TransferSyntax const &) const override { return false; }
  bool CanDecode(TransferSyntax const &) const override { return false; }
  bool Decode(DataElement const &is, DataElement &os) override;
};

} // end namespace gdcm

#endif //GDCMPDFCODEC_H
```

11.369 gdcmPersonName.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <algorithm>
#include <string.h>
```

Include dependency graph for gdcmPersonName.h:



Classes

- class gdcm::PersonName

  PersonName class.

Namespaces

- namespace gdcm

11.370 gdcmPersonName.h

Go to the documentation of this file.

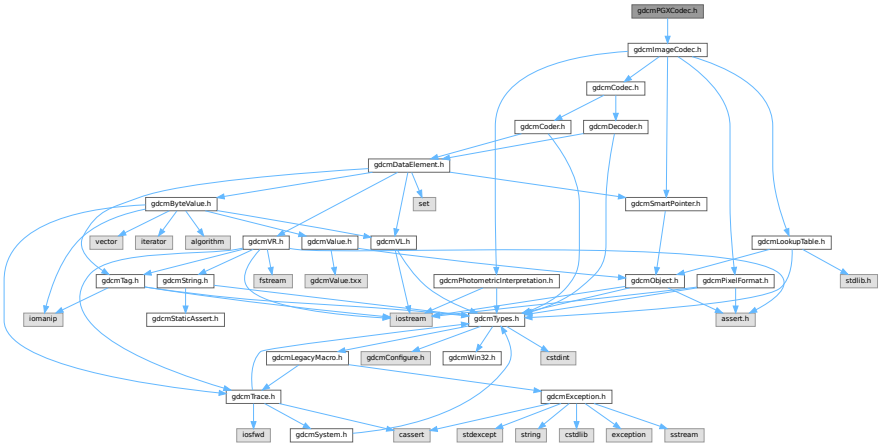
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMPERSONNAME_H
#define GDCMPERSONNAME_H

#include "gdcmTypes.h"
#include <vector>
#include <algorithm> // std::min
#include <string.h> // strlen

namespace gdcm
{

class GDCM_EXPORT PersonName
{
public:
  static const unsigned int MaxNumberOfComponents = 5;
  static const unsigned int MaxLength = 64;
  char Component[MaxNumberOfComponents][MaxLength+1];
  static const char Separator = '^';
  static const char Padding   = ' ';

  unsigned int GetNumberOfComponents() const {
    unsigned int r = 0;
    for(unsigned int i = 0; i < 5; ++i) {
      if( *Component[i] != '\0' ) r = i;
      }
    return r+1;
  }
  unsigned int GetMaxLength() const { return MaxLength; }
  void SetBlob(const std::vector<char>& v) {
  (void)v;
    //assert(0); //TODO
  }
  void SetComponents(const char *comp1 = "",
    const char *comp2 = "",
    const char *comp3 = "",
    const char *comp4 = "",
    const char *comp5 = "") {
    const char *components[5] = { comp1, comp2, comp3, comp4, comp5 };
    SetComponents( components );
  }
  void SetComponents(const char *components[]) {
    if( components )
      for(unsigned int i = 0; i < 5; ++i) {
        if( components[i] && strlen(components[i]) < GetMaxLength() )
          strcpy(Component[i], components[i]);
        assert( strlen(Component[i]) < GetMaxLength() );
      }
  }
  void Print(std::ostream &os) const
  {
    //os « "Family Name Complex: " « Component[0] « std::endl;
    //os « "Given  Name Complex: " « Component[1] « std::endl;
    //os « "Middle Name        : " « Component[2] « std::endl;
    //os « "Name Suffix        : " « Component[3] « std::endl;
    //os « "Name Prefix        : " « Component[4] « std::endl;
    os « Component[0] « '^';
    os « Component[1] « '^';
    os « Component[2] « '^';
    os « Component[3] « '^';
    os « Component[4];
  }
};
```

```
00080
00081 } // end namespace gdcm
00082
00083 #endif //GDCMPERSONNAME_H
```

11.371 gdcmPGXCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmPGXCodec.h:



Classes

- class gdcm::PGXCodec

  Class to do PGX.

Namespaces

- namespace gdcm

11.372 gdcmPGXCodec.h

Go to the documentation of this file.

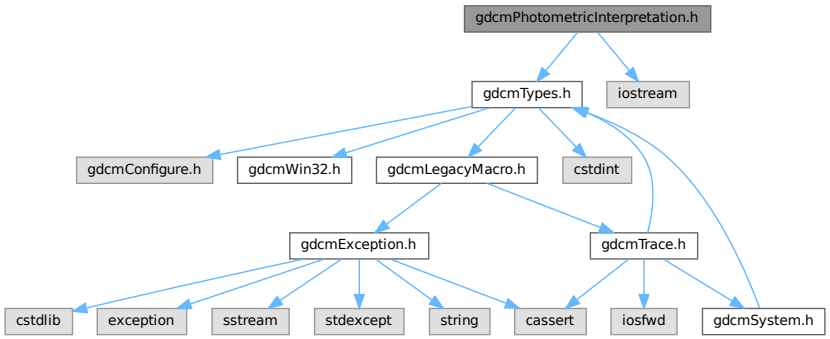
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```

```
==========================================================================*/
#ifndef GDCMPGXCODEC_H
#define GDCMPGXCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class GDCM_EXPORT PGXCodec : public ImageCodec
{
public:
  PGXCodec();
  ~PGXCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  bool Read(const char *filename, DataElement &out) const;
  bool Write(const char *filename, const DataElement &out) const;
private:
};

} // end namespace gdcm

#endif //GDCMPGXCODEC_H
```

11.373 gdcmPhotometricInterpretation.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmPhotometricInterpretation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PhotometricInterpretation

  Class to represent an PhotometricInterpretation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PhotometricInterpretation &val)

11.374 gdcmPhotometricInterpretation.h

Go to the documentation of this file.

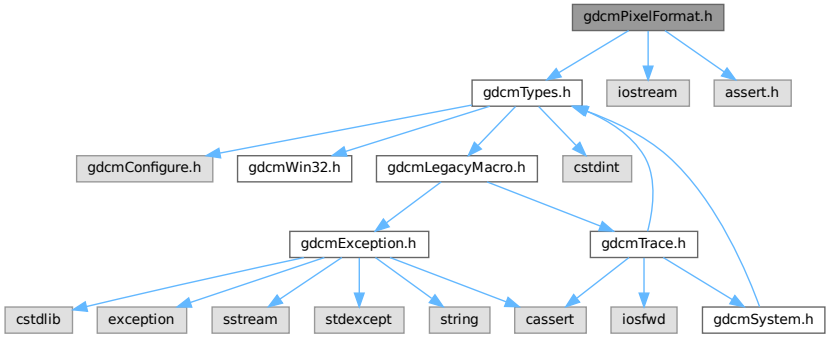
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMPHOTOMETRICINTERPRETATION_H
#define GDCMPHOTOMETRICINTERPRETATION_H

#include "gdcmTypes.h"
#include <iostream>

namespace gdcm
{

class TransferSyntax;
class GDCM_EXPORT PhotometricInterpretation
{
public:
  typedef enum {
    UNKNOWN = 0,
    MONOCHROME1,
    MONOCHROME2,
    PALETTE_COLOR,
    RGB,
    HSV,
    ARGB, // retired
    CMYK,
    YBR_FULL,
    YBR_FULL_422,
    YBR_PARTIAL_422,
    YBR_PARTIAL_420,
    YBR_ICT,
    YBR_RCT,
    // PALETTE_COLOR ?
    //MONOCHROME = MONOCHROME1 | MONOCHROME2,
    //COLOR      = RGB | HSV | ARGB | CMYK | YBR_FULL | YBR_FULL_422 | YBR_PARTIAL_422 | YBR_PARTIAL_420 | YBR_ICT | YBR_RCT,
    PI_END  // Helpful for internal implementation
  } PIType; // PhotometricInterpretationType

  PhotometricInterpretation(PIType pi = UNKNOWN):PIField(pi) {}
```

```
  static const char *GetPIString(PIType pi);

  const char *GetString() const;

  // You need to make sure end of string is \0
  static PIType GetPIType(const char *pi);

  static bool IsRetired(PIType pi);

  bool IsLossy() const;
  bool IsLossless() const;

  unsigned short GetSamplesPerPixel() const;

  // TODO
  // not all PhotometricInterpretation are allowed for compressed Transfer
  // syntax
  // static bool IsAllowedForCompressedTS(PIType pi);

  friend std::ostream& operator«(std::ostream& os, const PhotometricInterpretation& pi);

  operator PIType () const { return PIField; }

  PIType GetType () const { return PIField; }

  // Will return whether current PhotometricInterpretation is the same Color Space as input:
  // eg. RGB and YBR_RCT are
  bool IsSameColorSpace( PhotometricInterpretation const &pi ) const;

  //static PIType GetEquivalent(TransferSyntax const &ts);

private:
  PIType PIField;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream& os, const PhotometricInterpretation &val)
{
  const char *s = PhotometricInterpretation::GetPIString(val.PIField);
  os « (s ? s : "");
  return os;
}


} // end namespace gdcm

#endif //GDCMPHOTOMETRICINTERPRETATION_H
```

11.375 gdcmPixelFormat.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <assert.h>
```

Include dependency graph for gdcmPixelFormat.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PixelFormat

  PixelFormat.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PixelFormat &pf)

11.376 gdcmPixelFormat.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMPIXELFORMAT_H
#define GDCMPIXELFORMAT_H

#include "gdcmTypes.h"
#include <iostream>
#include <assert.h>

namespace gdcm
{

class TransferSyntax;

class GDCM_EXPORT PixelFormat
{
  friend class Bitmap;
  friend std::ostream& operator«(std::ostream &_os, const PixelFormat &pf);
public:
  // When adding a type please add its dual type (its unsigned counterpart)
  typedef enum {
    UINT8,
    INT8,
    UINT12,
    INT12,
    UINT16,
    INT16,
    UINT32,  // For some DICOM files (RT or SC)
    INT32,   //                        "   "
    UINT64,  // Needed when input is 32bits + intercept/slope (incomplete support)
    INT64,   //                        "   "
    FLOAT16, // sure why not...
    FLOAT32, // good ol' 'float'
    FLOAT64, // aka 'double'
    SINGLEBIT, // bool / monochrome
    UNKNOWN // aka BitsAllocated == 0 && PixelRepresentation == 0
  } ScalarType;

  // default cstor:
  PixelFormat () : PixelFormat(1, 8, 8, 7, 0) {}

  explicit PixelFormat (
    unsigned short samplesperpixel,
    unsigned short bitsallocated = 8,
    unsigned short bitsstored = 8,
    unsigned short highbit = 7,
    unsigned short pixelrepresentation = 0 ) :
  SamplesPerPixel(samplesperpixel),
  BitsAllocated(bitsallocated),
  BitsStored(bitsstored),
  HighBit(highbit),
  PixelRepresentation(pixelrepresentation) {}
  // helper, for the common case
  PixelFormat(ScalarType st);

  // For transparency of use
  operator ScalarType() const { return GetScalarType(); }

  unsigned short GetSamplesPerPixel() const;
  void SetSamplesPerPixel(unsigned short spp)
    {
    gdcmAssertMacro( spp <= 4 );
    SamplesPerPixel = spp;
    assert( SamplesPerPixel == 1 || SamplesPerPixel == 3 || SamplesPerPixel == 4 );
```

```
    }

  unsigned short GetBitsAllocated() const
    {
    return BitsAllocated;
    }
  void SetBitsAllocated(unsigned short ba)
    {
    if( ba )
      {
      switch( ba )
        {
        /* some devices (FUJIFILM CR + MONO1) incorrectly set BitsAllocated/BitsStored
         * as bitmask instead of value. Do what they mean instead of what they say.
         */
        case 0xffff: ba = 16; break;
        case 0x0fff: ba = 12; break;
        case 0x00ff: ba =  8; break;
        }
      BitsAllocated = ba;
      BitsStored = ba;
      HighBit = (unsigned short)(ba - 1);
      }
    else // Make the PixelFormat as UNKNOWN
      {
      BitsAllocated = 0;
      PixelRepresentation = 0;
      }
    }

  unsigned short GetBitsStored() const
    {
    assert( BitsStored <= BitsAllocated );
    return BitsStored;
    }
  void SetBitsStored(unsigned short bs)
    {
    switch( bs )
      {
      /* see SetBitsAllocated for explanation
       */
      case 0xffff: bs = 16; break;
      case 0x0fff: bs = 12; break;
      case 0x00ff: bs =  8; break;
      }
    if( bs <= BitsAllocated && bs )
      {
      BitsStored = bs;
      SetHighBit( (unsigned short) (bs - 1) );
      }
    }

  unsigned short GetHighBit() const
    {
    assert( HighBit < BitsStored );
    return HighBit;
    }
  void SetHighBit(unsigned short hb)
    {
    switch( hb )
      {
      /* broken implementations that use bitmask for BitsAllocated/Stored
       * nonetheless use (BitsStored-1) for HighBit. correct for this here.
       */
      case 0xfffe: hb = 15; break;
      case 0x0ffe: hb = 11; break;
      case 0x00fe: hb =  7; break;
      }
    if( hb < BitsStored )
      HighBit = hb;
    }

  unsigned short GetPixelRepresentation() const
    {
    return (unsigned short)(PixelRepresentation ? 1 : 0);
    }
  void SetPixelRepresentation(unsigned short pr)
    {
    PixelRepresentation = (unsigned short)(pr ? 1 : 0);
    }

```

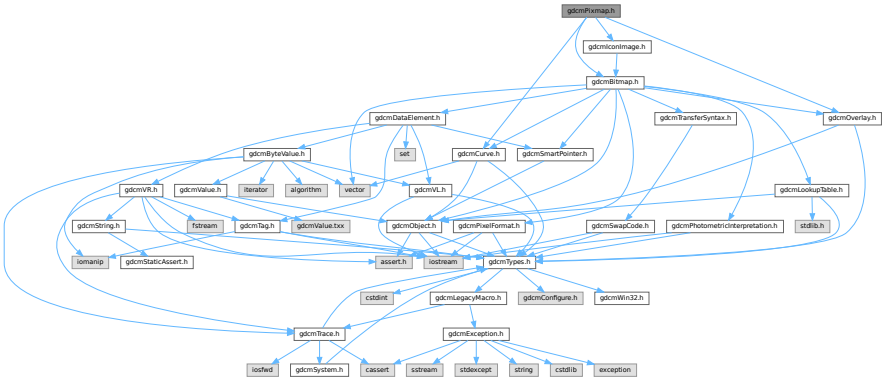
```
  ScalarType GetScalarType() const;

  void SetScalarType(ScalarType st);
  const char *GetScalarTypeAsString() const;

  uint8_t GetPixelSize() const;

  void Print(std::ostream &os) const;

  int64_t GetMin() const;

  int64_t GetMax() const;

  bool IsValid() const;

  bool operator==(ScalarType st) const
    {
    return GetScalarType() == st;
    }
  bool operator!=(ScalarType st) const
    {
    return GetScalarType() != st;
    }
  bool operator==(const PixelFormat &pf) const
    {
    return
      SamplesPerPixel     == pf.SamplesPerPixel &&
      BitsAllocated       == pf.BitsAllocated &&
      BitsStored          == pf.BitsStored &&
      HighBit             == pf.HighBit &&
      PixelRepresentation == pf.PixelRepresentation;
    }
  bool operator!=(const PixelFormat &pf) const
    {
    return
      SamplesPerPixel     != pf.SamplesPerPixel ||
      BitsAllocated       != pf.BitsAllocated ||
      BitsStored          != pf.BitsStored ||
      HighBit             != pf.HighBit ||
      PixelRepresentation != pf.PixelRepresentation;
    }

  bool IsCompatible(const TransferSyntax & ts ) const;
protected:
  bool Validate();

private:
  // D 0028|0002 [US] [Samples per Pixel] [1]
  unsigned short SamplesPerPixel;
  // D 0028|0100 [US] [Bits Allocated] [8]
  unsigned short BitsAllocated;
  // D 0028|0101 [US] [Bits Stored] [8]
  unsigned short BitsStored;
  // D 0028|0102 [US] [High Bit] [7]
  unsigned short HighBit;
  // D 0028|0103 [US] [Pixel Representation] [0]
  unsigned short PixelRepresentation;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const PixelFormat &pf)
{
  pf.Print( os );
  return os;
}

} // end namespace gdcm

#endif //GDCMPIXELFORMAT_H
```

11.377 gdcmPixmap.h File Reference

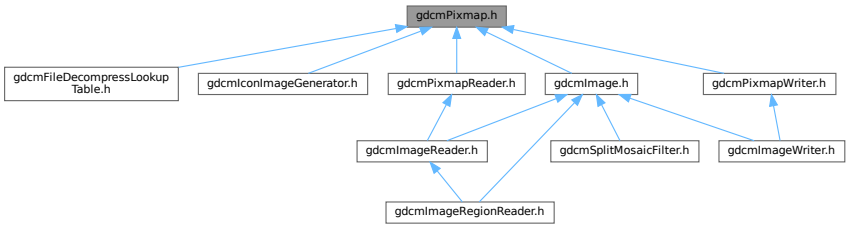
```
#include "gdcmBitmap.h"
#include "gdcmCurve.h"
#include "gdcmIconImage.h"
```

```
#include "gdcmOverlay.h"
```

Include dependency graph for gdcmPixmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Pixmap

  Pixmap class.

Namespaces

- namespace gdcm

11.378 gdcmPixmap.h

Go to the documentation of this file.

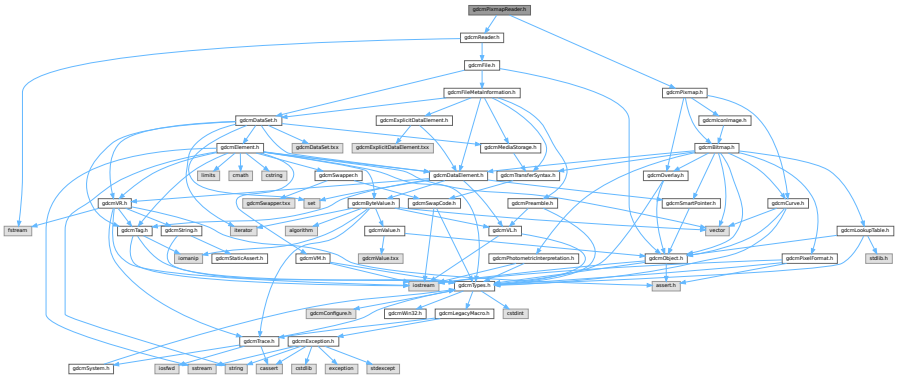
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPIXMAP_H
#define GDCMPIXMAP_H

#include "gdcmBitmap.h"
#include "gdcmCurve.h"
#include "gdcmIconImage.h"
#include "gdcmOverlay.h"

namespace gdcm
{

class GDCM_EXPORT Pixmap : public Bitmap
{
public:
  Pixmap();
  ~Pixmap() override;
  void Print(std::ostream &) const override;

  bool AreOverlaysInPixelData() const override;
  bool UnusedBitsPresentInPixelData() const override;

  Curve& GetCurve(size_t i = 0) {
    assert( i < Curves.size() );
    return Curves[i];
  }
  const Curve& GetCurve(size_t i = 0) const {
    assert( i < Curves.size() );
    return Curves[i];
  }
  size_t GetNumberOfCurves() const { return Curves.size(); }
  void SetNumberOfCurves(size_t n) { Curves.resize(n); }

  Overlay& GetOverlay(size_t i = 0) {
    assert( i < Overlays.size() );
    return Overlays[i];
  }
  const Overlay& GetOverlay(size_t i = 0) const {
    assert( i < Overlays.size() );
    return Overlays[i];
  }
  size_t GetNumberOfOverlays() const { return Overlays.size(); }
  void SetNumberOfOverlays(size_t n) { Overlays.resize(n); }
  void RemoveOverlay(size_t i) {
    assert( i < Overlays.size() );
    Overlays.erase( Overlays.begin() + i );
  }

  const IconImage &GetIconImage() const { return *Icon; }
  IconImage &GetIconImage() { return *Icon; }
  void SetIconImage(IconImage const &ii) { Icon = ii; }

//private:
protected:
  std::vector<Overlay>  Overlays;
  std::vector<Curve>  Curves;
  SmartPointer<IconImage> Icon;
};

} // end namespace gdcm

#endif //GDCMPIXMAP_H
```

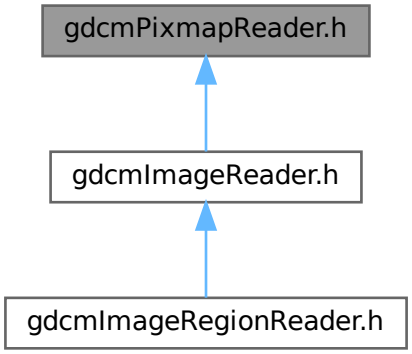
11.379 gdcmPixmapReader.h File Reference

```
#include "gdcmReader.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapReader

  PixmapReader.

Namespaces

- namespace gdcm

11.380 gdcmPixmapReader.h

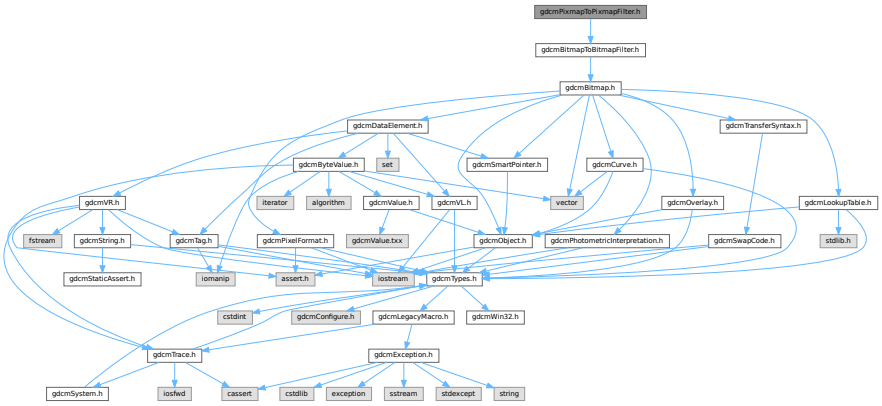
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPIXMAPREADER_H
#define GDCMPIXMAPREADER_H

#include "gdcmReader.h"
#include "gdcmPixmap.h"

namespace gdcm
{

class ByteValue;
class MediaStorage;
class GDCM_EXPORT PixmapReader : public Reader
{
public:
  PixmapReader();
  ~PixmapReader() override; //needs to be virtual to ensure lack of memory leaks


  bool Read() override;

  // Following methods are valid only after a call to 'Read'

  const Pixmap& GetPixmap() const;
  Pixmap& GetPixmap();
  //void SetPixamp(Pixmap const &pix);

protected:
  bool ReadImageInternal(MediaStorage const &ms, bool handlepixeldata = true);
  virtual bool ReadImage(MediaStorage const &ms);
  virtual bool ReadACRNEMAImage();

  SmartPointer<Pixmap> PixelData;
};

} // end namespace gdcm

#endif //GDCMPIXMAPREADER_H
```

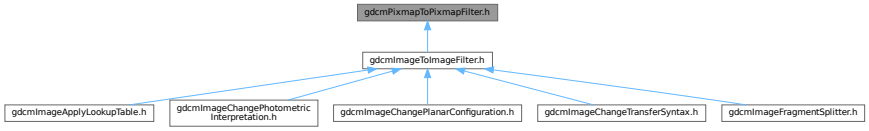
11.381 gdcmPixmapToPixmapFilter.h File Reference

`#include "gdcmBitmapToBitmapFilter.h"`

Include dependency graph for gdcmPixmapToPixmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapToPixmapFilter

  PixmapToPixmapFilter class.

Namespaces

- namespace gdcm

11.382 gdcmPixmapToPixmapFilter.h

Go to the documentation of this file.

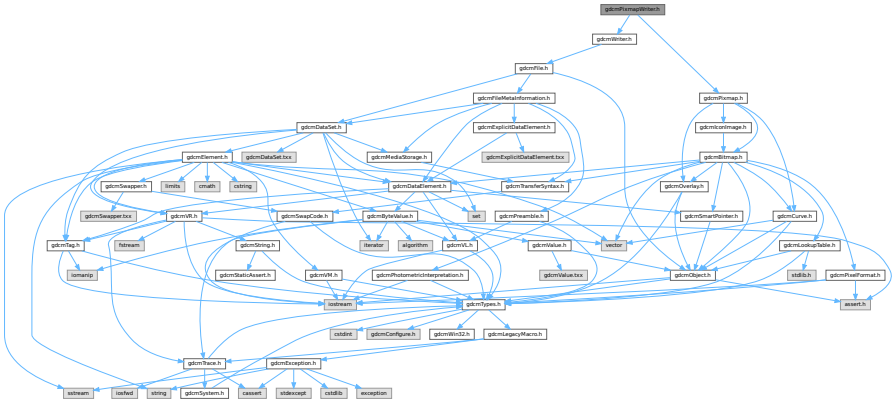
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPIXMAPTOPIXMAPFILTER_H
#define GDCMPIXMAPTOPIXMAPFILTER_H

#include "gdcmBitmapToBitmapFilter.h"

namespace gdcm
{

class Pixmap;
class GDCM_EXPORT PixmapToPixmapFilter : public BitmapToBitmapFilter
{
public:
  PixmapToPixmapFilter();
  ~PixmapToPixmapFilter() = default;

  Pixmap &GetInput();

  const Pixmap &GetOutput() const;

  // SWIG/Java hack:
  const Pixmap &GetOutputAsPixmap() const;
};

} // end namespace gdcm

#endif //GDCMPIXMAPTOPIXMAPFILTER_H
```

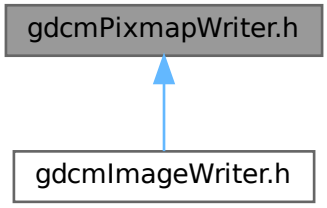
11.383 gdcmPixmapWriter.h File Reference

```
#include "gdcmWriter.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapWriter

  PixmapWriter.

Namespaces

- namespace gdcm

11.384 gdcmPixmapWriter.h

Go to the documentation of this file.

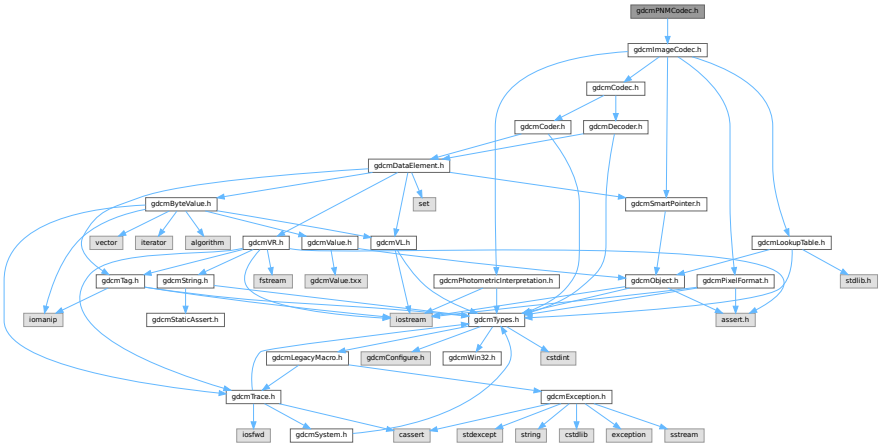
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPIXMAPWRITER_H
#define GDCMPIXMAPWRITER_H

#include "gdcmWriter.h"
#include "gdcmPixmap.h"

namespace gdcm
{

class StreamImageWriter;
class Pixmap;
class GDCM_EXPORT PixmapWriter : public Writer
{
public:
  PixmapWriter();
  ~PixmapWriter() override;

```

```
  const Pixmap& GetPixmap() const { return *PixelData; }
  Pixmap& GetPixmap() { return *PixelData; } // FIXME
  void SetPixmap(Pixmap const &img);

  virtual const Pixmap& GetImage() const { return *PixelData; }
  virtual Pixmap& GetImage() { return *PixelData; } // FIXME
  virtual void SetImage(Pixmap const &img);

  bool Write() override; // Execute()

protected:
  void DoIconImage(DataSet & ds, Pixmap const & image);
  bool PrepareWrite( MediaStorage const & refms );

  SmartPointer<Pixmap> PixelData;
};

} // end namespace gdcm

#endif //GDCMPIXMAPWRITER_H
```

11.385 gdcmPNMCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmPNMCodec.h:



Classes

- class gdcm::PNMCodec

  Class to do PNM.

Namespaces

- namespace gdcm

11.386 gdcmPNMCodec.h

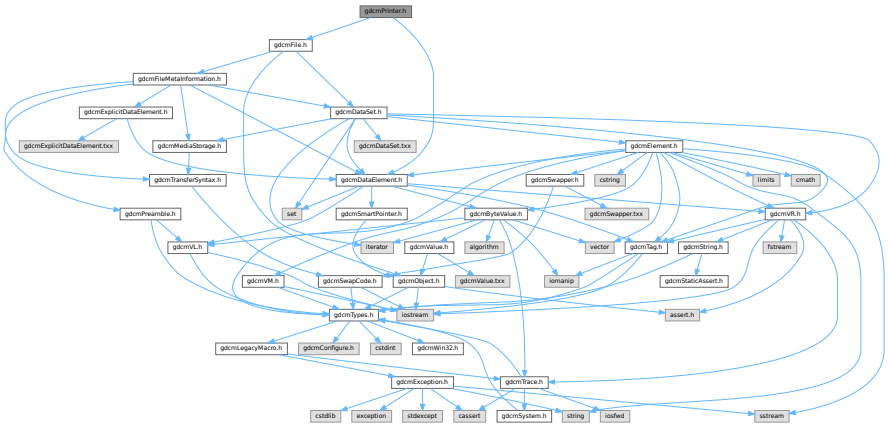
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPNMCODEC_H
#define GDCMPNMCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class GDCM_EXPORT PNMCodec : public ImageCodec
{
public:
  PNMCodec();
  ~PNMCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  unsigned long GetBufferLength() const { return BufferLength; }
  void SetBufferLength(unsigned long l) { BufferLength = l; }

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  bool Read(const char *filename, DataElement &out) const;
  bool Write(const char *filename, const DataElement &out) const;
  //bool Write(const char *filename);
private:
  unsigned long BufferLength;
};

} // end namespace gdcm

#endif //GDCMPNMCODEC_H
```

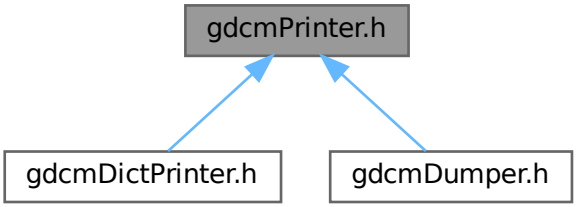
11.387 gdcmPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmPrinter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Printer

  Printer class.

Namespaces

- namespace gdcm

11.388 gdcmPrinter.h

Go to the documentation of this file.

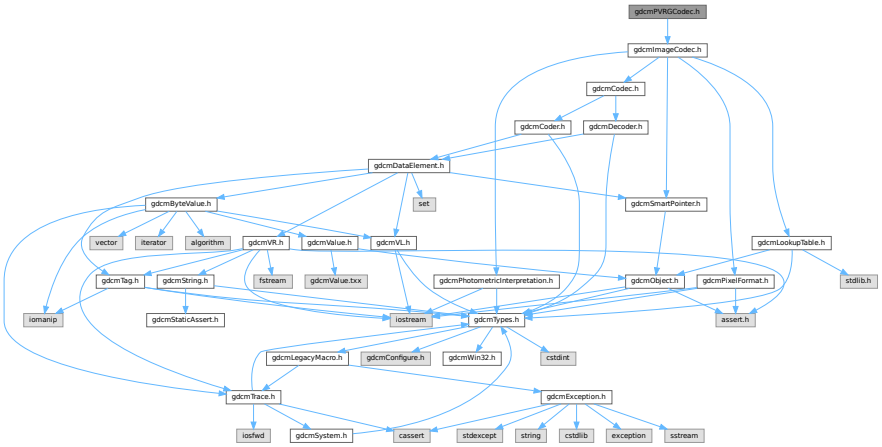
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRINTER_H
#define GDCMPRINTER_H

// TODO Class to implement printing
// Since DICOM does printing ?
// Also I would like to encapsulate the IsCharacterPrintable thing
// (to avoid printing \0 and other weird characters)
// \todo I still need to implement skipping of group (shadow)
// need to implement longer field to read

/*
 * Output:
 * For ASCII:
 * Typically will look like:
 * [ORIGINAL\PRIMARY\OTHER]
 * If a non printable character is found: RED and INVERSE is used:
 * [                .]
 *
 * when the VR is not found (file or dict), we check if we can print the output:
 * on success ASCII mode is used, on failure the output is printed a series of bytes
 *
 * Special case when the data element is empty:
 * INVERSE « (no value)
 *
 * retired public element are printed in red and underline
 * unknown private element are printed in RED followed by 'UNKNOWN'
 *
 * Correct VR is printed in green just after the found VR
 *
 * length of data element is printed in bytes, followed by the VM, a green VM is appended
 * if this is not compatible
 */
#include "gdcmFile.h"
#include "gdcmDataElement.h"

namespace gdcm
{

class DataSet;
class DictEntry;
class Dicts;
// It's a sink there is no output
class GDCM_EXPORT Printer
{
public:
  Printer();
  ~Printer() = default;

  void SetFile(File const &f) { F = &f; }

  void SetColor(bool c);

  typedef enum {
    VERBOSE_STYLE = 0, // GDCM Legacy VERBOSE one
    CONDENSED_STYLE, //
    // Ok I am missing voc here ...better naming would be nice
    XML, //
    CXX
  } PrintStyles;

  void SetStyle(PrintStyles ps) {
    PrintStyle = ps;
  }
```

```
  PrintStyles GetPrintStyle() const {
    return PrintStyle;
    }

  void Print(std::ostream& os);

  void PrintDataSet(const DataSet &ds, std::ostream& os, const std::string &s = "");

protected:
  VR PrintDataElement(std::ostringstream & os, const Dicts &dicts, const DataSet & ds, const DataElement
    &de, std::ostream &out, std::string const & indent );
void PrintSQ(const SequenceOfItems *sqi, std::ostream & os, std::string const & indent);

  PrintStyles PrintStyle;
  const File *F;
  VL MaxPrintLength;
};

} // end namespace gdcm

#endif //GDCMPRINTER_H
```

11.389 gdcmPVRGCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmPVRGCodec.h:



Classes

- class gdcm::PVRGCodec

  PVRGCodec.

Namespaces

- namespace gdcm

11.390 gdcmPVRGCodec.h

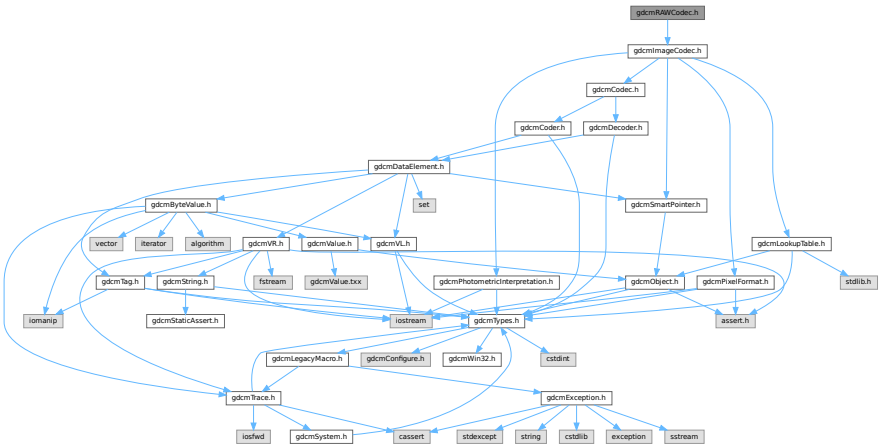
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPVRGCODEC_H
#define GDCMPVRGCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class PVRGCodec : public ImageCodec
{
public:
  PVRGCodec();
  ~PVRGCodec() override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool CanCode(TransferSyntax const &ts) const override;

  bool Decode(DataElement const &is, DataElement &os) override;
  bool Code(DataElement const &in, DataElement &out) override;
  void SetLossyFlag( bool l );

  ImageCodec * Clone() const override;
private:
};

} // end namespace gdcm

#endif //GDCMPVRGCODEC_H
```

11.391 gdcmRAWCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmRAWCodec.h:



Classes

- class gdcm::RAWCodec

  RAWCodec class.

Namespaces

- namespace gdcm

11.392 gdcmRAWCodec.h

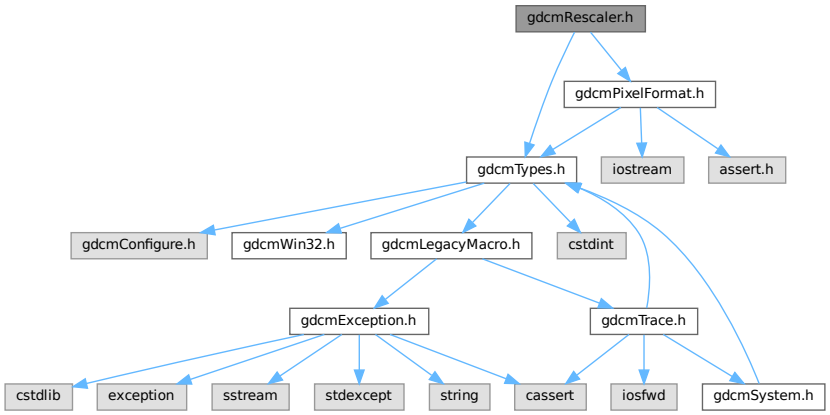
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMRAWCODEC_H
#define GDCMRAWCODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{

class RAWInternals;
class GDCM_EXPORT RAWCodec : public ImageCodec
{
public:
  RAWCodec();
  ~RAWCodec() override;
  bool CanCode(TransferSyntax const &ts) const override;
  bool CanDecode(TransferSyntax const &ts) const override;
  bool Decode(DataElement const &is, DataElement &os) override;
  bool Code(DataElement const &in, DataElement &out) override;

  bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
  ImageCodec * Clone() const override;

  bool DecodeBytes(const char* inBytes, size_t inBufferLength,
    char* outBytes, size_t inOutBufferLength);

protected:
  bool DecodeByStreams(std::istream &is, std::ostream &os) override;

private:
  RAWInternals *Internals;
};

} // end namespace gdcm

#endif // GDCMRAWCODEC_H
```

11.393 gdcmRescaler.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmRescaler.h:



Classes

- class gdcm::Rescaler

  Rescale class.

Namespaces

- namespace gdcm

11.394 gdcmRescaler.h

Go to the documentation of this file.

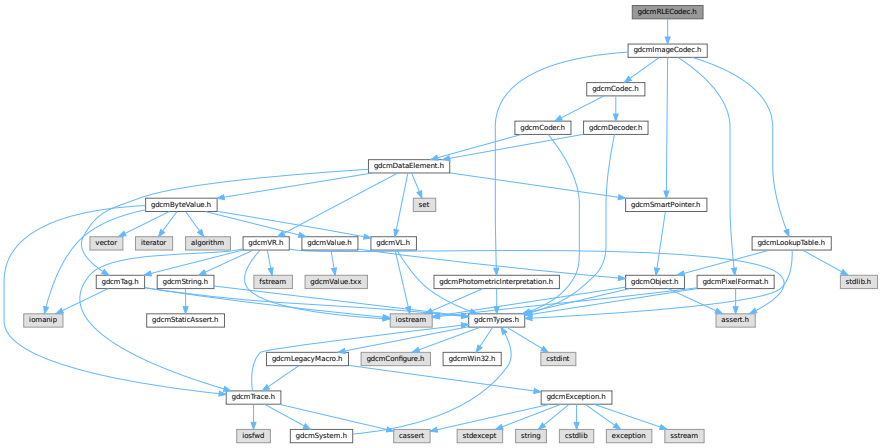
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMRESCALER_H
#define GDCMRESCALER_H

#include "gdcmTypes.h"
#include "gdcmPixelFormat.h"
```

```
00019
00020 namespace gdcm
00021 {
00022
00068 class GDCM_EXPORT Rescaler
00069 {
00070 public:
00071   Rescaler():Intercept(0),Slope(1),PF(PixelFormat::UNKNOWN),TargetScalarType(PixelFormat::UNKNOWN),
      ScalarRangeMin(0), ScalarRangeMax(0), UseTargetPixelType(false) {}
00072   ~Rescaler() = default;
00073
00075   bool Rescale(char *out, const char *in, size_t n);
00076
00078   bool InverseRescale(char *out, const char *in, size_t n);
00079
00081   void SetIntercept(double i) { Intercept = i; }
00082   double GetIntercept() const { return Intercept; }
00083
00085   void SetSlope(double s) { Slope = s; }
00086   double GetSlope() const { return Slope; }
00087
00092   void SetTargetPixelType( PixelFormat const & targetst );
00093
00095   void SetUseTargetPixelType(bool b);
00096
00098   void SetPixelFormat(PixelFormat const & pf) { PF = pf; }
00099
00102   PixelFormat::ScalarType ComputeInterceptSlopePixelType();
00103
00106   void SetMinMaxForPixelType(double min, double max);
00107
00110   PixelFormat ComputePixelTypeFromMinMax();
00111
00112 protected:
00113   template <typename TIn>
00114     void RescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00115   template <typename TIn>
00116     void InverseRescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00117
00118 private:
00119   double Intercept; // 0028,1052
00120   double Slope;     // 0028,1053
00121   PixelFormat PF;
00122   PixelFormat::ScalarType TargetScalarType;
00123   double ScalarRangeMin;
00124   double ScalarRangeMax;
00125   bool UseTargetPixelType;
00126 };
00127
00128 } // end namespace gdcm
00129
00130 #endif //GDCMRESCALER_H
```

11.395 gdcmRLECodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmRLECodec.h:



Classes

- class gdcm::RLECodec

  Class to do RLE.

Namespaces

- namespace gdcm

11.396 gdcmRLECodec.h

Go to the documentation of this file.

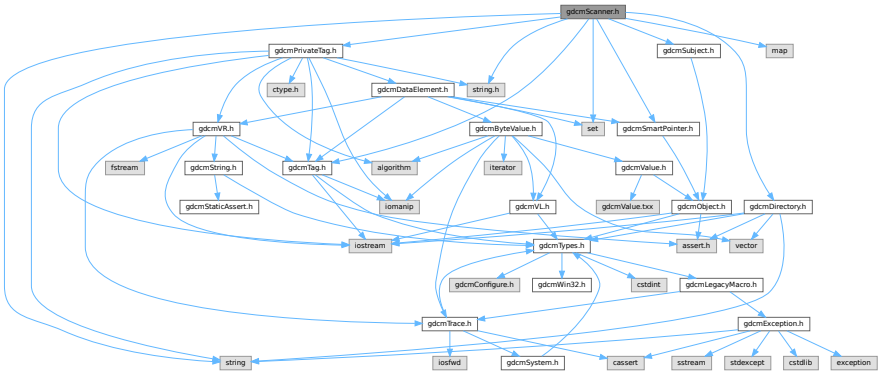
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMRLECODEC_H
#define GDCMRLECODEC_H

#include "gdcmImageCodec.h"

namespace gdcm
{
```

```
00021
00022 class Fragment;
00023 class RLEInternals;
00036 class GDCM_EXPORT RLECodec : public ImageCodec
00037 {
00038 friend class ImageRegionReader;
00039 public:
00040   RLECodec();
00041   ~RLECodec() override;
00042   bool CanCode(TransferSyntax const &ts) const override;
00043   bool CanDecode(TransferSyntax const &ts) const override;
00044   bool Decode(DataElement const &is, DataElement &os) override;
00045   unsigned long GetBufferLength() const { return BufferLength; }
00046   void SetBufferLength(unsigned long l) { BufferLength = l; }
00047
00048   bool Code(DataElement const &in, DataElement &out) override;
00049   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00050   ImageCodec * Clone() const override;
00051
00052 protected:
00053   bool DecodeExtent(
00054     char *buffer,
00055     unsigned int XMin, unsigned int XMax,
00056     unsigned int YMin, unsigned int YMax,
00057     unsigned int ZMin, unsigned int ZMax,
00058     std::istream & is
00059   );
00060
00061   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00062 public:
00063
00064   void SetLength(unsigned long l)
00065     {
00066     Length = l;
00067     }
00068
00069 protected:
00070   bool StartEncode( std::ostream & ) override;
00071   bool IsRowEncoder() override;
00072   bool IsFrameEncoder() override;
00073   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00074   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00075   bool StopEncode( std::ostream & ) override;
00076
00077 private:
00078   bool DecodeByStreamsCommon(std::istream &is, std::ostream &os);
00079   RLEInternals *Internals;
00080   unsigned long Length;
00081   unsigned long BufferLength;
00082   size_t DecodeFragment(Fragment const & frag, char *buffer, size_t llen);
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMRLECODEC_H
```

11.397 gdcmScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmScanner.h:



Classes

- struct gdcm::Scanner::ltstr
- class gdcm::Scanner

  Scanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner &s)

11.398 gdcmScanner.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSCANNER_H
#define GDCMSCANNER_H

#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
```

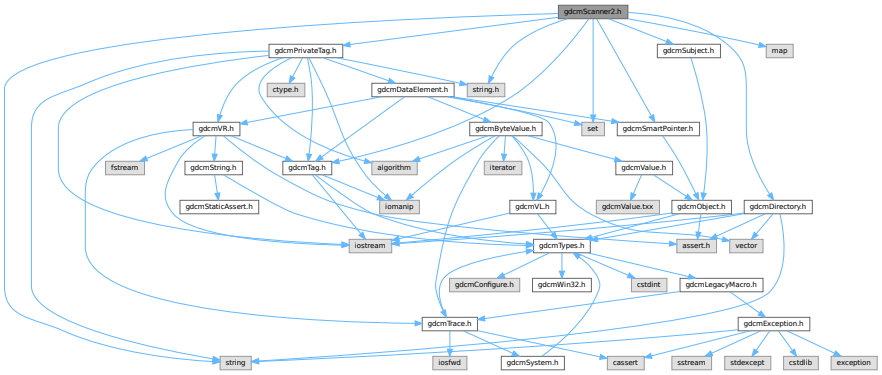
```
#include "gdcmSmartPointer.h"

#include <map>
#include <set>
#include <string>

#include <string.h> // strcmp

namespace gdcm
{
class StringFilter;

class GDCM_EXPORT Scanner : public Subject
{
  friend std::ostream& operator«(std::ostream &_os, const Scanner &s);
public:
  Scanner():Values(),Filenames(),Mappings() {}
  ~Scanner() override;

  typedef std::map<Tag, const char*> TagToValue;
  //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
  //typedef TagToStringMap TagToValue;
  typedef TagToValue::value_type TagToValueValueType;

  void AddTag( Tag const & t );
  void ClearTags();

  // Work in progress do not use:
  void AddPrivateTag( PrivateTag const & t );

  void AddSkipTag( Tag const & t );
  void ClearSkipTags();

  bool Scan( Directory::FilenamesType const & filenames );

  Directory::FilenamesType const &GetFilenames() const { return Filenames; }

  void Print( std::ostream & os ) const override;

  void PrintTable( std::ostream & os ) const;

  bool IsKey( const char * filename ) const;

  Directory::FilenamesType GetKeys() const;

  // struct to store all the values found:
  typedef std::set< std::string > ValuesType;

  ValuesType const & GetValues() const { return Values; }

  ValuesType GetValues(Tag const &t) const;

  Directory::FilenamesType GetOrderedValues(Tag const &t) const;

  /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
  struct ltstr
    {
    bool operator()(const char* s1, const char* s2) const
      {
      assert( s1 && s2 );
      return strcmp(s1, s2) < 0;
      }
    };
  typedef std::map<const char *,TagToValue, ltstr> MappingType;
  typedef MappingType::const_iterator ConstIterator;
  ConstIterator Begin() const { return Mappings.begin(); }
  ConstIterator End() const { return Mappings.end(); }

  MappingType const & GetMappings() const { return Mappings; }

  TagToValue const & GetMapping(const char *filename) const;

  const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;

  Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;

  // by a call to GetMapping()
  TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;

  const char* GetValue(const char *filename, Tag const &t) const;

```

```
  static SmartPointer<Scanner> New() { return new Scanner; }

protected:
  void ProcessPublicTag(StringFilter &sf, const char *filename);
private:
  // struct to store all uniq tags in ascending order:
  typedef std::set< Tag > TagsType;
  typedef std::set< PrivateTag > PrivateTagsType;
  std::set< Tag > Tags;
  std::set< PrivateTag > PrivateTags;
  std::set< Tag > SkipTags;
  ValuesType Values;
  Directory::FilenamesType Filenames;

  // Main struct that will hold all mapping:
  MappingType Mappings;

  double Progress;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Scanner &s)
{
  s.Print( os );
  return os;
}

#if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
/*
 * HACK: I need this temp class to be able to manipulate a std::map from python,
 * swig does not support wrapping of simple class like std::map...
 */
class SWIGTagToValue
{
public:
  SWIGTagToValue(Scanner::TagToValue const &t2v):Internal(t2v),it(t2v.begin()) {}
  const Scanner::TagToValueValueType& GetCurrent() const { return *it; }
  const Tag& GetCurrentTag() const { return it->first; }
  const char *GetCurrentValue() const { return it->second; }
  void Start() { it = Internal.begin(); }
  bool IsAtEnd() const { return it == Internal.end(); }
  void Next() { ++it; }
private:
  const Scanner::TagToValue& Internal;
  Scanner::TagToValue::const_iterator it;
};
#endif /* SWIG */

} // end namespace gdcm

#endif //GDCMSCANNER_H
```

11.399 gdcmScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmScanner2.h:



Classes

- struct gdcm::Scanner2::ltstr
- class gdcm::Scanner2

  Scanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner2 &s)

11.400 gdcmScanner2.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSCANNER2_H
#define GDCMSCANNER2_H

#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
```

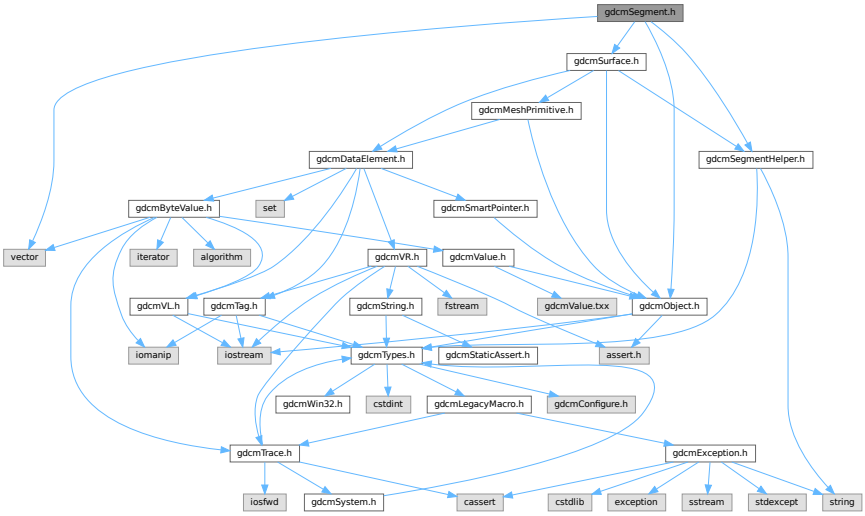
```
#include "gdcmSmartPointer.h"

#include <map>
#include <set>
#include <string>

#include <string.h> // strcmp

namespace gdcm
{
class StringFilter;

class GDCM_EXPORT Scanner2 : public Subject
{
  friend std::ostream& operator«(std::ostream &_os, const Scanner2 &s);
public:
  Scanner2():Values(),Filenames(),PublicMappings(),PrivateMappings(),Progress(0.0) {}
  ~Scanner2() override;

  typedef std::map<Tag, const char*> PublicTagToValue;
  typedef PublicTagToValue::value_type PublicTagToValueValueType;

  typedef std::map<PrivateTag, const char*> PrivateTagToValue;
  typedef PrivateTagToValue::value_type PrivateTagToValueValueType;

  bool AddPublicTag( Tag const & t );
  void ClearPublicTags();

  // Work in progress do not use:
  bool AddPrivateTag( PrivateTag const & pt );
  void ClearPrivateTags();

  bool AddSkipTag( Tag const & t );
  void ClearSkipTags();

  bool Scan( Directory::FilenamesType const & filenames );

  Directory::FilenamesType const &GetFilenames() const { return Filenames; }

  void Print( std::ostream & os ) const override;

  void PrintTable( std::ostream & os, bool header = false ) const;

  bool IsKey( const char * filename ) const;

  Directory::FilenamesType GetKeys() const;

  // struct to store all the values found:
  typedef std::set< std::string > ValuesType;

  ValuesType const & GetValues() const { return Values; }

  ValuesType GetPublicValues(Tag const &t) const;

  ValuesType GetPrivateValues(PrivateTag const &pt) const;

  Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;

  Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;

  /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
  struct ltstr
    {
    bool operator()(const char* s1, const char* s2) const
      {
      assert( s1 && s2 );
      return strcmp(s1, s2) < 0;
      }
    };
  typedef std::map<const char *,PublicTagToValue, ltstr> PublicMappingType;
  typedef PublicMappingType::const_iterator PublicConstIterator;
  PublicConstIterator Begin() const { return PublicMappings.begin(); }
  PublicConstIterator End() const { return PublicMappings.end(); }

  typedef std::map<const char *,PrivateTagToValue, ltstr> PrivateMappingType;
  typedef PrivateMappingType::const_iterator PrivateConstIterator;
  PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
  PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }

  PublicMappingType const & GetPublicMappings() const { return PublicMappings; }
  PrivateMappingType const & GetPrivateMappings() const { return PrivateMappings; }
```

```

  PublicTagToValue const & GetPublicMapping(const char *filename) const;
  PrivateTagToValue const & GetPrivateMapping(const char *filename) const;

  const char *GetFilenameFromPublicTagToValue(Tag const &t, const char *valueref) const;
  const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt, const char *valueref) const;

  Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(Tag const &t, const char *valueref) const;
  Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(PrivateTag const &pt, const char *valueref) const;

  // by a call to GetMapping()
  PublicTagToValue const & GetMappingFromPublicTagToValue(Tag const &t, const char *value) const;
  PrivateTagToValue const & GetMappingFromPrivateTagToValue(PrivateTag const &pt, const char *value) const;

  const char* GetPublicValue(const char *filename, Tag const &t) const;
  const char* GetPrivateValue(const char *filename, PrivateTag const &t) const;

  static SmartPointer<Scanner2> New() { return new Scanner2; }

protected:
  void ProcessPublicTag(StringFilter &sf, const char *filename);
  void ProcessPrivateTag(StringFilter &sf, const char *filename);
private:
  // struct to store all uniq tags in ascending order:
  typedef std::set< Tag > PublicTagsType;
  typedef std::set< PrivateTag > PrivateTagsType;
  std::set< Tag > PublicTags; // Public and Private Creator
  std::set< PrivateTag > PrivateTags; // Only Private (no Private Creator)
  std::set< Tag > SkipTags;
  ValuesType Values;
  Directory::FilenamesType Filenames;

  // Main struct that will hold all public mapping:
  PublicMappingType PublicMappings;
  // Main struct that will hold all private mapping:
  PrivateMappingType PrivateMappings;

  double Progress;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Scanner2 &s)
{
  s.Print( os );
  return os;
}

} // end namespace gdcm

#endif //GDCMSCANNER2_H
```

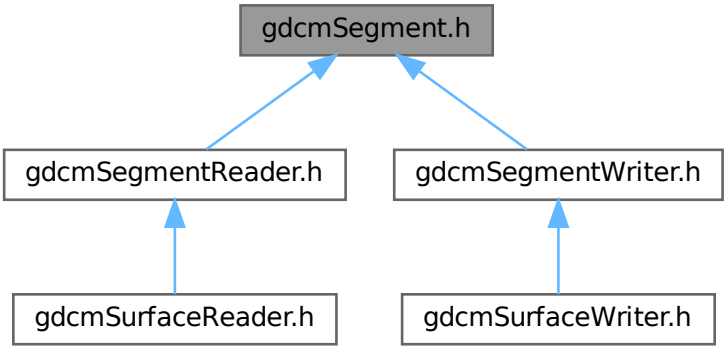
11.401 gdcmSegment.h File Reference

```
#include <vector>
#include <gdcmObject.h>
#include <gdcmSurface.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSegment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Segment

  This class defines a segment.

Namespaces

- namespace gdcm

11.402 gdcmSegment.h

Go to the documentation of this file.

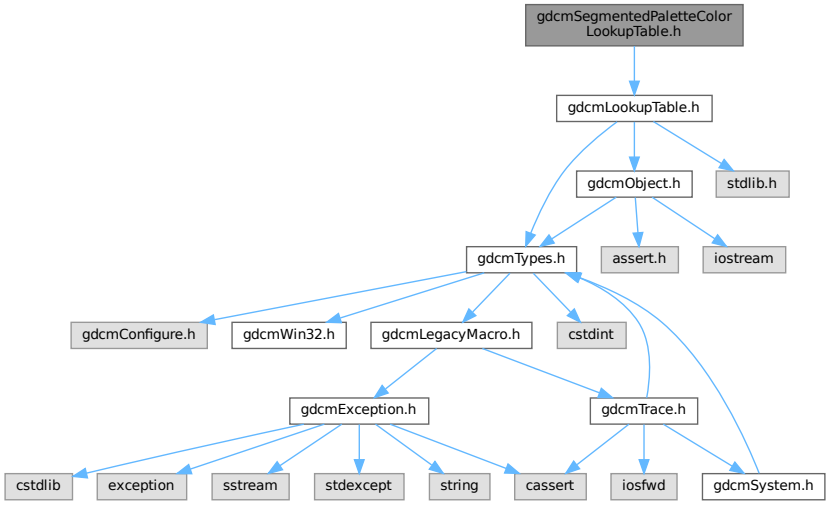
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSEGMENT_H
#define GDCMSEGMENT_H

#include <vector>

#include <gdcmObject.h>
#include <gdcmSurface.h>
#include "gdcmSegmentHelper.h"

namespace gdcm
{

class GDCM_EXPORT Segment : public Object
{
public:

  typedef std::vector< SmartPointer< Surface > > SurfaceVector;
  typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector;

  typedef enum {
    AUTOMATIC = 0,
    SEMIAUTOMATIC,
    MANUAL,
    ALGOType_END
  } ALGOType;

  static const char * GetALGOTypeString(ALGOType type);
  static ALGOType GetALGOType(const char * type);


  Segment();

  ~Segment() override;

  //**        Segment getters/setters     **//
  unsigned short GetSegmentNumber() const;
  void SetSegmentNumber(const unsigned short num);

  const char * GetSegmentLabel() const;
  void SetSegmentLabel(const char * label);

  const char * GetSegmentDescription() const;
  void SetSegmentDescription(const char * description);

  SegmentHelper::BasicCodedEntry const & GetAnatomicRegion() const;
  SegmentHelper::BasicCodedEntry & GetAnatomicRegion();
  void SetAnatomicRegion(SegmentHelper::BasicCodedEntry const & BSE);

  BasicCodedEntryVector const & GetAnatomicRegionModifiers() const;
  BasicCodedEntryVector & GetAnatomicRegionModifiers();
  void SetAnatomicRegionModifiers(BasicCodedEntryVector const & BSEV);

  SegmentHelper::BasicCodedEntry const & GetPropertyCategory() const;
  SegmentHelper::BasicCodedEntry & GetPropertyCategory();
  void SetPropertyCategory(SegmentHelper::BasicCodedEntry const & BSE);

  SegmentHelper::BasicCodedEntry const & GetPropertyType() const;
  SegmentHelper::BasicCodedEntry & GetPropertyType();
  void SetPropertyType(SegmentHelper::BasicCodedEntry const & BSE);

  BasicCodedEntryVector const & GetPropertyTypeModifiers() const;
  BasicCodedEntryVector & GetPropertyTypeModifiers();
  void SetPropertyTypeModifiers(BasicCodedEntryVector const & BSEV);
```

```
  ALGOType GetSegmentAlgorithmType() const;
  void SetSegmentAlgorithmType(ALGOType type);
  void SetSegmentAlgorithmType(const char * typeStr);

  const char * GetSegmentAlgorithmName() const;
  void SetSegmentAlgorithmName(const char * name);

  //**        Surface getters/setters     **//
  unsigned long GetSurfaceCount();
  void SetSurfaceCount(const unsigned long nb);

  SurfaceVector const & GetSurfaces() const;
  SurfaceVector & GetSurfaces();

  SmartPointer< Surface > GetSurface(const unsigned int idx = 0) const;

  void AddSurface(SmartPointer< Surface > surface);

protected :
  //**        Segment members     **//
  //0062 0004 US 1 Segment Number
  unsigned short  SegmentNumber;
  //0062 0005 LO 1 Segment Label
  std::string     SegmentLabel;
  //0062 0006 ST 1 Segment Description
  std::string     SegmentDescription;

  // General Anatomic Region
  SegmentHelper::BasicCodedEntry AnatomicRegion;
  // General Anatomic Region Modifier
  BasicCodedEntryVector AnatomicRegionModifiers;
  // Property Category Code
  SegmentHelper::BasicCodedEntry PropertyCategory;
  // Property Type Code
  SegmentHelper::BasicCodedEntry PropertyType;
  // Property Type Modifier Code
  BasicCodedEntryVector PropertyTypeModifiers;

  //0062 0008 CS 1 Segment Algorithm Type
  ALGOType        SegmentAlgorithmType;
  //0062 0009 LO 1 Segment Algorithm Name
  std::string     SegmentAlgorithmName;

  //**        Surface members     **//
  //0066 002a UL 1 Surface Count
  unsigned long   SurfaceCount;

  SurfaceVector   Surfaces;

private :
  void ComputeSurfaceCount();
};

}

#endif // GDCMSEGMENT_H
```

11.403 gdcmSegmentedPaletteColorLookupTable.h File Reference

`#include "gdcmLookupTable.h"`

Include dependency graph for gdcmSegmentedPaletteColorLookupTable.h:



Classes

- class gdcm::SegmentedPaletteColorLookupTable

  SegmentedPaletteColorLookupTable class.

Namespaces

- namespace gdcm

11.404 gdcmSegmentedPaletteColorLookupTable.h

Go to the documentation of this file.

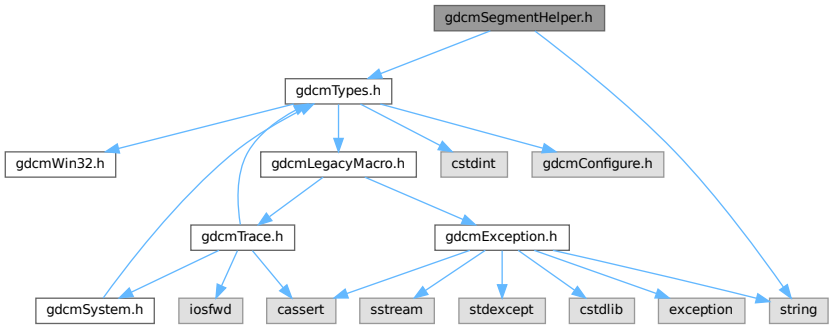
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#ifndef GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
```

```
#define GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H

#include "gdcmLookupTable.h"

namespace gdcm
{

class GDCM_EXPORT SegmentedPaletteColorLookupTable : public LookupTable
{
public:
  SegmentedPaletteColorLookupTable();
  ~SegmentedPaletteColorLookupTable() override;
  void Print(std::ostream &) const override {}

  void SetLUT(LookupTableType type, const unsigned char *array,
    unsigned int length) override;

};

} // end namespace gdcm

#endif //GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
```

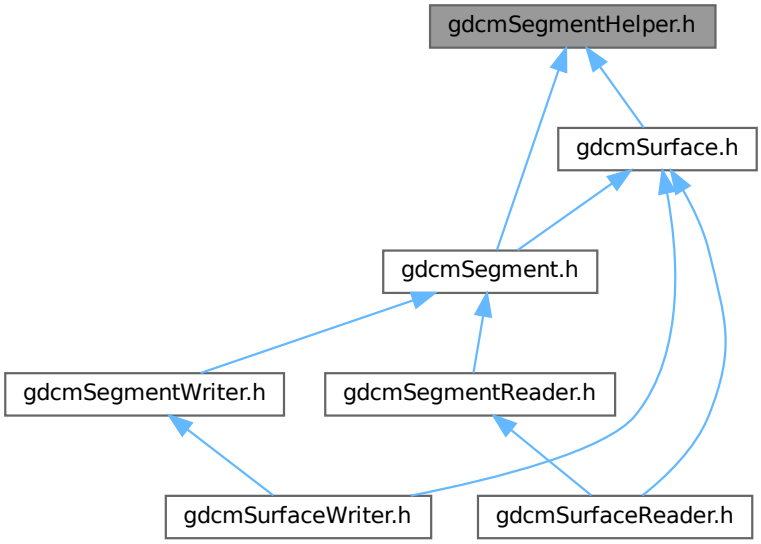
11.405 gdcmSegmentHelper.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmSegmentHelper.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct gdcm::SegmentHelper::BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

Namespaces

- namespace gdcm
- namespace gdcm::SegmentHelper

11.406 gdcmSegmentHelper.h

Go to the documentation of this file.

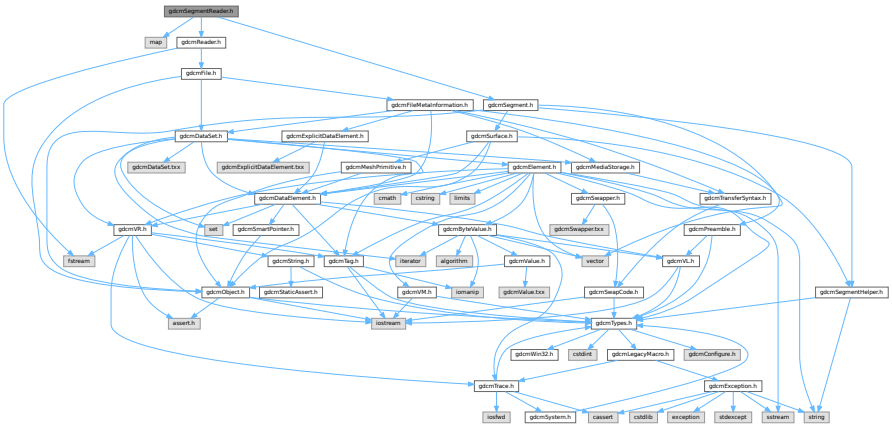
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSEGMENTHELPER_H
```

```
#define GDCMSEGMENTHELPER_H

#include "gdcmTypes.h"

#include <string>

namespace gdcm
{

namespace SegmentHelper
{

struct GDCM_EXPORT BasicCodedEntry
{
  BasicCodedEntry():
    CV(""),
    CSD(""),
    CSV(""),
    CM("")
  {}

  BasicCodedEntry(const char * a_CV,
                  const char * a_CSD,
                  const char * a_CM):
    CV(a_CV),
    CSD(a_CSD),
    CSV(""),
    CM(a_CM)
  {}

  BasicCodedEntry(const char * a_CV,
                  const char * a_CSD,
                  const char * a_CSV,
                  const char * a_CM):
    CV(a_CV),
    CSD(a_CSD),
    CSV(a_CSV),
    CM(a_CM)
  {}

  bool IsEmpty(const bool checkOptionalAttributes = false) const;


  //**      Members     **//
  // 0008 0100 1   Code Value
  std::string CV;
  // 0008 0102 1   Coding Scheme Designator
  std::string CSD;
  // 0008 0103 1C  Coding Scheme Version
  std::string CSV;
  // 0008 0104 1   Code Meaning
  std::string CM;
};

} // end of SegmentHelper namespace

} // end of gdcm namespace

#endif // GDCMSEGMENTHELPER_H
```

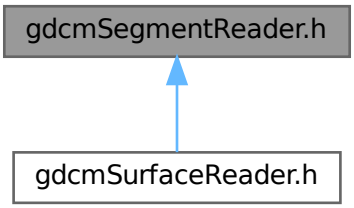
11.407 gdcmSegmentReader.h File Reference

```
#include <map>
#include <gdcmReader.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentReader

  This class defines a segment reader.

Namespaces

- namespace gdcm

11.408 gdcmSegmentReader.h

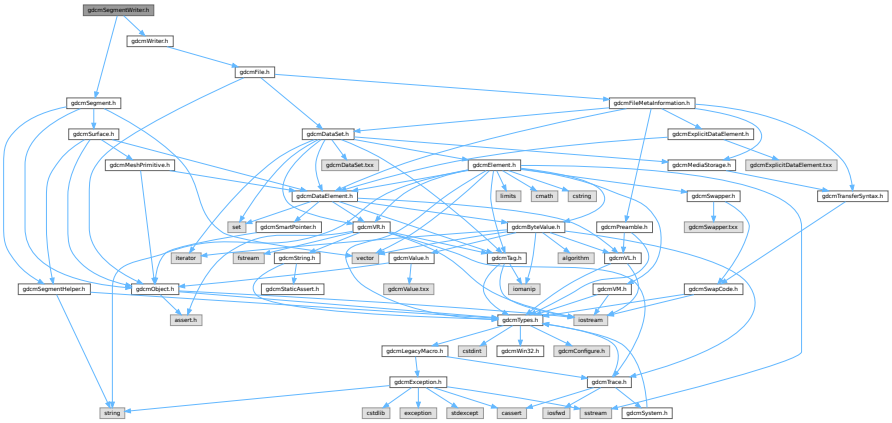
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSEGMENTREADER_H
#define GDCMSEGMENTREADER_H

#include <map>

#include <gdcmReader.h>
#include <gdcmSegment.h>

namespace gdcm
{

class GDCM_EXPORT SegmentReader : public Reader
{
public:
  typedef std::vector< SmartPointer< Segment > > SegmentVector;

  SegmentReader();

  ~SegmentReader() override;

  bool Read() override; // Set to protected ?

  //**        Segment getters/setters     **//
  SegmentVector GetSegments() const;
  SegmentVector GetSegments();

//  unsigned int GetNumberOfSegments();

protected:

  typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap;

  bool ReadSegments();

  bool ReadSegment(const Item & segmentItem, const unsigned int idx);


  SegmentMap Segments;  // The key value is item number (in segment sequence)
                        // or the surface number (for a surface segmentation).

};

}

#endif // GDCMSEGMENTREADER_H
```

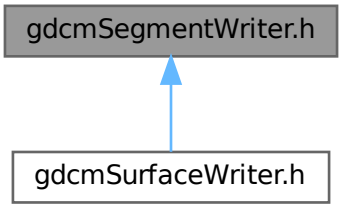
11.409 gdcmSegmentWriter.h File Reference

```
#include <gdcmWriter.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentWriter

  This class defines a segment writer.

Namespaces

- namespace gdcm

11.410 gdcmSegmentWriter.h

Go to the documentation of this file.

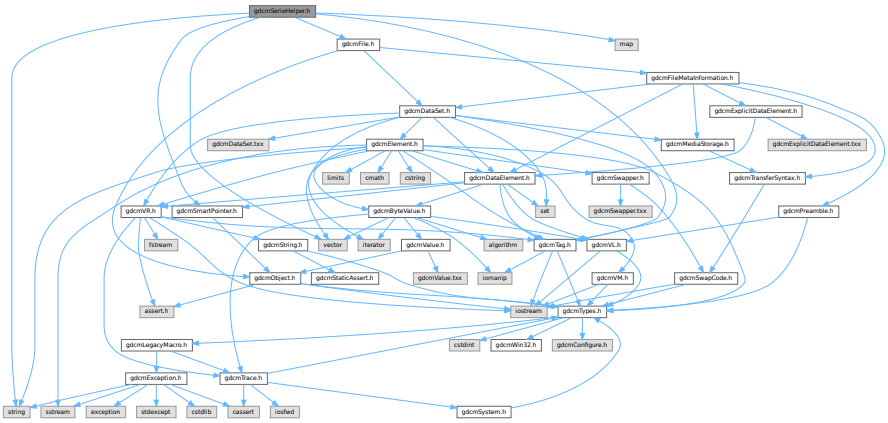
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSEGMENTWRITER_H
#define GDCMSEGMENTWRITER_H

#include <gdcmWriter.h>
#include <gdcmSegment.h>

namespace gdcm
{

class GDCM_EXPORT SegmentWriter : public Writer
{
public:
  typedef std::vector< SmartPointer< Segment > > SegmentVector;

  SegmentWriter();

  ~SegmentWriter() override;

  bool Write() override; // Set to protected ?

  //**        Segment getters/setters     **//
  unsigned int GetNumberOfSegments() const;
  void SetNumberOfSegments(const unsigned int size);

  const SegmentVector & GetSegments() const;
  SegmentVector & GetSegments();
  SmartPointer< Segment > GetSegment(const unsigned int idx = 0) const;

  void AddSegment(SmartPointer< Segment > segment);

  void SetSegments(SegmentVector & segments);

protected:

  bool PrepareWrite();


  SegmentVector Segments;
};

}

#endif // GDCMSEGMENTWRITER_H
```

11.411 gdcmSerieHelper.h File Reference

```
#include "gdcmTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmFile.h"
#include <vector>
#include <string>
```

```
#include <map>
```

Include dependency graph for gdcmSerieHelper.h:



Classes

- class gdcm::FileWithName

  FileWithName.
- class gdcm::SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Namespaces

- namespace gdcm

Typedefs

- typedef bool(∗ gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File ∗, File ∗)
- typedef std::vector< SmartPointer< FileWithName > > gdcm::FileList

Enumerations

- enum gdcm::CompOperators {
  gdcm::GDCM_EQUAL = 0 ,
  gdcm::GDCM_DIFFERENT ,
  gdcm::GDCM_GREATER ,
  gdcm::GDCM_GREATEROREQUAL ,
  gdcm::GDCM_LESS ,
  gdcm::GDCM_LESSOREQUAL }
- enum gdcm::LodModeType {
  gdcm::LD_ALL = 0x00000000 ,
  gdcm::LD_NOSEQ = 0x00000001 ,
  gdcm::LD_NOSHADOW = 0x00000002 ,
  gdcm::LD_NOSHADOWSEQ = 0x00000004 }

11.412 gdcmSerieHelper.h

Go to the documentation of this file.

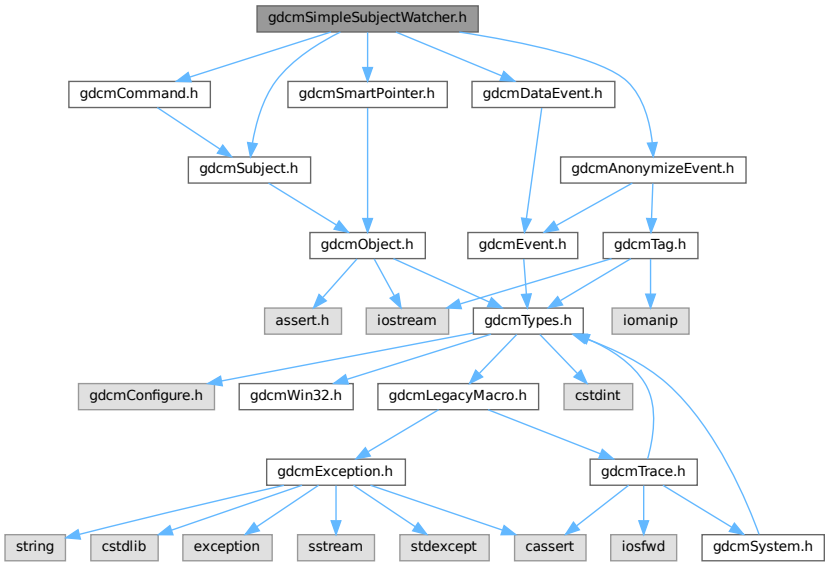
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSERIEHELPER_H
#define GDCMSERIEHELPER_H

#include "gdcmTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmFile.h"
#include <vector>
#include <string>
#include <map>

namespace gdcm
{

enum CompOperators {
   GDCM_EQUAL = 0,
   GDCM_DIFFERENT,
   GDCM_GREATER,
   GDCM_GREATEROREQUAL,
   GDCM_LESS,
   GDCM_LESSOREQUAL
};
enum LodModeType
{
   LD_ALL         = 0x00000000,
   LD_NOSEQ       = 0x00000001,
   LD_NOSHADOW    = 0x00000002,
   LD_NOSHADOWSEQ = 0x00000004
};


class GDCM_EXPORT FileWithName : public File
{
public:
  FileWithName(File &f):File(f),filename(){}
  std::string filename;
};

typedef std::vector< SmartPointer<FileWithName> > FileList;
typedef bool (*BOOL_FUNCTION_PFILE_PFILE_POINTER)(File *, File *);
class Scanner;

class GDCM_EXPORT SerieHelper
{
public:
  SerieHelper();
  ~SerieHelper();

  void Clear();
  void SetLoadMode (int ) {}
  void SetDirectory(std::string const &dir, bool recursive=false);

  void AddRestriction(const std::string & tag);
  void SetUseSeriesDetails( bool useSeriesDetails );
  void CreateDefaultUniqueSeriesIdentifier();
  FileList *GetFirstSingleSerieUIDFileSet();
  FileList *GetNextSingleSerieUIDFileSet();
  std::string CreateUniqueSeriesIdentifier( File * inFile );
  void OrderFileList(FileList *fileSet);
  void AddRestriction(uint16_t group, uint16_t elem, std::string const &value, int op);

protected:
  bool UserOrdering(FileList *fileSet);
  void AddFileName(std::string const &filename);
```

```
  bool AddFile(FileWithName &header);
  void AddRestriction(const Tag& tag);
  bool ImagePositionPatientOrdering(FileList *fileSet);
  bool ImageNumberOrdering( FileList *fileList );
  bool FileNameOrdering( FileList *fileList );

  using Rule = struct RuleStructure{
    uint16_t group;
    uint16_t elem;
    std::string value;
    int op;
  };
  typedef std::vector<Rule> SerieRestrictions;

  typedef std::map<std::string, FileList *> SingleSerieUIDFileSetmap;
  SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT;
  SingleSerieUIDFileSetmap::iterator ItFileSetHt;

private:
  SerieRestrictions Restrictions;
  SerieRestrictions Refine;

  bool UseSeriesDetails;
  bool DirectOrder;

  BOOL_FUNCTION_PFILE_PFILE_POINTER UserLessThanFunction;
};

// backward compat
} // end namespace gdcm


#endif //GDCMSERIEHELPER_H
```

11.413 gdcmSimpleSubjectWatcher.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmCommand.h"
#include "gdcmSmartPointer.h"
#include "gdcmAnonymizeEvent.h"
#include "gdcmDataEvent.h"
```

Include dependency graph for gdcmSimpleSubjectWatcher.h:



Classes

- class gdcm::SimpleSubjectWatcher

  SimpleSubjectWatcher.

Namespaces

- namespace gdcm

11.414 gdcmSimpleSubjectWatcher.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSIMPLESUBJECTWATCHER_H
#define GDCMSIMPLESUBJECTWATCHER_H

#include "gdcmSubject.h"
#include "gdcmCommand.h"
```

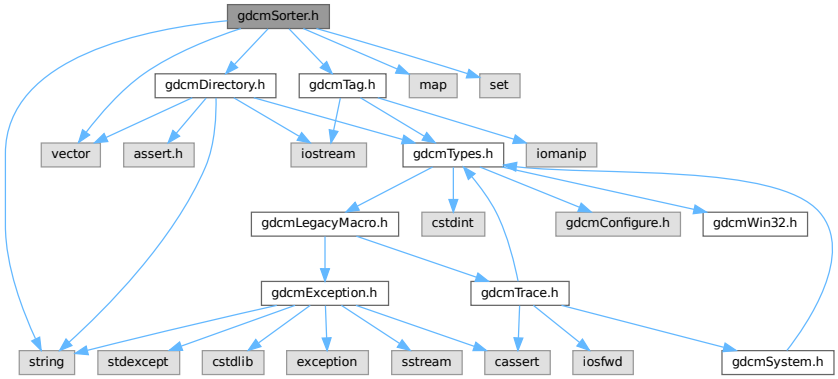
```
#include "gdcmSmartPointer.h"
#include "gdcmAnonymizeEvent.h"
#include "gdcmDataEvent.h"

namespace gdcm
{
//-----------------------------------------------------------------------------
class Event;
class GDCM_EXPORT SimpleSubjectWatcher
{
public:
  SimpleSubjectWatcher(Subject * s, const char *comment = "");
  virtual ~SimpleSubjectWatcher();
  SimpleSubjectWatcher(const SimpleSubjectWatcher&) = delete;
  void operator=(const SimpleSubjectWatcher&) = delete;

protected:
  virtual void StartFilter();
  virtual void EndFilter();
  virtual void ShowProgress(Subject *caller, const Event &evt);
  virtual void ShowFileName(Subject *caller, const Event &evt);
  virtual void ShowIteration();
  virtual void ShowAnonymization(Subject *caller, const Event &evt);
  virtual void ShowDataSet(Subject *caller, const Event &evt);
  virtual void ShowData(Subject *caller, const Event &evt);
  virtual void ShowAbort();

protected:
  // Custom API used for internal Testing do not use !
  void TestAbortOn();
  void TestAbortOff();

private:
  SmartPointer<Subject> m_Subject;
  std::string m_Comment;

  typedef SimpleMemberCommand<SimpleSubjectWatcher> SimpleCommandType;
  typedef MemberCommand<SimpleSubjectWatcher> CommandType;

  SmartPointer<SimpleCommandType> m_StartFilterCommand;
  SmartPointer<SimpleCommandType> m_EndFilterCommand;
  SmartPointer<CommandType> m_ProgressFilterCommand;
  SmartPointer<CommandType> m_FileNameFilterCommand;
  SmartPointer<SimpleCommandType> m_IterationFilterCommand;
  SmartPointer<SimpleCommandType> m_AbortFilterCommand;
  SmartPointer<CommandType> m_AnonymizeFilterCommand;
  SmartPointer<CommandType> m_DataFilterCommand;
  SmartPointer<CommandType> m_DataSetFilterCommand;

  unsigned long m_StartTag;
  unsigned long m_EndTag;
  unsigned long m_ProgressTag;
  unsigned long m_FileNameTag;
  unsigned long m_IterationTag;
  unsigned long m_AbortTag;
  unsigned long m_AnonymizeTag;
  unsigned long m_DataTag;
  unsigned long m_DataSetTag;

  bool m_TestAbort;

};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMSIMPLESUBJECTWATCHER_H
```

11.415 gdcmSorter.h File Reference

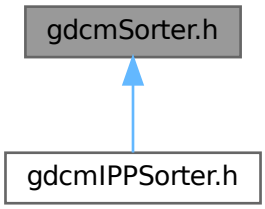
```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <vector>
#include <string>
#include <map>
```

```
#include <set>
```

Include dependency graph for gdcmSorter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Sorter

  Sorter.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Sorter &s)

11.416 gdcmSorter.h

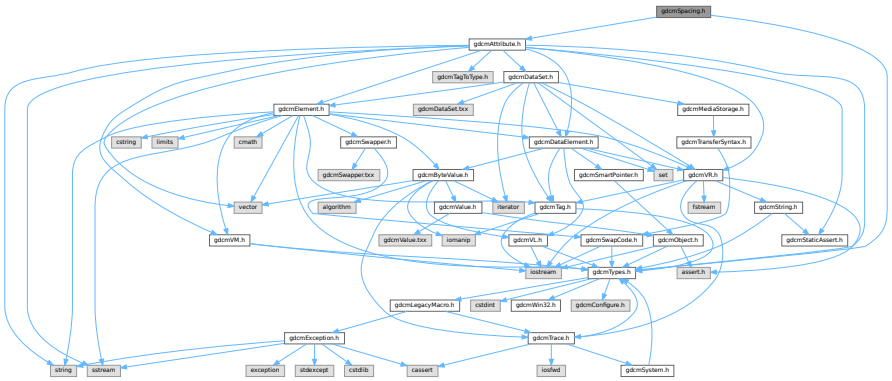
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSORTER_H
#define GDCMSORTER_H

#include "gdcmDirectory.h"
#include "gdcmTag.h"

#include <vector>
#include <string>
#include <map>
#include <set>

namespace gdcm
{
class DataSet;

class GDCM_EXPORT Sorter
{
  friend std::ostream& operator«(std::ostream &_os, const Sorter &s);
public:
  Sorter();
  virtual ~Sorter();

  virtual bool Sort(std::vector<std::string> const & filenames);

  const std::vector<std::string> &GetFilenames() const { return Filenames; }

  void Print(std::ostream &os) const;

  bool AddSelect( Tag const &tag, const char *value );

  void SetTagsToRead( std::set<Tag> const & tags );

  typedef bool (*SortFunction)(DataSet const &, DataSet const &);
  void SetSortFunction( SortFunction f );

  virtual bool StableSort(std::vector<std::string> const & filenames);

protected:
  std::vector<std::string> Filenames;
  typedef std::map<Tag,std::string> SelectionMap;
  std::map<Tag,std::string> Selection;
  SortFunction SortFunc;
  std::set<Tag> TagsToRead;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const Sorter &s)
{
  s.Print( os );
  return os;
}


} // end namespace gdcm

#endif //GDCMSORTER_H
```

11.417 gdcmSpacing.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAttribute.h"
```

Include dependency graph for gdcmSpacing.h:



Classes

- class gdcm::Spacing

  Class for Spacing.

Namespaces

- namespace gdcm

11.418 gdcmSpacing.h

Go to the documentation of this file.

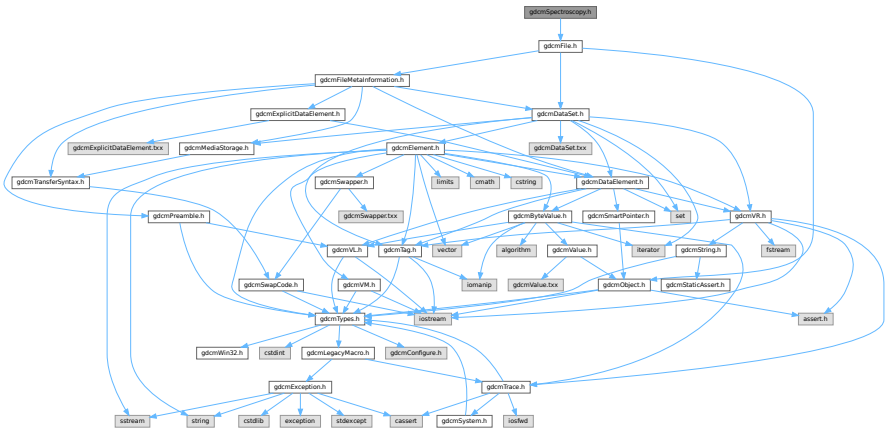
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPACING_H
00015 #define GDCMSPACING_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAttribute.h"
00019
00020 namespace gdcm
00021 {
00085 class GDCM_EXPORT Spacing
```

```
{
public :
  Spacing();
  ~Spacing() = default;

  // Here are the list of spacing we support:
  // (0018,0088) DS [1.500000]                                    # 8,1 Spacing Between Slices
  // (0018,1164) DS [0.5\0.5 ]                                    # 8,2 Imager Pixel Spacing
  // (0018,2010) DS [0.664062\0.664062 ]                          # 18,2 Nominal Scanned Pixel Spacing
  // (0018,7022) DS [0.125\0.125 ]                                # 12,2 Detector Element Spacing
  // (0028,0030) DS [0.25\0.25 ]                                  # 10,2 Pixel Spacing
  // > (0028,0a02) CS [FIDUCIAL]                                    # 8,1 Pixel Spacing Calibration Type
  // > (0028,0a04) LO [Used fiducial ]                              # 14,1 Pixel Spacing Calibration Description
  // (0028,0034) IS [4\3 ]                                        # 4,2 Pixel Aspect Ratio
  // (3002,0011) DS [0.8\0.8 ]                                    # 8,2 Image Plane Pixel Spacing

  // Here is the list of Spacing we do not support:
  // <entry group="0018" element="7041" vr="LT" vm="1" name="Grid Spacing Material"/>
  // <entry group="0018" element="9030" vr="FD" vm="1" name="Tag Spacing First Dimension"/>
  // <entry group="0018" element="9218" vr="FD" vm="1" name="Tag Spacing Second Dimension"/>
  // <entry group="0018" element="9322" vr="FD" vm="2" name="Reconstruction Pixel Spacing"/>
  // <entry group="0018" element="9404" vr="FL" vm="2" name="Object Pixel Spacing in Center of Beam"/>
  // <entry group="0040" element="08d8" vr="SQ" vm="1" name="Pixel Spacing Sequence"/>
  // <entry group="0070" element="0101" vr="DS" vm="2" name="Presentation Pixel Spacing"/>
  // <entry group="2010" element="0376" vr="DS" vm="2" name="Printer Pixel Spacing"/>
  // <entry group="300a" element="00e9" vr="DS" vm="2" name="Compensator Pixel Spacing"/>

  typedef enum {
    DETECTOR = 0, // (0018,1164) Imager Pixel Spacing
    MAGNIFIED,    // (0018,1114) (IHE Mammo)
    CALIBRATED,   // (0028,0030) Pixel Spacing -> (0028,0a04) Pixel Spacing Calibration Description
    UNKNOWN
  } SpacingType;

  static Attribute<0x28,0x34> ComputePixelAspectRatioFromPixelSpacing(const Attribute<0x28,0x30>& pixelspacing);
};
} // end namespace gdcm
//-----------------------------------------------------------------------------
#endif //GDCMSPACING_H
```

11.419 gdcmSpectroscopy.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmSpectroscopy.h:



Classes

- class gdcm::Spectroscopy

  Spectroscopy class.

Namespaces

- namespace gdcm

11.420 gdcmSpectroscopy.h

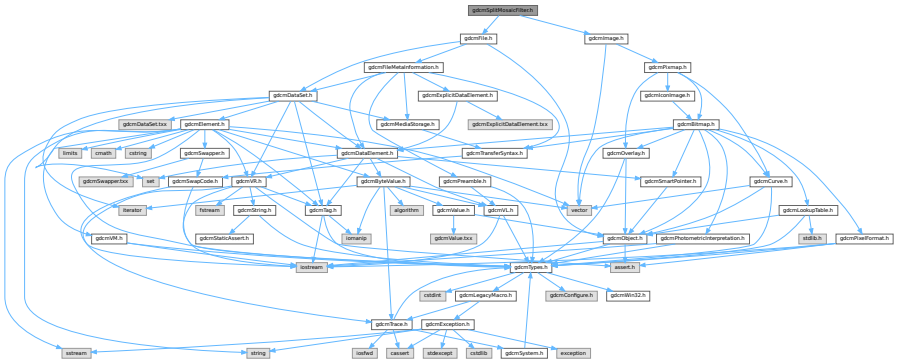
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSPECTROSCOPY_H
#define GDCMSPECTROSCOPY_H

#include "gdcmFile.h"

namespace gdcm
{
class GDCM_EXPORT Spectroscopy
{
public:
  Spectroscopy() = default;

private:
};

} // end namespace gdcm

#endif //GDCMSPECTROSCOPY_H
```

11.421 gdcmSplitMosaicFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmSplitMosaicFilter.h:



Classes

- class gdcm::SplitMosaicFilter

  SplitMosaicFilter class.

Namespaces

- namespace gdcm

11.422 gdcmSplitMosaicFilter.h

Go to the documentation of this file.

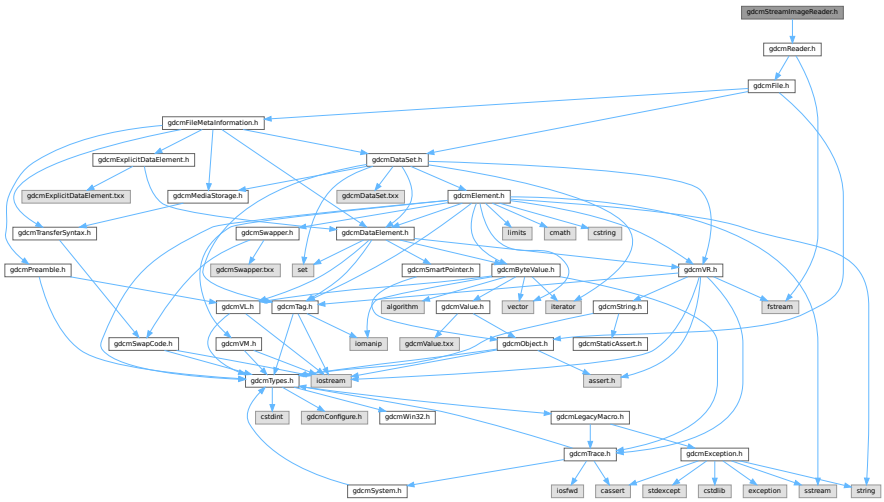
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSPLITMOSAICFILTER_H
#define GDCMSPLITMOSAICFILTER_H

#include "gdcmFile.h"
#include "gdcmImage.h"

namespace gdcm
{

/*
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 */
class GDCM_EXPORT SplitMosaicFilter
{
```

```
public:
  SplitMosaicFilter();
  ~SplitMosaicFilter();

  bool Split();

  bool ComputeMOSAICDimensions(unsigned int dims[3]);

  bool ComputeMOSAICSliceNormal( double dims[3], bool & inverted );

  bool ComputeMOSAICSlicePosition( double pos[3], bool inverted );

  bool ComputeMOSAICImagePositionPatient( double pos[3],
    const double ipp[6],
    const double dircos[6],
    const double pixelspacing[3],
    const unsigned int image_dims[3] ,
    const unsigned int mosaic_dims[3], bool inverted );

  void SetImage(const Image& image);
  const Image &GetImage() const { return *I; }
  Image &GetImage() { return *I; }

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }
  const File &GetFile() const { return *F; }

  static bool GetAcquisitionSize(unsigned int size[2], DataSet const & ds);

  static unsigned int GetNumberOfImagesInMosaic( File const & file );

protected:

private:
  SmartPointer<File> F;
  SmartPointer<Image> I;
};

} // end namespace gdcm

#endif //GDCMSPLITMOSAICFILTER_H
```

11.423 gdcmStreamImageReader.h File Reference

`#include "gdcmReader.h"`

Include dependency graph for gdcmStreamImageReader.h:



Classes

- class gdcm::StreamImageReader

  StreamImageReader.

Namespaces

- namespace gdcm

11.424 gdcmStreamImageReader.h

Go to the documentation of this file.

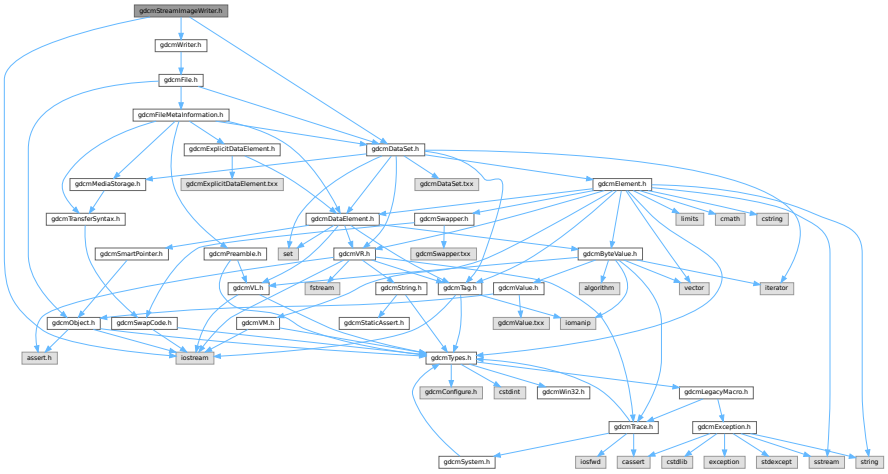
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMSTREAMIMAGEREADER_H
#define GDCMSTREAMIMAGEREADER_H

#include "gdcmReader.h"

namespace gdcm
{

class MediaStorage;
class GDCM_EXPORT StreamImageReader
{

public:
  StreamImageReader();
  virtual ~StreamImageReader();

  void SetFileName(const char* inFileName);
  void SetStream(std::istream& inStream);

  std::vector<unsigned int> GetDimensionsValueForResolution( unsigned int  );

  void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
    uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);

  uint32_t DefineProperBufferLength() const;

  bool Read(char* inReadBuffer, const std::size_t& inBufferLength);

  bool CanReadImage() const;

  virtual bool ReadImageInformation();

  File const & GetFile() const;

protected:
private:
  //contains a reader for being able to ReadUpToTag
  //however, we don't want the user to be able to call Read
  //either directly or via a parent class call, so we hide the reader in here.
  Reader mReader;
```

```
00101
00102   std::streamoff mFileOffset; //the file offset for getting header information
00103 #if 0
00104   std::streamoff mFileOffset1;
00105 #endif
00106   DataSet mHeaderInformation; //all the non-pixel information
00107
00108   //for thread safety, these should not be stored here, but should be used
00109   //for every read subregion operation.
00110   uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;
00111
00116   bool ReadImageSubregionRAW(char* inReadBuffer, const std::size_t& inBufferLength);
00117
00120   bool ReadImageSubregionJpegLS(char* inReadBuffer, const std::size_t& inBufferLength);
00121 };
00122
00123 } // end namespace gdcm
00124
00125 #endif //GDCMSTREAMIMAGEREADER_H
00126
```

11.425 gdcmStreamImageWriter.h File Reference

```
#include "gdcmWriter.h"
#include <iostream>
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmStreamImageWriter.h:



Classes

- class gdcm::StreamImageWriter

  StreamImageReader.

Namespaces

- namespace gdcm

11.426 gdcmStreamImageWriter.h

Go to the documentation of this file.

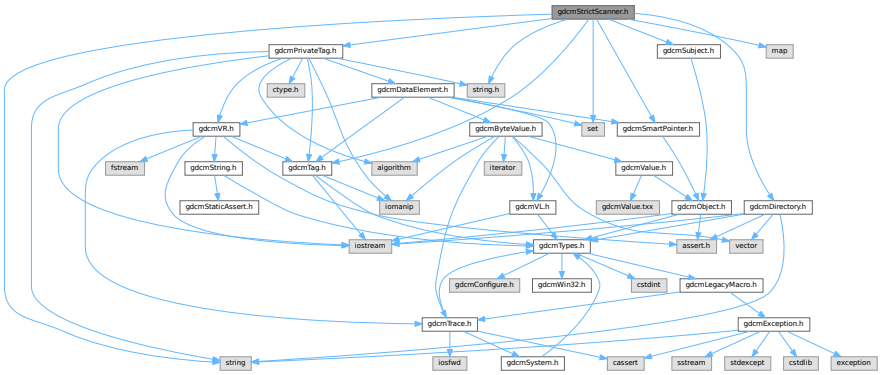
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/

#ifndef GDCMSTREAMIMAGEWRITER_H
#define GDCMSTREAMIMAGEWRITER_H

#include "gdcmWriter.h"
#include <iostream>
#include "gdcmDataSet.h"

namespace gdcm
{

class MediaStorage;
class RAWCodec;
class GDCM_EXPORT StreamImageWriter
{

public:
  StreamImageWriter();
  virtual ~StreamImageWriter();


  void SetFileName(const char* inFileName);
  void SetStream(std::ostream& inStream);

  void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
    uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);


  uint32_t DefineProperBufferLength();

  bool Write(void* inWriteBuffer, const std::size_t& inBufferLength);

  virtual bool WriteImageInformation();

  bool CanWriteFile() const;


  void SetFile(const File& inFile);

protected:

  //contains the PrepareWrite function, which will get the given dataset ready
  //for writing to disk by manufacturing the header information.
  //note that if there is a pixel element in the given dataset, that will be removed
  //during the copy, so that the imagewriter can write everything else out
  Writer mWriter;

  //is the offset necessary if we always append?
  //std::streamoff mFileOffset; //the fileoffset for getting header information
  SmartPointer<File> mspFile; //all the non-pixel information

  //for thread safety, these should not be stored here, but should be used
  //for every read subregion operation.
  uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;

  //virtual bool ReadImageSubregionRAW(std::ostream& os);
  virtual bool WriteImageSubregionRAW(char* inWriteBuffer, const std::size_t& inBufferLength);

  int WriteRawHeader(RAWCodec* inCodec, std::ostream* inStream);
```

```
00132
00137   int mElementOffsets;
00138   int mElementOffsets1;
00139
00140 };
00141
00142
00143 } // end namespace gdcm
00144
00145 #endif //GDCMSTREAMIMAGEWRITER_H
```

11.427 gdcmStrictScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner.h:



Classes

- struct gdcm::StrictScanner::ltstr
- class gdcm::StrictScanner

  StrictScanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner &s)

11.428 gdcmStrictScanner.h

Go to the documentation of this file.

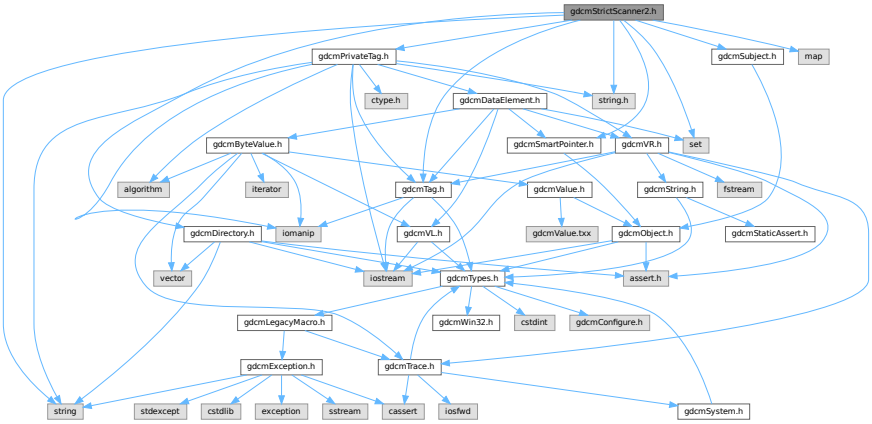
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTRICTSCANNER_H
#define GDCMSTRICTSCANNER_H

#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"

#include <map>
#include <set>
#include <string>

#include <string.h> // strcmp

namespace gdcm
{
class StringFilter;

class GDCM_EXPORT StrictScanner : public Subject
{
  friend std::ostream& operator«(std::ostream &_os, const StrictScanner &s);
public:
  StrictScanner():Values(),Filenames(),Mappings() {}
  ~StrictScanner() override;

  typedef std::map<Tag, const char*> TagToValue;
  //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
  //typedef TagToStringMap TagToValue;
  typedef TagToValue::value_type TagToValueValueType;

  void AddTag( Tag const & t );
  void ClearTags();

  // Work in progress do not use:
  void AddPrivateTag( PrivateTag const & t );

  void AddSkipTag( Tag const & t );
  void ClearSkipTags();

  bool Scan( Directory::FilenamesType const & filenames );

  Directory::FilenamesType const &GetFilenames() const { return Filenames; }

  void Print( std::ostream & os ) const override;

  void PrintTable( std::ostream & os ) const;

  bool IsKey( const char * filename ) const;

  Directory::FilenamesType GetKeys() const;

  // struct to store all the values found:
  typedef std::set< std::string > ValuesType;

  ValuesType const & GetValues() const { return Values; }

  ValuesType GetValues(Tag const &t) const;

  Directory::FilenamesType GetOrderedValues(Tag const &t) const;

  /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
  struct ltstr
```

```
    {
    bool operator()(const char* s1, const char* s2) const
      {
      assert( s1 && s2 );
      return strcmp(s1, s2) < 0;
      }
    };
  typedef std::map<const char *,TagToValue, ltstr> MappingType;
  typedef MappingType::const_iterator ConstIterator;
  ConstIterator Begin() const { return Mappings.begin(); }
  ConstIterator End() const { return Mappings.end(); }

  MappingType const & GetMappings() const { return Mappings; }

  TagToValue const & GetMapping(const char *filename) const;

  const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;

  Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;

  // by a call to GetMapping()
  TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;

  const char* GetValue(const char *filename, Tag const &t) const;

  static SmartPointer<StrictScanner> New() { return new StrictScanner; }

protected:
  void ProcessPublicTag(StringFilter &sf, const char *filename);
private:
  // struct to store all uniq tags in ascending order:
  typedef std::set< Tag > TagsType;
  typedef std::set< PrivateTag > PrivateTagsType;
  std::set< Tag > Tags;
  std::set< PrivateTag > PrivateTags;
  std::set< Tag > SkipTags;
  ValuesType Values;
  Directory::FilenamesType Filenames;

  // Main struct that will hold all mapping:
  MappingType Mappings;

  double Progress;
};
//-----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const StrictScanner &s)
{
  s.Print( os );
  return os;
}

} // end namespace gdcm

#endif //GDCMSTRICTSCANNER_H
```

11.429 gdcmStrictScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner2.h:



Classes

- struct gdcm::StrictScanner2::ltstr
- class gdcm::StrictScanner2

  StrictScanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner2 &s)

11.430 gdcmStrictScanner2.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTRICTSCANNER2_H
#define GDCMSTRICTSCANNER2_H

#include "gdcmDirectory.h"
#include "gdcmPrivateTag.h"
```

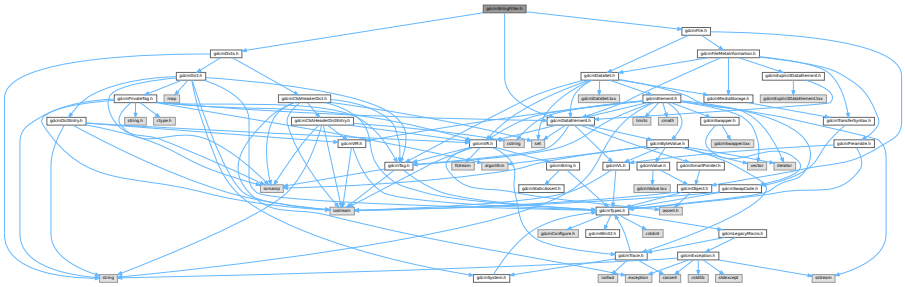
```
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"

#include <map>
#include <set>
#include <string>

#include <string.h>  // strcmp

namespace gdcm {
class StringFilter;

class GDCM_EXPORT StrictScanner2 : public Subject {
  friend std::ostream &operator«(std::ostream &_os, const StrictScanner2 &s);

 public:
  StrictScanner2() : Values(), Filenames(), PublicMappings(), PrivateMappings(), Progress(0.0) {}
  ~StrictScanner2() override;

  typedef std::map<Tag, const char *> PublicTagToValue;
  typedef PublicTagToValue::value_type PublicTagToValueValueType;

  typedef std::map<PrivateTag, const char *> PrivateTagToValue;
  typedef PrivateTagToValue::value_type PrivateTagToValueValueType;

  bool AddPublicTag(Tag const &t);
  void ClearPublicTags();

  // Work in progress do not use:
  bool AddPrivateTag(PrivateTag const &pt);
  void ClearPrivateTags();

  bool AddSkipTag(Tag const &t);
  void ClearSkipTags();

  bool Scan(Directory::FilenamesType const &filenames);

  Directory::FilenamesType const &GetFilenames() const { return Filenames; }

  void Print(std::ostream &os) const override;

  void PrintTable(std::ostream &os, bool header = false) const;

  bool IsKey(const char *filename) const;

  Directory::FilenamesType GetKeys() const;

  // struct to store all the values found:
  typedef std::set<std::string> ValuesType;

  ValuesType const &GetValues() const { return Values; }

  ValuesType GetPublicValues(Tag const &t) const;

  ValuesType GetPrivateValues(PrivateTag const &pt) const;

  Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;

  Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;

  /* ltstr is CRITICAL, otherwise pointers value are used to do the key
   * comparison */
  struct ltstr {
    bool operator()(const char *s1, const char *s2) const {
      assert(s1 && s2);
      return strcmp(s1, s2) < 0;
    }
  };
  typedef std::map<const char *, PublicTagToValue, ltstr> PublicMappingType;
  typedef PublicMappingType::const_iterator PublicConstIterator;
  PublicConstIterator Begin() const { return PublicMappings.begin(); }
  PublicConstIterator End() const { return PublicMappings.end(); }

  typedef std::map<const char *, PrivateTagToValue, ltstr> PrivateMappingType;
  typedef PrivateMappingType::const_iterator PrivateConstIterator;
  PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
  PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }

  PublicMappingType const &GetPublicMappings() const { return PublicMappings; }
  PrivateMappingType const &GetPrivateMappings() const {
```

```
    return PrivateMappings;
  }

  PublicTagToValue const &GetPublicMapping(const char *filename) const;
  PrivateTagToValue const &GetPrivateMapping(const char *filename) const;

  const char *GetFilenameFromPublicTagToValue(Tag const &t,
                                              const char *valueref) const;
  const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt,
                                               const char *valueref) const;

  Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(
      Tag const &t, const char *valueref) const;
  Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(
      PrivateTag const &pt, const char *valueref) const;

  // by a call to GetMapping()
  PublicTagToValue const &GetMappingFromPublicTagToValue(
      Tag const &t, const char *value) const;
  PrivateTagToValue const &GetMappingFromPrivateTagToValue(
      PrivateTag const &pt, const char *value) const;

  const char *GetPublicValue(const char *filename, Tag const &t) const;
  const char *GetPrivateValue(const char *filename, PrivateTag const &t) const;

  static SmartPointer<StrictScanner2> New() { return new StrictScanner2; }

 protected:
  void ProcessPublicTag(StringFilter &sf, const char *filename);
  void ProcessPrivateTag(StringFilter &sf, const char *filename);

 private:
  // struct to store all uniq tags in ascending order:
  typedef std::set<Tag> PublicTagsType;
  typedef std::set<PrivateTag> PrivateTagsType;
  std::set<Tag> PublicTags;          // Public and Private Creator
  std::set<PrivateTag> PrivateTags;  // Only Private (no Private Creator)
  std::set<Tag> SkipTags;
  ValuesType Values;
  Directory::FilenamesType Filenames;

  // Main struct that will hold all public mapping:
  PublicMappingType PublicMappings;
  // Main struct that will hold all private mapping:
  PrivateMappingType PrivateMappings;

  double Progress;
};
//-----------------------------------------------------------------------------
inline std::ostream &operator«(std::ostream &os, const StrictScanner2 &s) {
  s.Print(os);
  return os;
}

}  // end namespace gdcm

#endif  // GDCMSTRICTSCANNER2_H
```

11.431 gdcmStringFilter.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"
```

Include dependency graph for gdcmStringFilter.h:



Classes

- class gdcm::StringFilter

  StringFilter.

Namespaces

- namespace gdcm

11.432 gdcmStringFilter.h

Go to the documentation of this file.

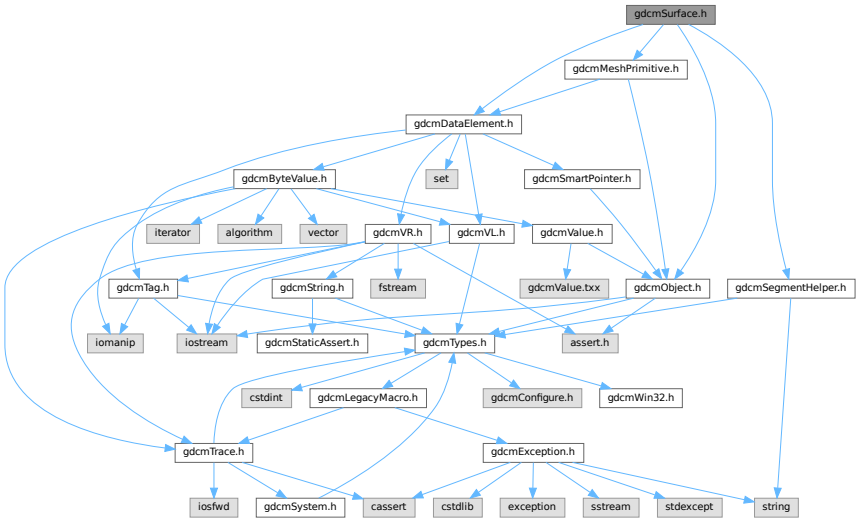
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSTRINGFILTER_H
#define GDCMSTRINGFILTER_H

#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"

namespace gdcm
{

class GDCM_EXPORT StringFilter
{
public:
  StringFilter();
  ~StringFilter();

  void UseDictAlways(bool) {}

  void SetDicts(const Dicts &dicts);

  std::string ToString(const DataElement& de) const;

```

```
  std::string ToString(const Tag& t) const;

  std::string ToString(const PrivateTag& t) const;

  std::pair<std::string, std::string> ToStringPair(const DataElement& de) const;
  std::pair<std::string, std::string> ToStringPair(const Tag& t) const;

  std::string FromString(const Tag&t, const char * value, size_t len);

  void SetFile(const File& f) { F = f; }
  File &GetFile() { return *F; }
  const File &GetFile() const { return *F; }

  bool ExecuteQuery(std::string const &query, std::string & value) const;

protected:
  std::pair<std::string, std::string> ToStringPair(const Tag& t, DataSet const &ds) const;
  bool ExecuteQuery(std::string const &query, DataSet const &ds, std::string & value) const;

private:
  std::pair<std::string, std::string> ToStringPairInternal(const DataElement& de, DataSet const &ds) const;
  SmartPointer<File> F;
};

} // end namespace gdcm

#endif //GDCMSTRINGFILTER_H
```

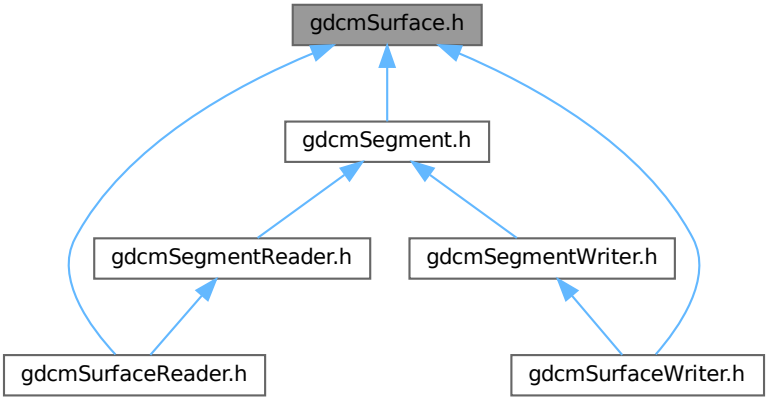
11.433 gdcmSurface.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
#include <gdcmMeshPrimitive.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSurface.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Surface

  This class defines a SURFACE IE.

Namespaces

- namespace gdcm

11.434 gdcmSurface.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSURFACE_H
#define GDCMSURFACE_H

#include <gdcmObject.h>
#include <gdcmDataElement.h>
#include <gdcmMeshPrimitive.h>
#include "gdcmSegmentHelper.h"  // for BasicCodedEntry

namespace gdcm
{
```

```
00024
00031 class GDCM_EXPORT Surface : public Object
00032 {
00033 public:
00034
00035   typedef enum {
00036     NO = 0,
00037     YES,
00038     UNKNOWN,
00039     STATES_END
00040   } STATES;
00041
00042   static const char * GetSTATESString(STATES state);
00043   static STATES GetSTATES(const char * state);
00044
00050   typedef enum {
00051     SURFACE = 0,
00052     WIREFRAME,
00053     POINTS,
00054     VIEWType_END
00055   } VIEWType;
00056
00057   static const char * GetVIEWTypeString(VIEWType type);
00058   static VIEWType GetVIEWType(const char * type);
00059
00060   Surface();
00061
00062   ~Surface() override;
00063
00064   //**    Common getters/setters      **//
00065   unsigned long GetSurfaceNumber() const;
00066   void SetSurfaceNumber(const unsigned long nb);
00067
00068   const char * GetSurfaceComments() const;
00069   void SetSurfaceComments(const char * comment);
00070
00071   bool GetSurfaceProcessing() const;
00072   void SetSurfaceProcessing(bool b);
00073
00074   float GetSurfaceProcessingRatio() const;
00075   void SetSurfaceProcessingRatio(const float ratio);
00076
00077   const char * GetSurfaceProcessingDescription() const;
00078   void SetSurfaceProcessingDescription(const char * description);
00079
00080   SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm() const;
00081   SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm();
00082   void SetProcessingAlgorithm(SegmentHelper::BasicCodedEntry const & BSE);
00083
00084   unsigned short GetRecommendedDisplayGrayscaleValue() const;
00085   void SetRecommendedDisplayGrayscaleValue(const unsigned short vl);
00086
00087   const unsigned short * GetRecommendedDisplayCIELabValue() const;
00088   unsigned short GetRecommendedDisplayCIELabValue(const unsigned int idx) const;
00089   void SetRecommendedDisplayCIELabValue(const unsigned short vl[3]);
00090   void SetRecommendedDisplayCIELabValue(const unsigned short vl, const unsigned int idx = 0);
00091   void SetRecommendedDisplayCIELabValue(const std::vector< unsigned short > & vl);
00092
00093   float GetRecommendedPresentationOpacity() const;
00094   void SetRecommendedPresentationOpacity(const float opacity);
00095
00096   VIEWType GetRecommendedPresentationType() const;
00097   void SetRecommendedPresentationType(VIEWType type);
00098
00099   STATES GetFiniteVolume() const;
00100   void SetFiniteVolume(STATES state);
00101
00102   STATES GetManifold() const;
00103   void SetManifold(STATES state);
00104
00105   SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily() const;
00106   SegmentHelper::BasicCodedEntry & GetAlgorithmFamily();
00107   void SetAlgorithmFamily(SegmentHelper::BasicCodedEntry const & BSE);
00108
00109   const char * GetAlgorithmVersion() const;
00110   void SetAlgorithmVersion(const char * str);
00111
00112   const char * GetAlgorithmName() const;
00113   void SetAlgorithmName(const char * str);
00114
00115   //**    Points getters/setters      **//
```

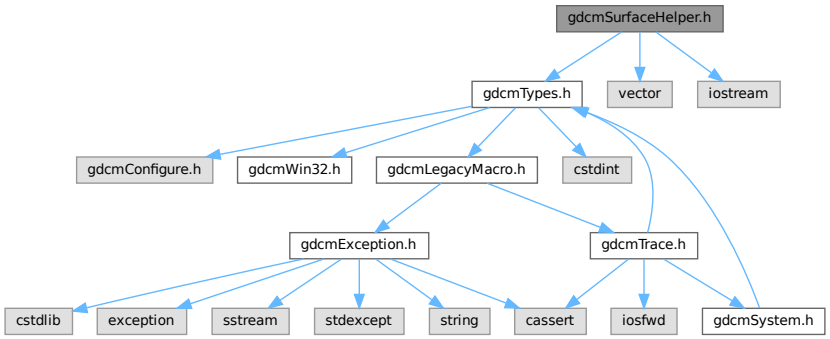
```
  unsigned long GetNumberOfSurfacePoints() const;
  void SetNumberOfSurfacePoints(const unsigned long nb);

  const DataElement & GetPointCoordinatesData() const;
  DataElement & GetPointCoordinatesData();

  void SetPointCoordinatesData(DataElement const & de);

  const float * GetPointPositionAccuracy() const;
  void SetPointPositionAccuracy(const float * accuracies);

  float GetMeanPointDistance() const;
  void SetMeanPointDistance(float average);

  float GetMaximumPointDistance() const;
  void SetMaximumPointDistance(float maximum);

  const float * GetPointsBoundingBoxCoordinates() const;
  void SetPointsBoundingBoxCoordinates(const float * coordinates);

  const float * GetAxisOfRotation() const;
  void SetAxisOfRotation(const float * axis);

  const float * GetCenterOfRotation() const;
  void SetCenterOfRotation(const float * center);

  //**    Vectors getters/setters      **//
  unsigned long GetNumberOfVectors() const;
  void SetNumberOfVectors(const unsigned long nb);

  unsigned short GetVectorDimensionality() const;
  void SetVectorDimensionality(const unsigned short dim);

  const float * GetVectorAccuracy() const;
  void SetVectorAccuracy(const float * accuracy);

  const DataElement & GetVectorCoordinateData() const;
  DataElement & GetVectorCoordinateData();

  void SetVectorCoordinateData(DataElement const & de);

  //**    Primitive getters/setters      **//
  MeshPrimitive const & GetMeshPrimitive() const;
  MeshPrimitive & GetMeshPrimitive();

  void SetMeshPrimitive(MeshPrimitive & mp);

private:

  //**        Common members      **//

  //0066 0003 UL 1 Surface Number
  unsigned long SurfaceNumber;
  //0066 0004 LT 1 Surface Comments
  std::string   SurfaceComments;

  //0066 0009 CS 1 Surface Processing
  bool          SurfaceProcessing;
  //0066 000a FL 1 Surface Processing Ratio
  float         SurfaceProcessingRatio;
  //0066 000b LO 1 Surface Processing Description
  std::string   SurfaceProcessingDescription;
  // Processing Algorithm Code
  SegmentHelper::BasicCodedEntry ProcessingAlgorithm;

  //0062 000c US 1 Recommended Display Grayscale Value
  unsigned short  RecommendedDisplayGrayscaleValue;
  //0062 000d US 3 Recommended Display CIELab Value
  unsigned short  RecommendedDisplayCIELabValue[3];

  // 0066 000c FL 1 Recommended Presentation Opacity
  float           RecommendedPresentationOpacity;
  // 0066 000d CS 1 Recommended Presentation Type
  VIEWType        RecommendedPresentationType;

  //0066 000e CS 1 Finite Volume
  STATES        FiniteVolume;
  //0066 0010 CS 1 Manifold
  STATES        Manifold;

  // Algorithm Family Code
```

```
  SegmentHelper::BasicCodedEntry AlgorithmFamily;

  //0066 0031 LO 1 Algorithm Version
  std::string   AlgorithmVersion;
  //0066 0032 LT 1 Algorithm Parameters
  //0066 0036 LO 1 Algorithm Name
  std::string   AlgorithmName;


  //**        Point members      **//

  //0066 0015 UL 1 Number of Surface Points
  unsigned long NumberOfSurfacePoints;
  //0066 0016 OF 1 Point Coordinates Data
  DataElement   PointCoordinatesData;
  //0066 0017 FL 3 Point Position Accuracy
  float *       PointPositionAccuracy;
  //0066 0018 FL 1 Mean Point Distance
  float         MeanPointDistance;
  //0066 0019 FL 1 Maximum Point Distance
  float         MaximumPointDistance;
  //0066 001a FL 6 Points Bounding Box Coordinates
  float *       PointsBoundingBoxCoordinates;
  //0066 001b FL 3 Axis of Rotation
  float *       AxisOfRotation;
  //0066 001c FL 3 Center of Rotation
  float *       CenterOfRotation;


  //**        Normal members      **//

  //0066 001e UL 1 Number of Vectors
  unsigned long NumberOfVectors;
  //0066 001f US 1 Vector Dimensionality
  unsigned short VectorDimensionality;
  //0066 0020 FL 1-n Vector Accuracy
  float *       VectorAccuracy;
  //0066 0021 OF 1 Vector Coordinate Data
  DataElement   VectorCoordinateData;


  //**        Primitive members      **//
  SmartPointer< MeshPrimitive > Primitive;
};

}

#endif // GDCMSURFACE_H
```

11.435 gdcmSurfaceHelper.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <iostream>
```

Include dependency graph for gdcmSurfaceHelper.h:



Classes

- class gdcm::SurfaceHelper

  SurfaceHelper.

Namespaces

- namespace gdcm

11.436 gdcmSurfaceHelper.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2017 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSURFACEHELPER_H
#define GDCMSURFACEHELPER_H

#include "gdcmTypes.h"  // for GDCM_EXPORT

#include <vector>
#include <iostream>

namespace gdcm
{

class GDCM_EXPORT SurfaceHelper
{
public:

  typedef std::vector< unsigned short > ColorArray;
```

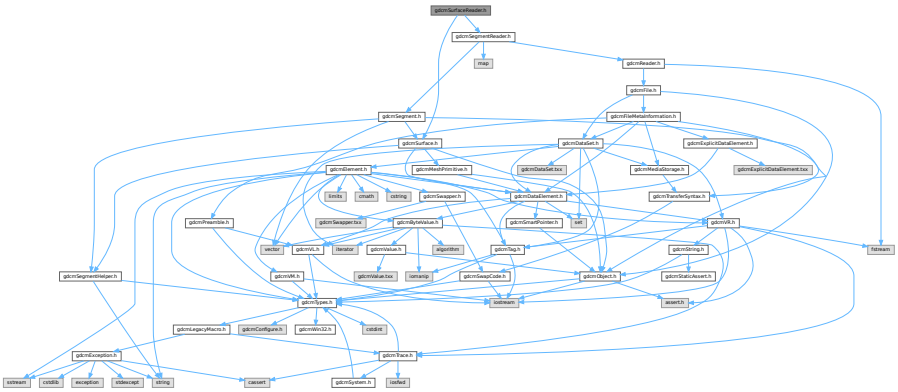
```
  template <typename T, typename U>
  static unsigned short RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
                                                         const U rangeMax = 255);
  template <typename T, typename U>
  static ColorArray RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
                                                  const U rangeMax = 255);
  template <typename T, typename U>
  static std::vector<T> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
                                                      const U rangeMax = 255);
  template <typename U>
  static std::vector<float> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
                                                      const U rangeMax = 255);

private:

  static std::vector< float > RGBToXYZ(const std::vector<float> & RGB);

  static std::vector< float > XYZToRGB(const std::vector<float> & XYZ);

  static std::vector< float > XYZToCIELab(const std::vector<float> & XYZ);

  static std::vector< float > CIELabToXYZ(const std::vector<float> & CIELab);
};

template <typename T, typename U>
unsigned short SurfaceHelper::RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
                                                               const U rangeMax/* = 255*/)
{
  assert(RGB.size() > 2);

  unsigned short Grayscale = 0;

  const float inverseRangeMax = 1.0f / (float) rangeMax;

  // 0xFFFF "=" 255 "=" white
  Grayscale = (unsigned short) ((0.2989 * RGB[0] + 0.5870 * RGB[1] + 0.1140 * RGB[2])
                                * inverseRangeMax // Convert to range 0-1
                                * 0xFFFF);        // Convert to range 0x0000-0xFFFF

  return Grayscale;
}

template <typename T, typename U>
SurfaceHelper::ColorArray SurfaceHelper::RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
                                                                       const U rangeMax/* = 255*/)
{
  assert(RGB.size() > 2);

  ColorArray CIELab(3);
  std::vector<float> tmp(3);

  // Convert to range 0-1
  const float inverseRangeMax = 1.0f / (float) rangeMax;
  tmp[0] = (float) (RGB[0] * inverseRangeMax);
  tmp[1] = (float) (RGB[1] * inverseRangeMax);
  tmp[2] = (float) (RGB[2] * inverseRangeMax);

  tmp = SurfaceHelper::XYZToCIELab( SurfaceHelper::RGBToXYZ( tmp ) );

  // Convert to range 0x0000-0xFFFF
  // 0xFFFF "=" 127, 0x8080 "=" 0, 0x0000 "=" -128
  CIELab[0] = (unsigned short) (          0xFFFF           * (tmp[0]*0.01f));
  if(tmp[1] >= -128 && tmp[1] <= 0)
  {
      CIELab[1] = (unsigned short)(((float)(0x8080)/128.0f)*tmp[1] + ((float)0x8080));
  }
  else if(tmp[1] <= 127 && tmp[1] > 0)
  {
      CIELab[1] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[1] + (float)(0x8080));
  }
  if(tmp[2] >= -128 && tmp[2] <= 0)
  {
      CIELab[2] = (unsigned short)(((float)0x8080/128.0f)*tmp[2] + ((float)0x8080));
  }
  else if(tmp[2] <= 127 && tmp[2] > 0)
  {
      CIELab[2] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[2] + (float)(0x8080));
  }

  return CIELab;
```

```
}

template <typename T, typename U>
std::vector<T> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
                                                            const U rangeMax/* = 255*/)
{
  assert(CIELab.size() > 2);

  std::vector<T> RGB(3);
  std::vector<float> tmp(3);

  // Convert to range 0-1

  tmp[0] = 100.0f*CIELab[0] /(float)(0xFFFF);
  if(CIELab[1] <= 0x8080)
  {
      tmp[1] = (float)(((CIELab[1] - 0x8080) * 128.0f)/(float)0x8080);
  }
  else
  {
      tmp[1] = (float)((CIELab[1]-0x8080)*127.0f / (float)(0xFFFF - 0x8080));
  }
  if(CIELab[2] <= 0x8080)
  {
      tmp[2] = (float)(((CIELab[2] - 0x8080) * 128.0f)/(float)0x8080);
  }
  else
  {
      tmp[2] = (float)((CIELab[2]-0x8080)*127.0f / (float)(0XFFFF - 0x8080));
  }

  tmp = SurfaceHelper::XYZToRGB( SurfaceHelper::CIELabToXYZ( tmp ) );

  // Convert to range 0-rangeMax
  RGB[0] = (T) (tmp[0] * rangeMax);
  RGB[1] = (T) (tmp[1] * rangeMax);
  RGB[2] = (T) (tmp[2] * rangeMax);

  return RGB;
}

template <typename U>
std::vector<float> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
                                                            const U rangeMax/* = 255*/)
{
  return RecommendedDisplayCIELabToRGB<float>(CIELab, rangeMax);
}

} // end namespace gdcm

#endif // GDCMSURFACEHELPER_H
```

11.437 gdcmSurfaceReader.h File Reference

```
#include <gdcmSegmentReader.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceReader.h:



Classes

- class gdcm::SurfaceReader

  This class defines a SURFACE IE reader.

Namespaces

- namespace gdcm

11.438 gdcmSurfaceReader.h

Go to the documentation of this file.

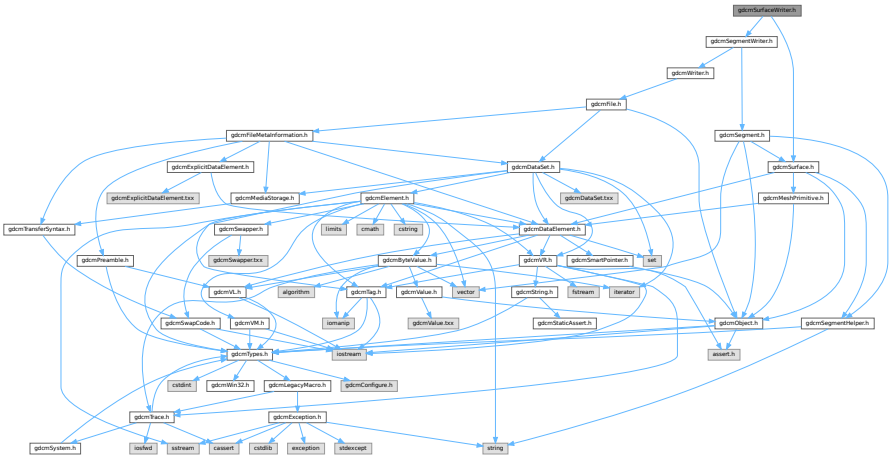
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSURFACEREADER_H
#define GDCMSURFACEREADER_H

#include <gdcmSegmentReader.h>
#include <gdcmSurface.h>

namespace gdcm
{

class GDCM_EXPORT SurfaceReader : public SegmentReader
{
public:
    SurfaceReader();

    ~SurfaceReader() override;

    bool Read() override;
```

```
00038
00039     unsigned long GetNumberOfSurfaces() const;
00040
00041   protected:
00042
00043     bool ReadSurfaces();
00044
00045     bool ReadSurface(const Item & surfaceItem, const unsigned long idx);
00046
00047     bool ReadPointMacro(SmartPointer< Surface > surface, const DataSet & surfaceDS);
00048 };
00049
00050 }
00051
00052 #endif // GDCMSURFACEREADER_H
```

11.439 gdcmSurfaceWriter.h File Reference

```
#include <gdcmSegmentWriter.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceWriter.h:



Classes

- class gdcm::SurfaceWriter

  This class defines a SURFACE IE writer.

Namespaces

- namespace gdcm

11.440 gdcmSurfaceWriter.h

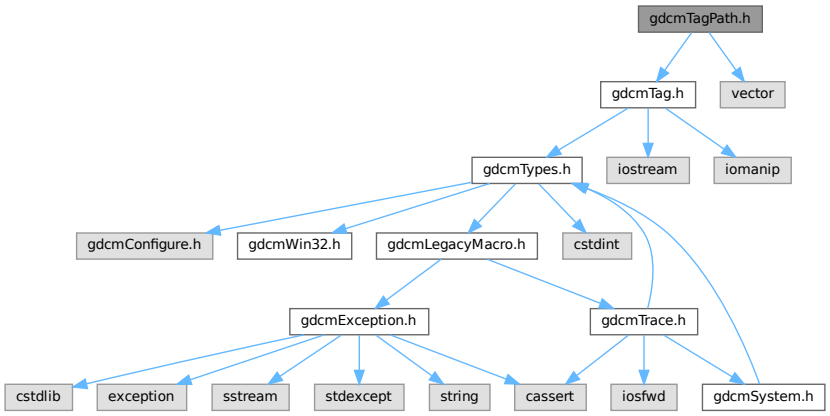
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSURFACEWRITER_H
#define GDCMSURFACEWRITER_H

#include <gdcmSegmentWriter.h>
#include <gdcmSurface.h>

namespace gdcm
{

class GDCM_EXPORT SurfaceWriter : public SegmentWriter
{
public:
    SurfaceWriter();

    ~SurfaceWriter() override;

//    const Surface & GetSurface() const { return *SurfaceData; }
//    Surface & GetSurface() { return *SurfaceData; }
//    void SetSurface(Surface const & segment);

    bool Write() override; // Execute()

    unsigned long GetNumberOfSurfaces();
    void SetNumberOfSurfaces(const unsigned long nb);

protected:

    bool PrepareWrite();

    void ComputeNumberOfSurfaces();

    bool PrepareWritePointMacro(SmartPointer< Surface > surface,
                                DataSet & surfaceDS,
                                const TransferSyntax & ts);

    //0066 0001 UL 1 Number of Surfaces
    unsigned long NumberOfSurfaces;
};

}

#endif // GDCMSURFACEWRITER_H
```

11.441 gdcmTagPath.h File Reference

```
#include "gdcmTag.h"
#include <vector>
```

Include dependency graph for gdcmTagPath.h:



Classes

- class gdcm::TagPath

  class to handle a path of tag.

Namespaces

- namespace gdcm

11.442 gdcmTagPath.h

Go to the documentation of this file.

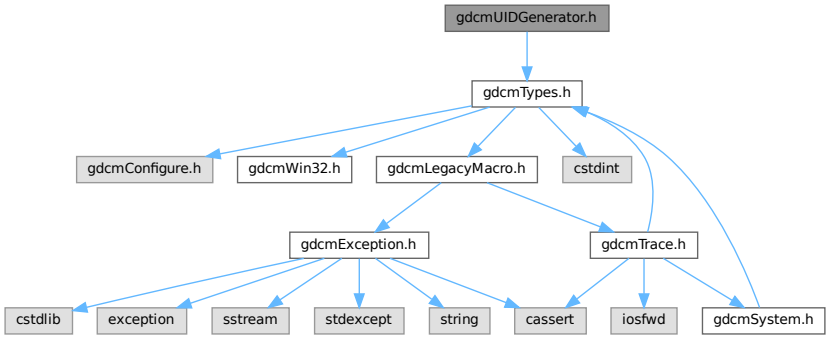
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTAGPATH_H
#define GDCMTAGPATH_H

#include "gdcmTag.h"

#include <vector>

namespace gdcm
{

class GDCM_EXPORT TagPath
{
```

```
public:
  TagPath();
  ~TagPath();
  void Print(std::ostream &) const;

  bool ConstructFromString(const char *path);

  static bool IsValid(const char *path);

  bool ConstructFromTagList(Tag const *l, unsigned int n);

  bool Push(Tag const & t);
  bool Push(unsigned int itemnum);

private:
  std::vector<Tag> Path;
};

} // end namespace gdcm

#endif //GDCMTAGPATH_H
```

11.443 gdcmUIDGenerator.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmUIDGenerator.h:



Classes

- class gdcm::UIDGenerator

  Class for generating unique UID.

Namespaces

- namespace gdcm

11.444 gdcmUIDGenerator.h

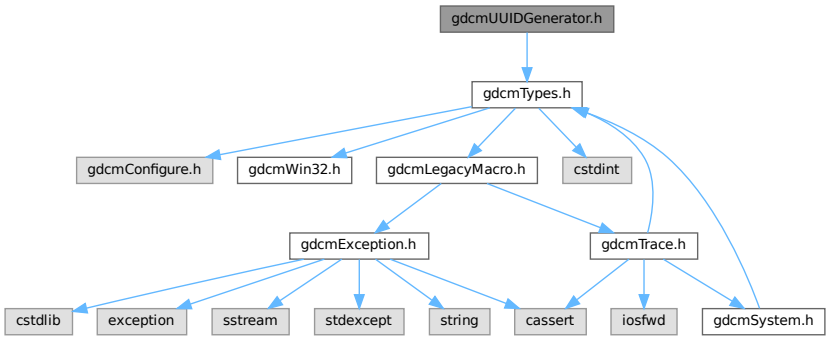
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUIDGENERATOR_H
#define GDCMUIDGENERATOR_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT UIDGenerator
{
public:
  UIDGenerator():Unique() {}

  // Function to override the GDCM root with a user one:
  // WARNING: This need to be a valid root, otherwise call will fail
  // Implementation note. According to DICOM standard PS 3.5, Section 9 :
  // Unique Identifiers (UIDs), we have:
  /*
  ...
  The <org root> portion of the UID uniquely identifies an organization, (i.e., manufacturer, research
  organization, NEMA, etc.), and is composed of a number of numeric components as defined by ISO 8824.
  The <suffix> portion of the UID is also composed of a number of numeric components, and shall be
  unique within the scope of the <org root>. This implies that the organization identified in the <org root> is
  responsible for guaranteeing <suffix> uniqueness by providing registration policies. These policies shall
  guarantee <suffix> uniqueness for all UID's created by that organization. Unlike the <org root>, which may
  be common for UID's in an organization, the <suffix> shall take different unique values between different
  UID's that identify different objects.
  ...
   */
  static void SetRoot(const char * root);
  static const char *GetRoot();

  const char* Generate();

  static bool IsValid(const char *uid);

  static const char *GetGDCMUID(); // who would want that in the public API ??

protected:
  static bool GenerateUUID(unsigned char *uuid_data);

private:
  static const char GDCM_UID[];
  static std::string Root;
  static std::string EncodedHardwareAddress;
  std::string Unique; // Buffer
};


} // end namespace gdcm

#endif //GDCMUIDGENERATOR_H
```

11.445 gdcmUUIDGenerator.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmUUIDGenerator.h:



Classes

- class gdcm::UUIDGenerator

  Class for generating unique UUID.

Namespaces

- namespace gdcm

11.446 gdcmUUIDGenerator.h

Go to the documentation of this file.

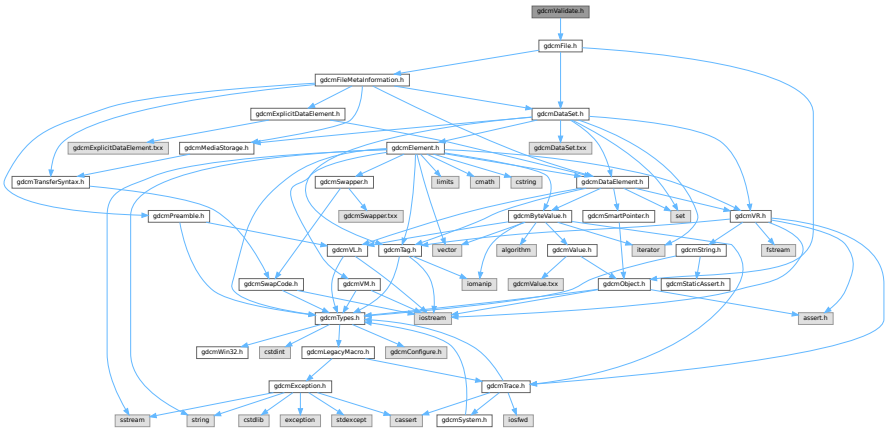
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUUIDGENERATOR_H
#define GDCMUUIDGENERATOR_H

#include "gdcmTypes.h"

namespace gdcm
{

class GDCM_EXPORT UUIDGenerator
{
```

```
public:
  const char* Generate();

  static bool IsValid(const char *uid);

private:
  std::string Unique; // Buffer
};

} // end namespace gdcm

#endif //GDCMUUIDGENERATOR_H
```

11.447 gdcmValidate.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmValidate.h:



Classes

- class gdcm::Validate

  Validate class.

Namespaces

- namespace gdcm

11.448 gdcmValidate.h

Go to the documentation of this file.

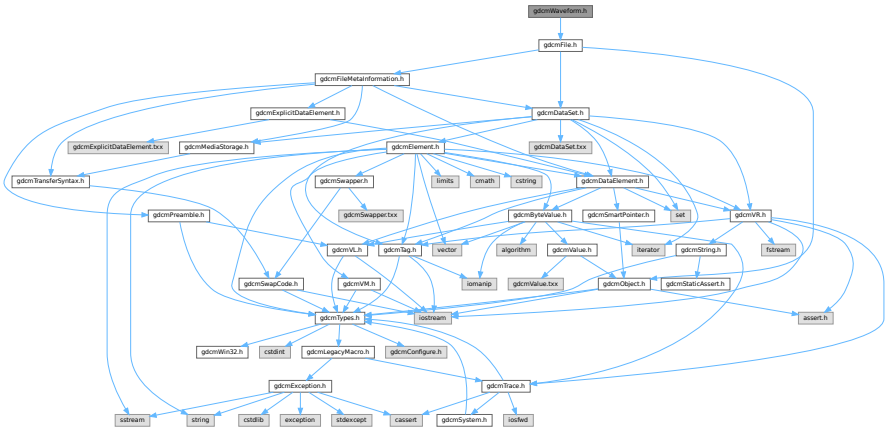
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMVALIDATE_H
#define GDCMVALIDATE_H

#include "gdcmFile.h"

namespace gdcm
{

class GDCM_EXPORT Validate
{
public:
  Validate();
  ~Validate();

  void SetFile(File const &f) { F = &f; }
  const File& GetValidatedFile() { return V; }

  void Validation();

protected:
  const File *F;
  File V; // Validated file
};

} // end namespace gdcm

#endif //GDCMVALIDATE_H
```

11.449 gdcmWaveform.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWaveform.h:



Classes

- class gdcm::Waveform

  Waveform class.

Namespaces

- namespace gdcm

11.450 gdcmWaveform.h

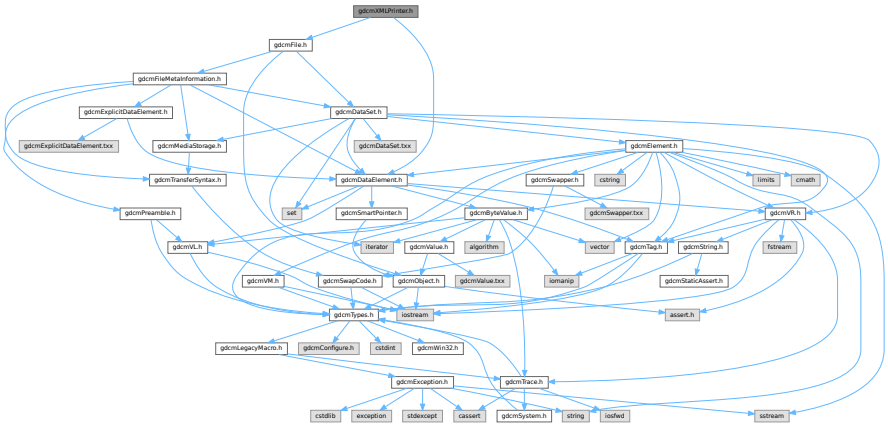
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMWAVEFORM_H
#define GDCMWAVEFORM_H

#include "gdcmFile.h"

namespace gdcm
{
class GDCM_EXPORT Waveform
{
public:
  Waveform() = default;

private:
};

} // end namespace gdcm

#endif //GDCMWAVEFORM_H
```

11.451 gdcmXMLPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmXMLPrinter.h:



Classes

- class gdcm::XMLPrinter

Namespaces

- namespace gdcm

11.452 gdcmXMLPrinter.h

Go to the documentation of this file.

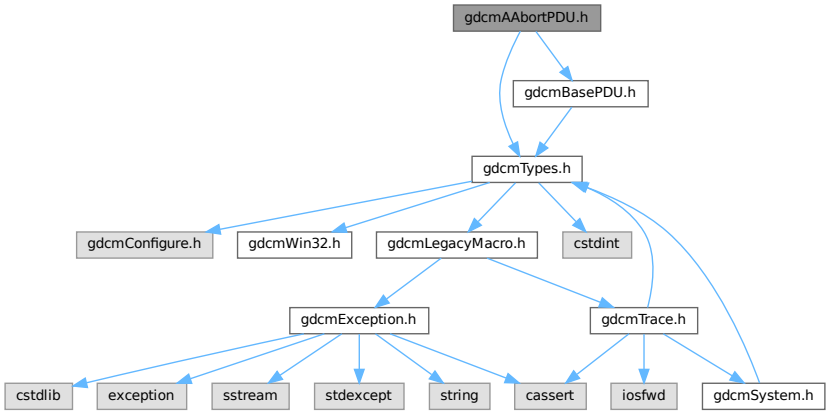
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMXMLPRINTER_H
#define GDCMXMLPRINTER_H

/*

The Normative version of the XML Schema for the Native DICOM Model follows:



start = element NativeDicomModel { DicomDataSet }

# A DICOM Data Set is as defined in PS3.5. It does not appear
# as an XML Element, since it does not appear in the binary encoded
# DICOM objects. It exists here merely as a documentation aid.

DicomDataSet = DicomAttribute*
DicomAttribute = element DicomAttribute {
Tag, VR, Keyword?, PrivateCreator?,
( BulkData | Value+ | Item+ | PersonName+ )?
}

BulkData = element BulkData{ UUID }
Value = element Value { Number, xsd:string }
Item = element Item { Number, DicomDataSet }
PersonName = element PersonName {
Number,
element SingleByte { NameComponents }?,
element Ideographic { NameComponents }?,
element Phonetic
{ NameComponents }?
}

NameComponents =
element FamilyName {xsd:string}?,
element GivenName {xsd:string}?,
element MiddleName {xsd:string}?,
element NamePrefix {xsd:string}?,
element NameSuffix {xsd:string}?

# keyword is the attribute tag from PS3.6
# (derived from the DICOM Attribute's name)
Keyword = attribute keyword { xsd:token }
# canonical XML definition of Hex, with lowercase letters disallowed
Tag = attribute tag { xsd:string{ minLength="8" maxLength="8" pattern="[0-9A-F]{8}" } }
VR = attribute vr { "AE" | "AS" | "AT"| "CS" | "DA" | "DS" | "DT" | "FL" | "FD"
| "IS" | "LO" | "LT" | "OB" | "OF" | "OW" | "PN" | "SH" | "SL"
```

```
| "SQ" | "SS" | "ST" | "TM" | "UI" | "UL" | "UN" | "US" | "UT" }
PrivateCreator = attribute privateCreator{ xsd:string }
UUID = attribute uuid { xsd:string }
Number = attribute number { xsd:positiveInteger }


*/

#include "gdcmFile.h"
#include "gdcmDataElement.h"

namespace gdcm
{

class DataSet;
class DictEntry;
class Dicts;

class GDCM_EXPORT XMLPrinter
{
public:
  XMLPrinter();
  virtual ~XMLPrinter();

  // Set file
  void SetFile(File const &f) { F = &f; }



  typedef enum {

    OnlyUUID = 0 ,
    LOADBULKDATA = 1

  } PrintStyles;

  // Set PrintStyle value
  void SetStyle(PrintStyles ps)
  {
    PrintStyle = ps;
  }

  // Get PrintStyle value
  PrintStyles GetPrintStyle() const
  {
    return PrintStyle;
  }

  // Print
  void Print(std::ostream& os);

  // Print an individual dataset
  void PrintDataSet(const DataSet &ds, const TransferSyntax & ts, std::ostream& os);

  //void PrintUID(std::ostream &os);

  virtual void HandleBulkData(const char *uuid, const TransferSyntax &ts,
    const char *bulkdata, size_t bulklen);

protected:

  VR PrintDataElement(std::ostream &os, const Dicts &dicts, const DataSet & ds, const DataElement &de,
const TransferSyntax & ts);

  void PrintSQ(const SequenceOfItems *sqi, const TransferSyntax & ts, std::ostream &os);

  PrintStyles PrintStyle;

  const File *F;

};

} // end namespace gdcm

#endif //GDCMXMLPRINTER_H
```

11.453 gdcmAAbortPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAbortPDU.h:



Classes

- class gdcm::network::AAbortPDU

  AAbortPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.454 gdcmAAbortPDU.h

Go to the documentation of this file.

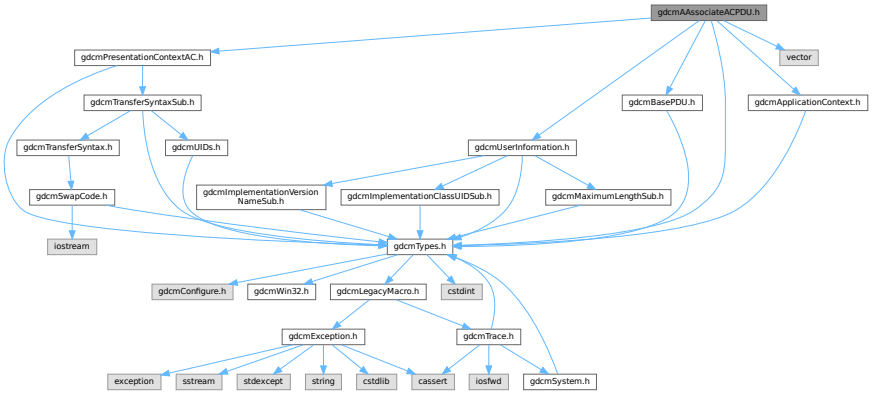
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAABORTPDU_H
#define GDCMAABORTPDU_H

```

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"

namespace gdcm
{

namespace network
{

class GDCM_EXPORT AAbortPDU : public BasePDU
{
public:
  AAbortPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;

  size_t Size() const override;
  void Print(std::ostream &os) const override;

  bool IsLastFragment() const override { return true; }

  void SetSource(const uint8_t s);
  void SetReason(const uint8_t r);

private:
  static const uint8_t ItemType; // PDUType ?
  static const uint8_t Reserved2;
  uint32_t ItemLength; // PDU Length
  static const uint8_t Reserved7;
  static const uint8_t Reserved8;
  uint8_t Source;
  uint8_t Reason; // diag
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMAABORTPDU_H
```

11.455 gdcmAAssociateACPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmAAssociateACPDU.h:



Classes

- class gdcm::network::AAssociateACPDU

  AAssociateACPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.456 gdcmAAssociateACPDU.h

Go to the documentation of this file.

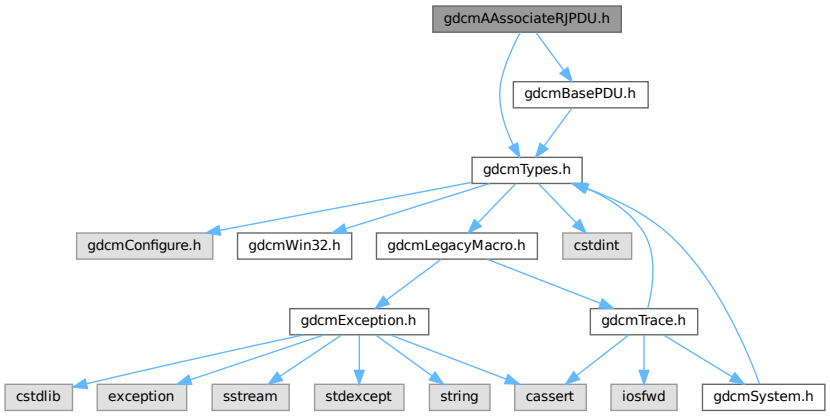
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAASSOCIATEACPDU_H
#define GDCMAASSOCIATEACPDU_H

#include "gdcmTypes.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"

#include <vector>

namespace gdcm
{

namespace network
{
class AAssociateRQPDU;

class AAssociateACPDU : public BasePDU
{
public:
  AAssociateACPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;

  void AddPresentationContextAC( PresentationContextAC const &pcac );

  typedef std::vector<PresentationContextAC>::size_type SizeType;
  const PresentationContextAC &GetPresentationContextAC( SizeType i ) {
    assert( !PresContextAC.empty() && i < PresContextAC.size() );
    return PresContextAC[i];
  }
  SizeType GetNumberOfPresentationContextAC() const {
    return PresContextAC.size();
  }
  const UserInformation &GetUserInformation() const { return UserInfo; }

  SizeType Size() const override;

  void Print(std::ostream &os) const override;
  bool IsLastFragment() const override { return true; }

  void InitFromRQ( AAssociateRQPDU const & rqpdu );
```

```
protected:
  friend class AAssociateRQPDU;
  void SetCalledAETitle(const char calledaetitle[16]);
  void SetCallingAETitle(const char callingaetitle[16]);

private:
  void InitSimple( AAssociateRQPDU const & rqpdu );

private:
  static const uint8_t ItemType; // PDUType ?
  static const uint8_t Reserved2;
  uint32_t PDULength; // len of
  static const uint16_t ProtocolVersion;
  static const uint16_t Reserved9_10;

  // This reserved field shall be sent with a value identical to the value
  // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
  // shall not be tested when received.
  char Reserved11_26[16];
  // This reserved field shall be sent with a value identical to the value
  // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
  // shall not be tested when received.
  char Reserved27_42[16];
  // This reserved field shall be sent with a value identical to the value
  // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
  // shall not be tested when received.
  char Reserved43_74[32];
  /*
  75-xxx Variable items This variable field shall contain the following items: one Application
  Context Item, one or more Presentation Context Item(s) and one User
  Information Item. For a complete description of these items see Sections
  7.1.1.2, 7.1.1.14, and 7.1.1.6.
   */
  ApplicationContext AppContext;
  std::vector<PresentationContextAC>  PresContextAC;
  UserInformation UserInfo;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMAASSOCIATEACPDU_H
```

11.457 gdcmAAssociateRJPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRJPDU.h:



Classes

- class gdcm::network::AAssociateRJPDU

  AAssociateRJPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.458 gdcmAAssociateRJPDU.h

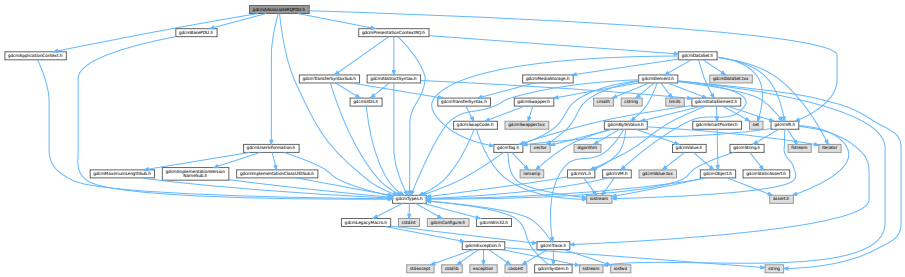
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAASSOCIATERJPDU_H
#define GDCMAASSOCIATERJPDU_H

#include "gdcmTypes.h"
#include "gdcmBasePDU.h"

namespace gdcm
{

namespace network
{

class AAssociateRJPDU : public BasePDU
{
public:
  AAssociateRJPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;
  void Print(std::ostream &os) const override;
  size_t Size() const override;
  bool IsLastFragment() const override { return true; }
private:
  static const uint8_t ItemType; // PDUType ?
  static const uint8_t Reserved2;
  uint32_t ItemLength; // PDU Length ?
  static const uint8_t Reserved8;
  uint8_t Result;
  uint8_t Source;
  uint8_t Reason; // diag ?
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMAASSOCIATERJPDU_H
```

11.459 gdcmAAssociateRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRQPDU.h:



Classes

- class gdcm::network::AAssociateRQPDU

  AAssociateRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.460 gdcmAAssociateRQPDU.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATERQPDU_H
00015 #define GDCMAASSOCIATERQPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h" // AEComp
00019 #include "gdcmApplicationContext.h"
00020 #include "gdcmPresentationContextRQ.h"
```

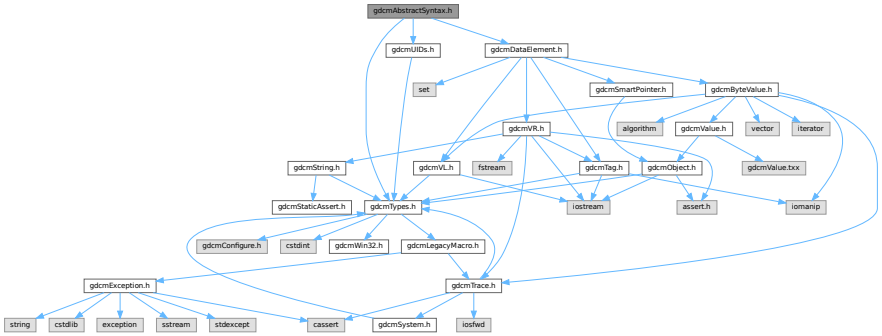
```
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"

namespace gdcm
{

namespace network
{

class AAssociateACPDU;
class AAssociateRQPDU : public BasePDU
{
public:
  AAssociateRQPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;
  size_t Size() const override;
  void AddPresentationContext( PresentationContextRQ const &pc );

  void SetCalledAETitle(const char calledaetitle[16]);
  std::string GetCalledAETitle() const { return std::string(CalledAETitle,16); }

  void SetCallingAETitle(const char callingaetitle[16]);
  std::string GetCallingAETitle() const { return std::string(CallingAETitle,16); }

  static bool IsAETitleValid(const char title[16]);

  //void InitFromRQ( AAssociateACPDU & acpdu );

  void Print(std::ostream &os) const override;

  AAssociateRQPDU(const AAssociateRQPDU &pdu):BasePDU(pdu)
    {
    assert( 0 );
    }
  //this function fails to compile on windows.
//  AAssociateRQPDU &operator=(const AAssociateRQPDU &_val)
//    {
//    assert( 0 );
//    }

  typedef std::vector<PresentationContextRQ>::size_type SizeType;
  SizeType GetNumberOfPresentationContext() const {
    return PresContext.size();
  }
  PresentationContextRQ const &GetPresentationContext(SizeType i) const {
    assert( !PresContext.empty() && i < PresContext.size() );
    return PresContext[i];
  }
  typedef std::vector<PresentationContextRQ> PresentationContextArrayType;
  PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }

  const PresentationContextRQ *GetPresentationContextByID(uint8_t i) const;
  const PresentationContextRQ *GetPresentationContextByAbstractSyntax(AbstractSyntax const & absyn ) const;
  bool IsLastFragment() const override { return true; }

  const UserInformation & GetUserInformation() const { return UserInfo; }
  void SetUserInformation( UserInformation const & ui );

protected:
  friend class AAssociateACPDU;
  std::string GetReserved43_74() const;

private:
  // 1 PDU-type 01H
  static const uint8_t ItemType; // PDUType ?
  // 2 Reserved This reserved field shall be sent with a value 00H but not tested to this value when received.
  static const uint8_t Reserved2;
  /* 3-6 PDU-length This PDU-length shall be the number of bytes from the first byte of the
     following field to the last byte of the variable field. It shall be encoded as
     an unsigned binary number
   */
  uint32_t ItemLength; // PDU Length
  /*
  7-8 Protocol-version This two byte field shall use one bit to identify each version of the
  DICOM UL protocol supported by the calling end-system. This is
  Version 1 and shall be identified with bit 0 set. A receiver of this PDU
  implementing only this version of the DICOM UL protocol shall only test
  that bit 0 is set.
```

```
 */
static const uint16_t ProtocolVersion;
/*
9-10 Reserved This reserved field shall be sent with a value 0000H but not tested to
this value when received.
 */
static const uint16_t Reserved9_10;
/*
11-26 Called-AE-title Destination DICOM Application Name. It shall be encoded as 16
characters as defined by the ISO 646:1990-Basic G0 Set with leading
and trailing spaces (20H) being non-significant. The value made of 16
spaces (20H) meaning "no Application Name specified" shall not be
used. For a complete description of the use of this field, see Section
7.1.1.4.
 */
char CalledAETitle[16];
/*
27-42 Calling-AE-title Source DICOM Application Name. It shall be encoded as 16
characters as defined by the ISO 646:1990-Basic G0 Set with leading
and trailing spaces (20H) being non-significant. The value made of 16
spaces (20H) meaning "no Application Name specified" shall not be
used. For a complete description of the use of this field, see Section
7.1.1.3.
 */
char CallingAETitle[16];
/*
43-74 Reserved This reserved field shall be sent with a value 00H for all bytes but not
tested to this value when received
 */
char Reserved43_74[32]; // { 0 }
/*
75-xxx Variable items This variable field shall contain the following items: one Application
Context Item, one or more Presentation Context Items and one User
Information Item. For a complete description of the use of these items
see Sections 7.1.1.2, 7.1.1.13, and 7.1.1.6.
 */
ApplicationContext AppContext;
std::vector<PresentationContextRQ> PresContext;
UserInformation UserInfo;
};

} // end namespace network
} // end namespace gdcm

#endif //GDCMAASSOCIATERQPDU_H
```

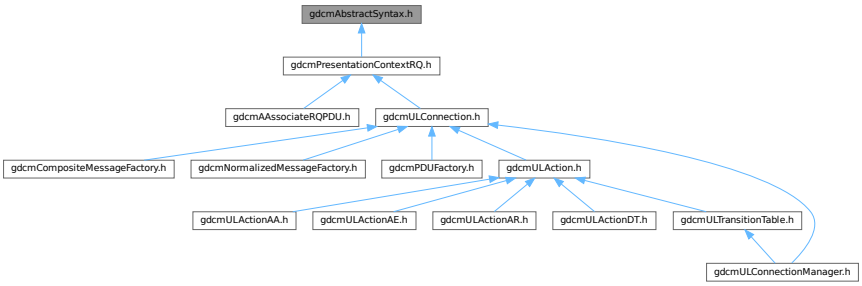
11.461 gdcmAbstractSyntax.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmAbstractSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::AbstractSyntax

  AbstractSyntax.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.462 gdcmAbstractSyntax.h

Go to the documentation of this file.

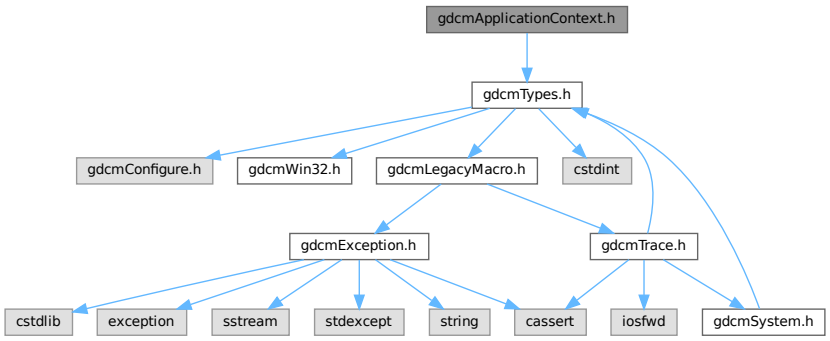
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMABSTRACTSYNTAX_H
#define GDCMABSTRACTSYNTAX_H

#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include "gdcmDataElement.h"

namespace gdcm
{

namespace network
{

class AbstractSyntax
{
public:
  AbstractSyntax();
  std::istream &Read(std::istream &is);
```

```
  const std::ostream &Write(std::ostream &os) const;

  void SetName( const char *name ) { UpdateName( name ); }
  const char *GetName() const { return Name.c_str(); }

  // accept a UIDs::TSType also...
  void SetNameFromUID( UIDs::TSName tsname );
  //now that the PresentationContext messes around with UIDs and returns a string
  //use that string as well.
  //void SetNameFromUIDString( const std::string& inUIDName );

  size_t Size() const;

  void Print(std::ostream &os) const;

  bool operator==(const AbstractSyntax & as) const
    {
    return Name == as.Name;
    }

  DataElement GetAsDataElement() const;

private:
  void UpdateName( const char *name );
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength; // len of
  std::string /*AbstractSyntax*/ Name; // UID
};

} // end namespace network
} // end namespace gdcm

#endif //GDCMABSTRACTSYNTAX_H
```

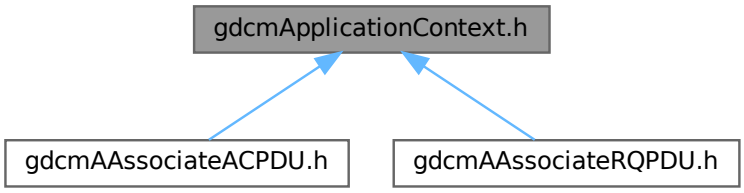
11.463 gdcmApplicationContext.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmApplicationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ApplicationContext

  ApplicationContext.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.464 gdcmApplicationContext.h

Go to the documentation of this file.

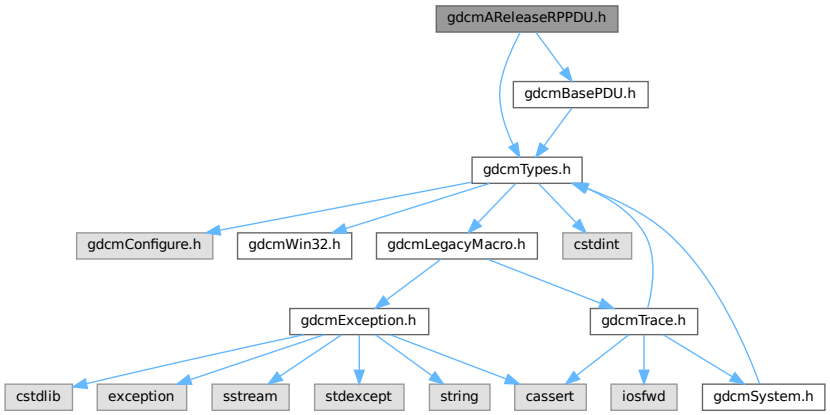
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMAPPLICATIONCONTEXT_H
#define GDCMAPPLICATIONCONTEXT_H

#include "gdcmTypes.h"

namespace gdcm
{

namespace network
{

class ApplicationContext
{
public:
  ApplicationContext();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;
```

```
00038
00039   void SetName( const char *name ) { UpdateName( name ); }
00040   const char *GetName() const { return Name.c_str(); }
00041   size_t Size() const;
00042
00043   //static const uint8_t GetItemType() { return ItemType; }
00044   void Print(std::ostream &os) const;
00045
00046 private:
00047   void UpdateName( const char *name );
00048   static const uint8_t ItemType;
00049   static const uint8_t Reserved2;
00050   uint16_t ItemLength; // len of application context name
00051   std::string /*ApplicationContext*/ Name; // UID
00052 };
00053
00054 } // end namespace network
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMAPPLICATIONCONTEXT_H
```

11.465 gdcmAReleaseRPPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRPPDU.h:



Classes

- class gdcm::network::AReleaseRPPDU

  AReleaseRPPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.466 gdcmAReleaseRPPDU.h

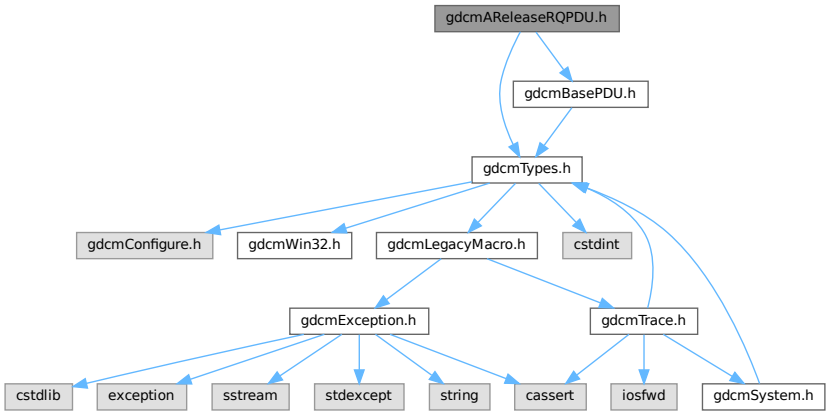
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMARELEASERPPDU_H
#define GDCMARELEASERPPDU_H

#include "gdcmTypes.h"
#include "gdcmBasePDU.h"

namespace gdcm
{

namespace network
{

class AReleaseRPPDU : public BasePDU
{
public:
  AReleaseRPPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;
  size_t Size() const override;
  void Print(std::ostream &os) const override;
  bool IsLastFragment() const override { return true; }
private:
  static const uint8_t ItemType; // PDUType ?
  static const uint8_t Reserved2;
  uint32_t ItemLength; // PDU Length
  static const uint32_t Reserved7_10;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMARELEASERPPDU_H
```

11.467 gdcmAReleaseRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRQPDU.h:



Classes

- class gdcm::network::AReleaseRQPDU

  AReleaseRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.468 gdcmAReleaseRQPDU.h

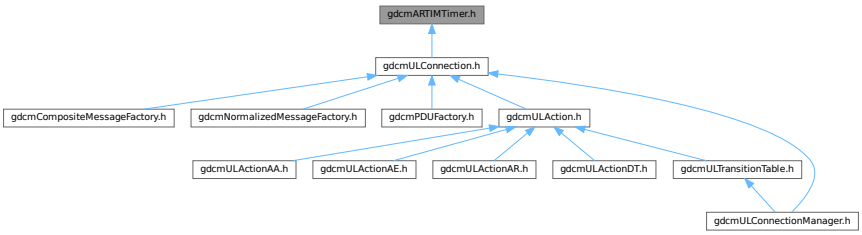
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMARELEASERQPDU_H
#define GDCMARELEASERQPDU_H

#include "gdcmTypes.h"
#include "gdcmBasePDU.h"

namespace gdcm
{

namespace network
{
```

```
00025
00031 class AReleaseRQPDU : public BasePDU
00032 {
00033 public:
00034   AReleaseRQPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   size_t Size() const override;
00038   void Print(std::ostream &os) const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length
00044   static const uint32_t Reserved7_10;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMARELEASERQPDU_H
```

11.469 gdcmARTIMTimer.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ARTIMTimer

  ARTIMTimer.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.470 gdcmARTIMTimer.h

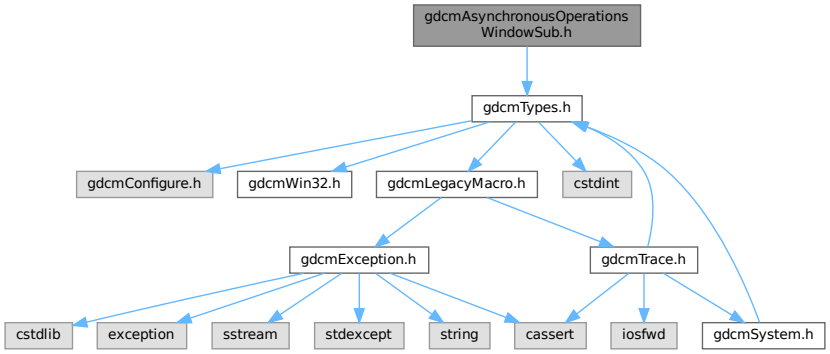
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMARTIMTIMER_H
#define GDCMARTIMTIMER_H

namespace gdcm {
  namespace network{
class ARTIMTimer
{
    private:
      double mStartTime; //ms timing should be good enough, but there are also
      //high-resolution timing options.  Those return doubles.  For now,
      //go with integer timing solutions based on milliseconds (DWORD on windows),
      //but leave as doubles to ease transitions to other timing methods.

      double mTimeOut;
      //once GetCurrentTime() -mStartTime > mTimeout, GetHasExpired returns true.

      double GetCurrentTime() const;//a platform-specific implementation of getting the
      //current time.

    public:
      ARTIMTimer(); //initiates the start and timeout at -1;
      void Start(); //'start' the timer by getting the current wall time
      void Stop();//'stop' the timer by resetting the 'start' to -1;
      void SetTimeout(double inTimeout);
      double GetTimeout() const;

      double GetElapsedTime() const;

      bool GetHasExpired() const;

    };
  }
}

#endif //GDCMARTIMTIMER_H
```

11.471 gdcmAsynchronousOperationsWindowSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmAsynchronousOperationsWindowSub.h:



Classes

- class gdcm::network::AsynchronousOperationsWindowSub

  AsynchronousOperationsWindowSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.472 gdcmAsynchronousOperationsWindowSub.h

Go to the documentation of this file.

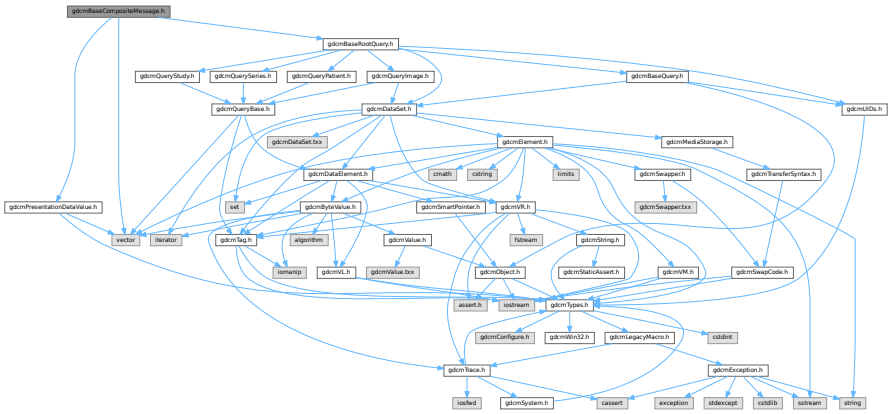
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
#define GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H

#include "gdcmTypes.h"

namespace gdcm
{

```

```
00022 namespace network
00023 {
00024
00032 class AsynchronousOperationsWindowSub
00033 {
00034 public:
00035   AsynchronousOperationsWindowSub();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   size_t Size() const;
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   uint16_t MaximumNumberOperationsInvoked;
00047   uint16_t MaximumNumberOperationsPerformed;
00048 };
00049
00050 } // end namespace network
00051
00052 } // end namespace gdcm
00053
00054 #endif // GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
```

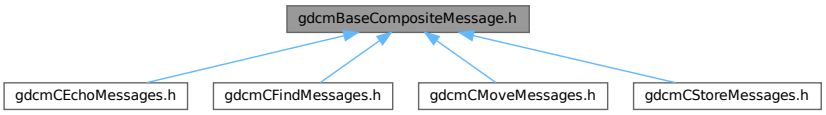
11.473 gdcmBaseCompositeMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseRootQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseCompositeMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseCompositeMessage

  BaseCompositeMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.474 gdcmBaseCompositeMessage.h

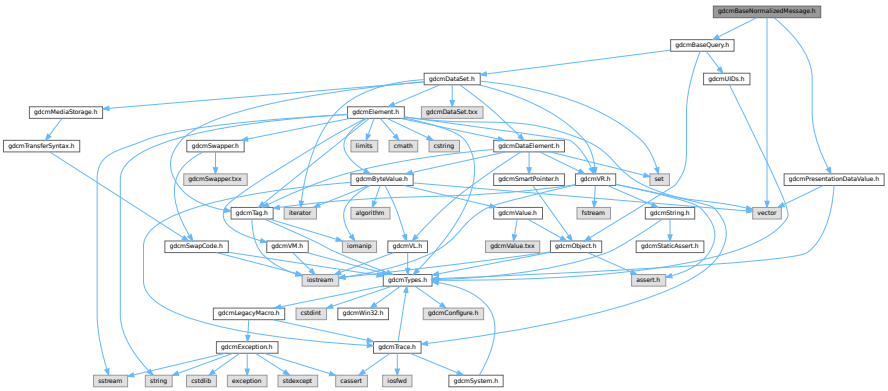
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMBASECOMPOSITEMESSSAGE_H
#define GDCMBASECOMPOSITEMESSSAGE_H

#include "gdcmPresentationDataValue.h"
#include "gdcmBaseRootQuery.h"

#include <vector>

namespace gdcm
{
  namespace network
    {
class ULConnection;
class BaseCompositeMessage
{
    public:
      virtual ~BaseCompositeMessage() = default;
      //construct the appropriate pdv and dataset for this message
      //for instance, setting tag 0x0,0x100 to the appropriate value
      //the pdv, as described in Annex E of 3.8-2009, is the first byte
      //of the message (the MessageHeader), and then the subsequent dataset
      //that describes the operation.
      virtual std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseRootQuery * inRootQuery) = 0;
    };
  }
}
#endif //BASECOMPOSITEMESSSAGE_H
```

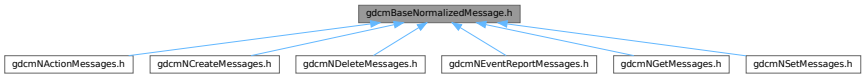
11.475 gdcmBaseNormalizedMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseNormalizedMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseNormalizedMessage

  BaseNormalizedMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.476 gdcmBaseNormalizedMessage.h

Go to the documentation of this file.

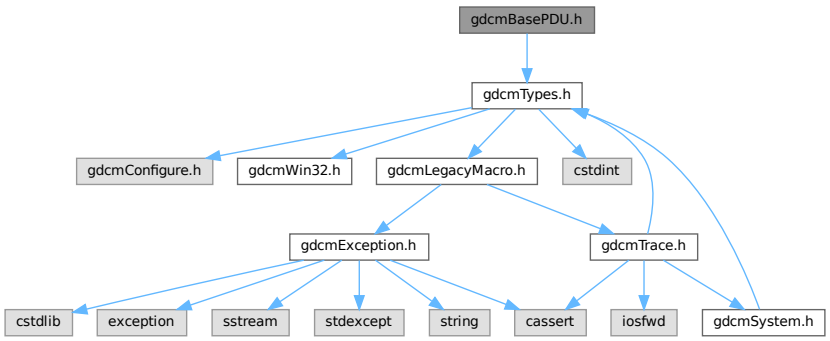
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMBASENORMALIZEDMESSSAGE_H
#define GDCMBASENORMALIZEDMESSSAGE_H

#include "gdcmPresentationDataValue.h"
#include "gdcmBaseQuery.h"

#include <vector>

namespace gdcm
{
  namespace network
    {
class ULConnection;
class BaseNormalizedMessage
{
    public:
      virtual ~BaseNormalizedMessage() = default;
      //construct the appropriate pdv and dataset for this message
      //for instance, setting tag 0x0,0x100 to the appropriate value
      //the pdv, as described in Annex E of 3.8-2009, is the first byte
      //of the message (the MessageHeader), and then the subsequent dataset
      //that describes the operation.
      virtual std::vector<PresentationDataValue> ConstructPDV(  const ULConnection &inConnection,
                                const BaseQuery * inQuery) = 0;
    };
  }
}
#endif //GDCMBASENORMALIZEDMESSSAGE_H
```

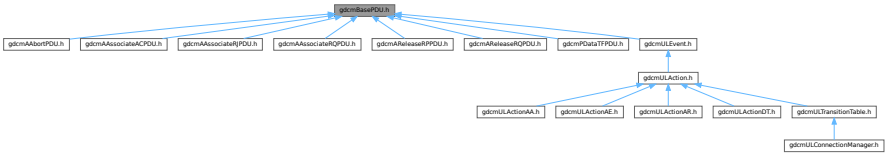
11.477 gdcmBasePDU.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmBasePDU.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BasePDU

  BasePDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.478 gdcmBasePDU.h

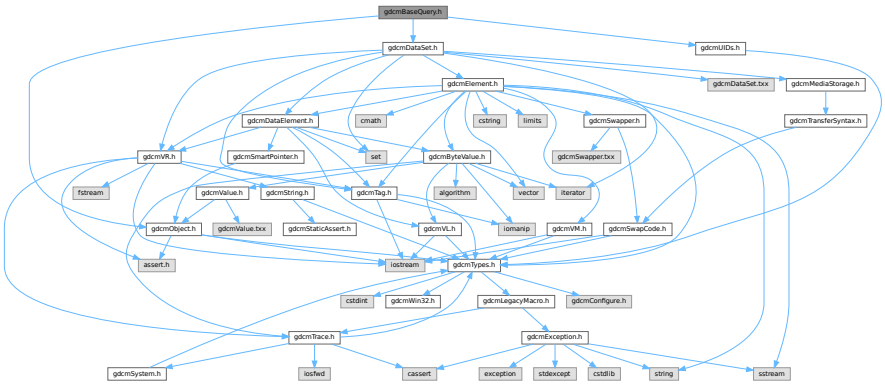
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMBASEPDU_H
#define GDCMBASEPDU_H

#include "gdcmTypes.h"

namespace gdcm
{
namespace network
{

class BasePDU
{
public:
  virtual ~BasePDU() = default;

  virtual std::istream &Read(std::istream &is) = 0;
  virtual const std::ostream &Write(std::ostream &os) const = 0;

  virtual size_t Size() const = 0;
  virtual void Print(std::ostream &os) const = 0;

  virtual bool IsLastFragment() const = 0;
};

} // end namespace network
} // end namespace gdcm

#endif // GDCMBASEPDU_H
```

11.479 gdcmBaseQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmBaseQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseQuery

  BaseQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ENQueryType {
  gdcm::eCreateMMPS = 0 ,
  gdcm::eSetMMPS }

11.480 gdcmBaseQuery.h

Go to the documentation of this file.

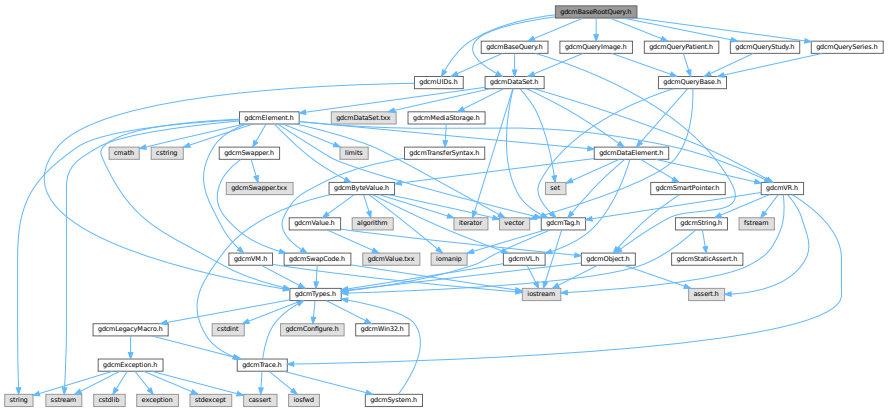
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMBASEQUERY_H
#define GDCMBASEQUERY_H

#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmObject.h"

namespace gdcm
{
  class QueryFactory;
  class DictEntry;

  enum ENQueryType
    {
    eCreateMMPS = 0,
    eSetMMPS
    };
class GDCM_EXPORT BaseQuery : public Object
{
  //these four classes contain the required, unique, and optional tags from the standard.
  //used both to list the tags as well as to validate a dataset, if ever we were to do so.
protected:

  DataSet mDataSet;
  friend class QueryFactory;
  BaseQuery();

  std::string mSopInstanceUID;

  void SetSearchParameter(const Tag& inTag, const DictEntry& inDictEntry, const std::string& inValue);

  bool ValidDataSet( const DataSet & dataSetToValid, const DataSet & dataSetReference  ) const ;
public:
  ~BaseQuery() override;

  void SetSearchParameter(const Tag& inTag, const std::string& inValue);
  void SetSearchParameter(const std::string& inKeyword, const std::string& inValue);

  const std::ostream &WriteHelpFile(std::ostream &os);

  //this function allows writing of the query to disk for storing for future use
  //virtual in case it needs to be overridden
  //returns false if the operation failed
  bool WriteQuery(const std::string& inFileName);

  DataSet const & GetQueryDataSet() const;
  DataSet & GetQueryDataSet();
  void AddQueryDataSet(const DataSet & ds);

  virtual bool ValidateQuery( bool inStrict = true ) const = 0;

  virtual UIDs::TSName GetAbstractSyntaxUID() const = 0;
  std::string GetSOPInstanceUID() const { return mSopInstanceUID ; }
  void SetSOPInstanceUID( const std::string & iSopInstanceUID ) { mSopInstanceUID = iSopInstanceUID ; }



  void Print(std::ostream &os) const override;
};
```

```
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMBASEROOTQUERY_H
```

11.481 gdcmBaseRootQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmBaseQuery.h"
#include "gdcmQueryPatient.h"
#include "gdcmQueryStudy.h"
#include "gdcmQuerySeries.h"
#include "gdcmQueryImage.h"
```

Include dependency graph for gdcmBaseRootQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseRootQuery

  BaseRootQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::EQueryLevel {
  gdcm::ePatient = 0 ,
  gdcm::eStudy = 1 ,
  gdcm::eSeries = 2 ,
  gdcm::eImage = 3 }
- enum gdcm::EQueryType {
  gdcm::eFind = 0 ,
  gdcm::eMove ,
  gdcm::eWLMFind }

11.482 gdcmBaseRootQuery.h

Go to the documentation of this file.

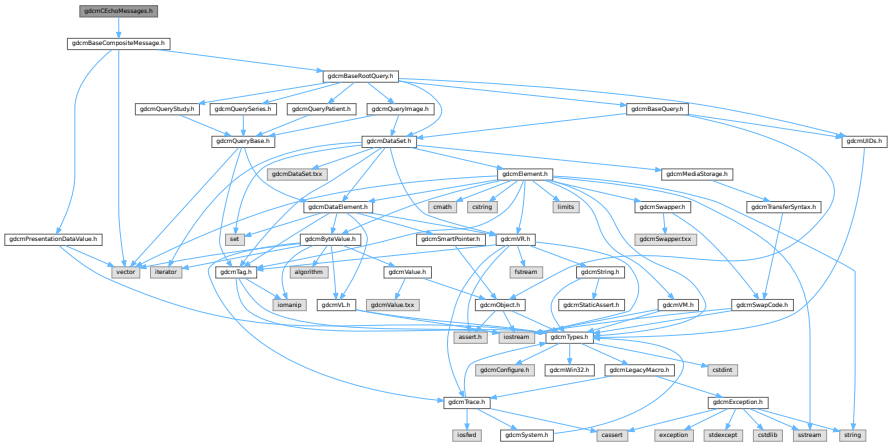
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMBASEROOTQUERY_H
#define GDCMBASEROOTQUERY_H

#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmBaseQuery.h"
#include "gdcmQueryPatient.h"
#include "gdcmQueryStudy.h"
#include "gdcmQuerySeries.h"
#include "gdcmQueryImage.h"

namespace gdcm
{
  class QueryFactory;
  class DictEntry;

  enum EQueryLevel
    {
    // -1 is reserved do not use
    ePatient = 0,
    eStudy   = 1,
    eSeries  = 2,
    eImage   = 3
    };
  enum EQueryType
    {
    eFind= 0,
    eMove,
    eWLMFind
    };

class GDCM_EXPORT BaseRootQuery : public BaseQuery
{
  //these four classes contain the required, unique, and optional tags from the standard.
  //used both to list the tags as well as to validate a dataset, if ever we were to do so.
protected:
  QueryPatient mPatient;
  QueryStudy mStudy;
```

```
  QuerySeries mSeries;
  QueryImage mImage;

  friend class QueryFactory;
  BaseRootQuery();

  ERootType mRootType; //set in construction, and it's something else in the study root type
  std::string mHelpDescription; //used when generating the help output

public:
  ~BaseRootQuery() override = default;

  virtual std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) = 0;

  virtual void InitializeDataSet(const EQueryLevel& inQueryLevel) = 0;

  bool ValidateQuery( bool inStrict = true ) const override = 0;

  static const char *GetQueryLevelString( EQueryLevel ql );
  static int GetQueryLevelFromString( const char * str );

  static QueryBase * Construct(ERootType inRootType, EQueryLevel qlevel);
  EQueryLevel GetQueryLevelFromQueryRoot( ERootType roottype );
};

} // end namespace gdcm

#endif //GDCMBASEROOTQUERY_H
```

11.483 gdcmCEchoMessages.h File Reference

`#include "gdcmBaseCompositeMessage.h"`

Include dependency graph for gdcmCEchoMessages.h:



Classes

- class gdcm::network::CEchoRQ

  CEchoRQ.
- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.484 gdcmCEchoMessages.h

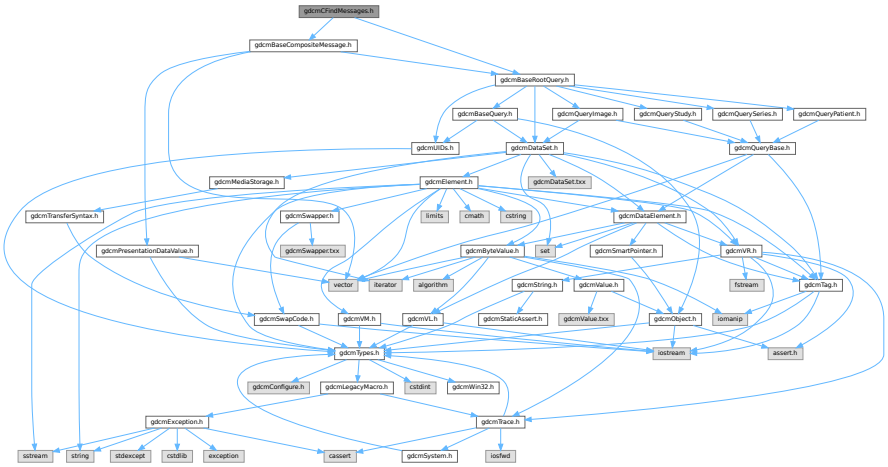
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMCECHOMESSAGES_H
#define GDCMCECHOMESSAGES_H

#include "gdcmBaseCompositeMessage.h"

namespace gdcm{
  namespace network{

class ULConnection;

class CEchoRQ : public BaseCompositeMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseRootQuery* inRootQuery) override;
    };

    class CEchoRSP : public BaseCompositeMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCECHOMESSAGES_H
```

11.485 gdcmCFindMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCFindMessages.h:



Classes

- class gdcm::network::CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class gdcm::network::CFindRQ

  CFindRQ.
- class gdcm::network::CFindRSP

  CFindRSP this file defines the messages for the cfind action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.486 gdcmCFindMessages.h

Go to the documentation of this file.

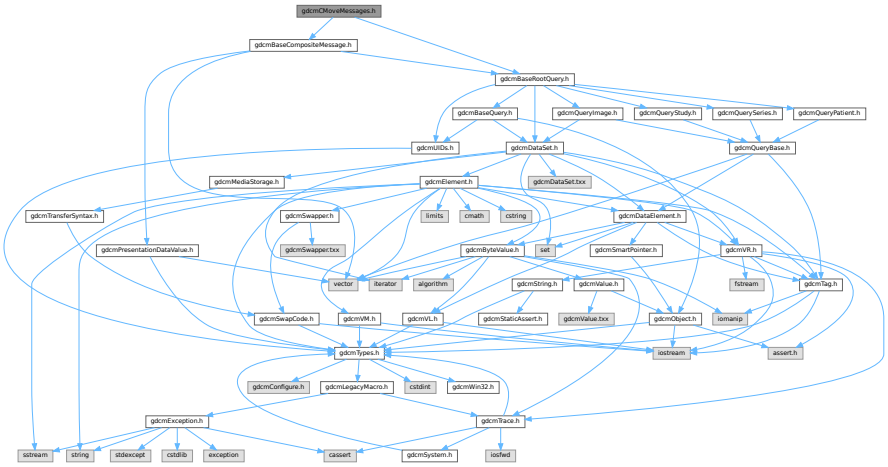
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
```

```
#ifndef GDCMCFINDMESSAGES_H
#define GDCMCFINDMESSAGES_H

#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"

namespace gdcm
{
namespace network
{

class CFindRQ : public BaseCompositeMessage
{
public:
  std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
    const BaseRootQuery* inRootQuery) override;
};

class CFindRSP : public BaseCompositeMessage {
public:
  std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
};

  class CFindCancelRQ : public BaseCompositeMessage {
  public:
    std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
  };
}
}
#endif
```

11.487 gdcmCMoveMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCMoveMessages.h:



Classes

- class gdcm::network::CMoveCancelRq
- class gdcm::network::CMoveRQ

  CMoveRQ.
- class gdcm::network::CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.488 gdcmCMoveMessages.h

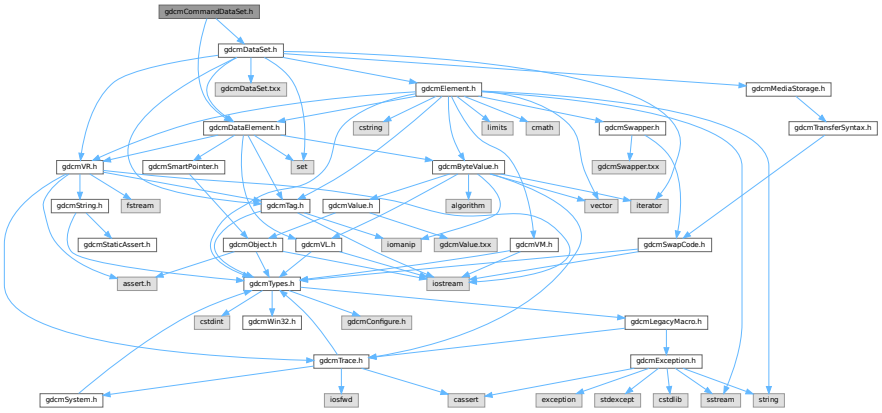
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMCMOVEMESSAGES_H
#define GDCMCMOVEMESSAGES_H

#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"

namespace gdcm{
  namespace network{
  class ULConnection;
class CMoveRQ : public BaseCompositeMessage {
      //this class will fulfill the inheritance,
      //but additional information is needed by cmovd
      //namely, the root type or the calling AE-TITLE
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    public:
      std::vector<PresentationDataValue> ConstructPDV(
        const ULConnection &inConnection,
        const BaseRootQuery* inRootQuery) override;
    };

class CMoveRSP : public BaseCompositeMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };

    class CMoveCancelRq : public BaseCompositeMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif
```

11.489 gdcmCommandDataSet.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCommandDataSet.h:



Classes

- class gdcm::CommandDataSet

  Class to represent a Command DataSet.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CommandDataSet &val)

11.490 gdcmCommandDataSet.h

Go to the documentation of this file.

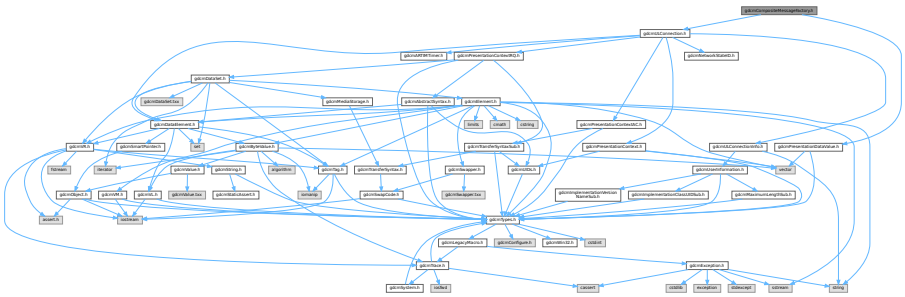
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCOMMANDDATASET_H
#define GDCMCOMMANDDATASET_H

#include "gdcmDataSet.h"
#include "gdcmDataElement.h"

namespace gdcm
```

```
{
class GDCM_EXPORT CommandDataSet : public DataSet
{
public:
  CommandDataSet() = default;
 ~CommandDataSet() = default;

  friend std::ostream &operator«(std::ostream &_os, const CommandDataSet &_val);

  // FIXME: no virtual function means: duplicate code...
  void Insert(const DataElement& de) {
    if( de.GetTag().GetGroup() == 0x0000 )
      {
      InsertDataElement( de );
      }
    else
      {
      gdcmErrorMacro( "Cannot add element with group != 0x0000 in the command dataset : " « de );
      }
  }
  void Replace(const DataElement& de) {
    Remove(de.GetTag());
    Insert(de);
  }

  std::istream &Read(std::istream &is);

  std::ostream &Write(std::ostream &os) const;

protected:
};
//----------------------------------------------------------------------------
inline std::ostream& operator«(std::ostream &os, const CommandDataSet &val)
{
  val.Print( os );
  return os;
}

} // end namespace gdcm

#endif //GDCMFILEMETAINFORMATION_H
```

11.491 gdcmCompositeMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmCompositeMessageFactory.h:



Classes

- class gdcm::network::CompositeMessageFactory

  CompositeMessageFactory.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.492 gdcmCompositeMessageFactory.h

Go to the documentation of this file.

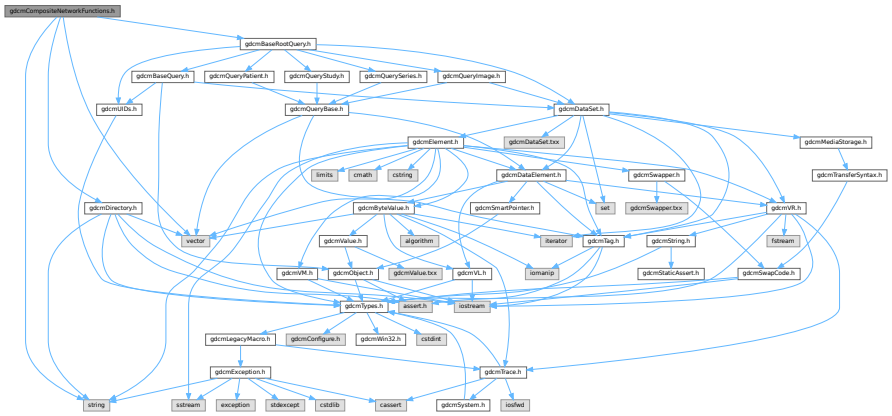
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMCOMPOSITEMESSAGEFACTORY_H
#define GDCMCOMPOSITEMESSAGEFACTORY_H

#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"

namespace gdcm {
  class BaseRootQuery;
  class File;
  namespace network {
    class BasePDU;
class CompositeMessageFactory
{
    public:
      //the echo request only needs a properly constructed PDV.
      //find, move, etc, may need something more robust, but since those are
      //easily placed into the appropriate pdatapdu in the pdufactory,
      //this approach without a base class (but done internally) is useful.
      static std::vector<PresentationDataValue> ConstructCEchoRQ(const ULConnection& inConnection);

      static std::vector<PresentationDataValue> ConstructCStoreRQ(const ULConnection& inConnection,const File &file, bool writeDataSet = true );
      static std::vector<PresentationDataValue> ConstructCStoreRSP(const DataSet *inDataSet, const BasePDU* inPC);

      static  std::vector<PresentationDataValue> ConstructCFindRQ(const ULConnection& inConnection, const BaseRootQuery* inRootQuery);

      static  std::vector<PresentationDataValue> ConstructCMoveRQ(const ULConnection& inConnection, const BaseRootQuery* inRootQuery);


    };
  }
}

#endif // GDCMCOMPOSITEMESSAGEFACTORY_H
```

11.493 gdcmCompositeNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseRootQuery.h"
```

```
#include <vector>
#include <string>
```

Include dependency graph for gdcmCompositeNetworkFunctions.h:



Classes

- class gdcm::CompositeNetworkFunctions

  Composite Network Functions.

Namespaces

- namespace gdcm

11.494 gdcmCompositeNetworkFunctions.h

Go to the documentation of this file.

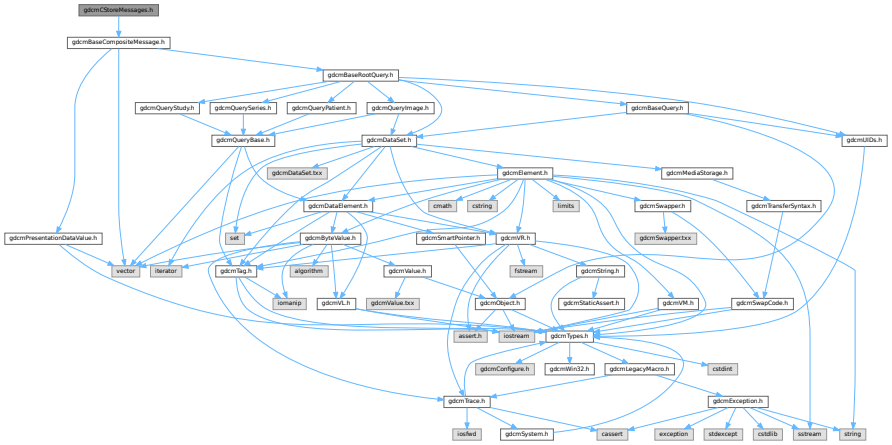
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCOMPOSITENETWORKFUNCTIONS_H
00019 #define GDCMCOMPOSITENETWORKFUNCTIONS_H
00020
00021 #include "gdcmDirectory.h"
00022 #include "gdcmBaseRootQuery.h" // EQueryLevel / EQueryType
00023
00024 #include <vector>
00025 #include <string>
```

```
namespace gdcm
{
class GDCM_EXPORT CompositeNetworkFunctions
{
public:
  static bool CEcho( const char *remote, uint16_t portno, const char *aetitle = nullptr,
    const char *call = nullptr );

  typedef std::pair<Tag, std::string> KeyValuePairType;
  typedef std::vector< KeyValuePairType  > KeyValuePairArrayType;

  static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
    const DataSet& queryds, EQueryType queryType = eFind );

  static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
    const KeyValuePairArrayType& keys, EQueryType queryType = eFind );

  static bool CMove( const char *remote, uint16_t portno, const BaseRootQuery* query,
    uint16_t portscp, const char *aetitle = nullptr,
    const char *call = nullptr, const char *outputdir = nullptr);

  static bool CFind( const char *remote, uint16_t portno,
    const BaseRootQuery* query,
    std::vector<DataSet> &retDataSets,
    const char *aetitle = nullptr,
    const char *call = nullptr );

  static bool CStore( const char *remote, uint16_t portno,
    const Directory::FilenamesType & filenames,
    const char *aetitle = nullptr, const char *call = nullptr);
};

} // end namespace gdcm

#endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```

11.495 gdcmCStoreMessages.h File Reference

`#include "gdcmBaseCompositeMessage.h"`

Include dependency graph for gdcmCStoreMessages.h:



Classes

- class gdcm::network::CStoreRQ

CStoreRQ.

- class gdcm::network::CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.496 gdcmCStoreMessages.h

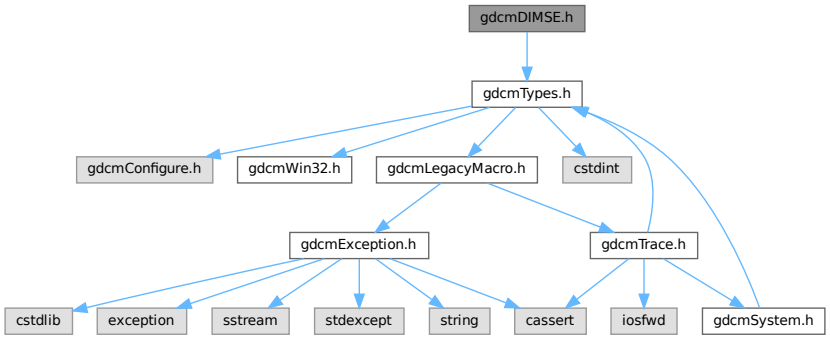
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMCSTOREMESSAGES_H
#define GDCMCSTOREMESSAGES_H

#include "gdcmBaseCompositeMessage.h"

namespace gdcm{
class File;
  namespace network{
    class BasePDU;
class CStoreRQ : public BaseCompositeMessage {
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const File& file,  bool writeDataSet = true );
    };

    class CStoreRSP : public BaseCompositeMessage {
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
    public:
      std::vector<PresentationDataValue> ConstructPDV(const DataSet* inDataSet, const BasePDU* inPC);
    };
  }
}
#endif // GDCMCSTOREMESSAGES_H
```

11.497 gdcmDIMSE.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDIMSE.h:



Classes

- class gdcm::network::CEchoRQ

  CEchoRQ.
- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class gdcm::network::CFind
- class gdcm::network::DIMSE

  DIMSE.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.498 gdcmDIMSE.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

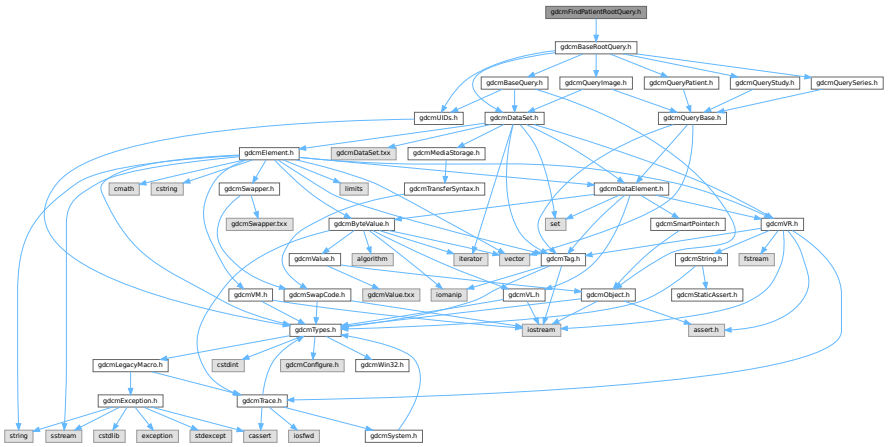
```
#ifndef GDCMDIMSE_H
#define GDCMDIMSE_H

#include "gdcmTypes.h"

namespace gdcm
{

namespace network
{

class DIMSE {
public:
  typedef enum {
C_STORE_RQ         = 0x0001,
C_STORE_RSP        = 0x8001,
C_GET_RQ           = 0x0010,
C_GET_RSP          = 0x8010,
C_FIND_RQ          = 0x0020,
C_FIND_RSP         = 0x8020,
C_MOVE_RQ          = 0x0021,
C_MOVE_RSP         = 0x8021,
C_ECHO_RQ          = 0x0030,
C_ECHO_RSP         = 0x8030,
N_EVENT_REPORT_RQ  = 0x0100,
N_EVENT_REPORT_RSP = 0x8100,
N_GET_RQ           = 0x0110,
N_GET_RSP          = 0x8110,
N_SET_RQ           = 0x0120,
N_SET_RSP          = 0x8120,
N_ACTION_RQ        = 0x0130,
N_ACTION_RSP       = 0x8130,
N_CREATE_RQ        = 0x0140,
N_CREATE_RSP       = 0x8140,
N_DELETE_RQ        = 0x0150,
N_DELETE_RSP       = 0x8150,
C_CANCEL_RQ        = 0x0FFF
  } CommandTypes;
};

/*
9.1.5.1 C-ECHO parameters
Table 9.1-5
C-ECHO PARAMETERS
*/
class CEchoRQ
{
public:
  uint16_t          MessageID;                              /* M */
  UIComp            AffectedSOPClassUID;                    /* M */
};

class CEchoRSP
{
public:
/*
Message ID M U
Message ID Being Responded To M
Affected SOP Class UID M U(=)
Status M
*/
};

class CFind
{
/*
Failure Refused: Out of Resources A700 (0000,0902)
Identifier does not match SOP Class A900 (0000,0901)
(0000,0902)
Unable to process Cxxx (0000,0901)
(0000,0902)
Cancel Matching terminated due to Cancel
request
FE00 None
Success Matching is complete - No final Identifier
is supplied.
0000 None
Pending Matches are continuing - Current Match
is supplied and any Optional Keys were
supported in the same manner as
Required Keys.
```

```
FF00 Identifier
Matches are continuing - Warning that
one or more Optional Keys were not
supported for existence and/or matching
for this Identifier.
FF01 Identifier
*/
};


} // end namespace network

} // end namespace gdcm

#endif //GDCMDIMSE_H
```

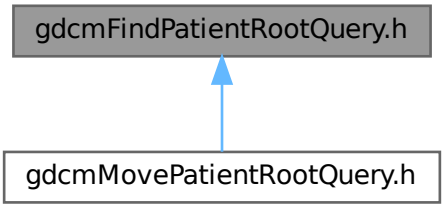
11.499 gdcmFindPatientRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmFindPatientRootQuery.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FindPatientRootQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

11.500 gdcmFindPatientRootQuery.h

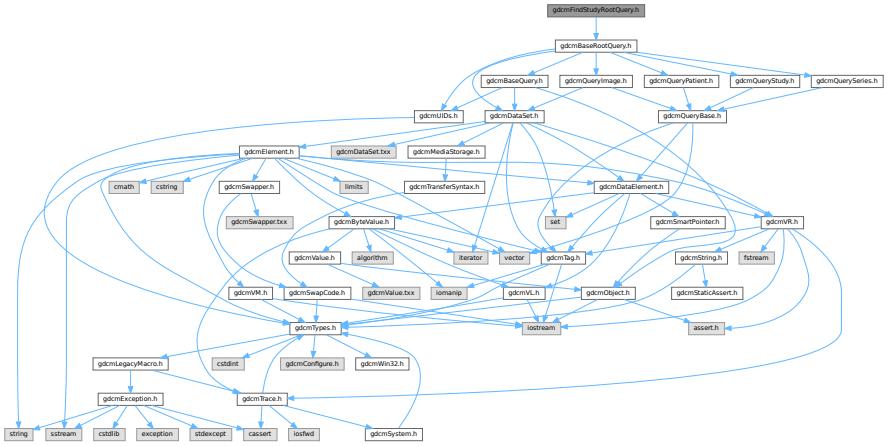
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMFINDPATIENTROOTQUERY_H
#define GDCMFINDPATIENTROOTQUERY_H

#include "gdcmBaseRootQuery.h"

namespace gdcm
{
class GDCM_EXPORT FindPatientRootQuery : public BaseRootQuery
{
  friend class QueryFactory;
public:
  FindPatientRootQuery();

  void InitializeDataSet(const EQueryLevel& inQueryLevel) override;

  std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
  bool ValidateQuery(bool inStrict = true) const override;

  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMFINDPATIENTROOTQUERY_H
```

11.501 gdcmFindStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmFindStudyRootQuery.h:



Classes

- class gdcm::FindStudyRootQuery

  FindStudyRootQuery.

Namespaces

- namespace gdcm

11.502 gdcmFindStudyRootQuery.h

Go to the documentation of this file.

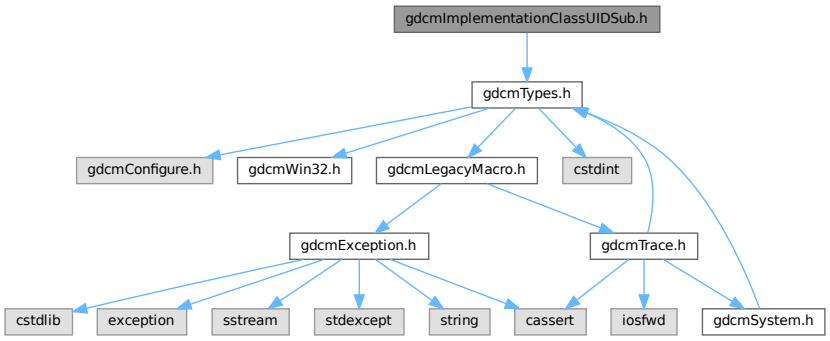
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFINDSTUDYROOTQUERY_H
00015 #define GDCMFINDSTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT FindStudyRootQuery : public BaseRootQuery
```

```
{
  friend class QueryFactory;
public:
  FindStudyRootQuery();

  void InitializeDataSet(const EQueryLevel& inQueryLevel) override;

  std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;

  bool ValidateQuery(bool inStrict = true) const override;

  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMFINDSTUDYROOTQUERY_H
```

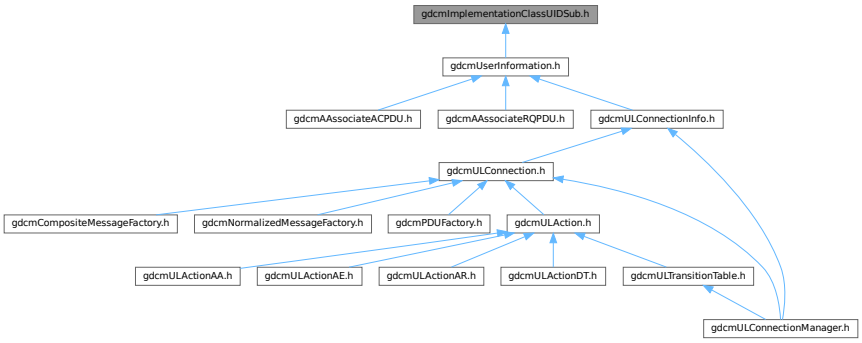
11.503 gdcmImplementationClassUIDSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationClassUIDSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationClassUIDSub

  ImplementationClassUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.504 gdcmImplementationClassUIDSub.h

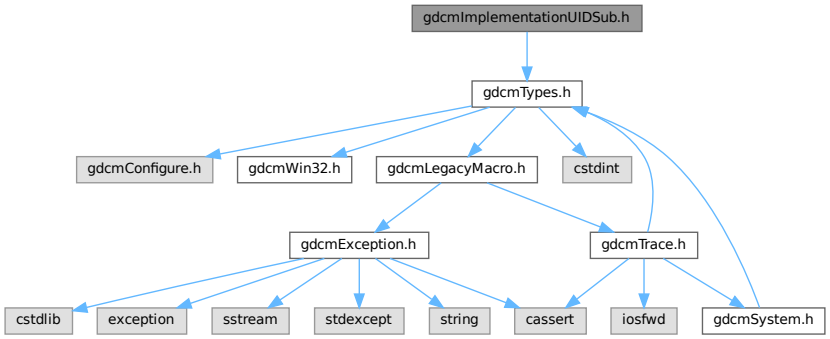
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONCLASSUIDSUB_H
00015 #define GDCMIMPLEMENTATIONCLASSUIDSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00031 class ImplementationClassUIDSub
00032 {
00033 public:
00034   ImplementationClassUIDSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   std::string ImplementationClassUID;
00047 };
00048
00049 } // end namespace network
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMMAXIMUMLENGTHSUB_H
```

11.505 gdcmImplementationUIDSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationUIDSub.h:



Classes

- class gdcm::network::ImplementationUIDSub

  ImplementationUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.506 gdcmImplementationUIDSub.h

Go to the documentation of this file.

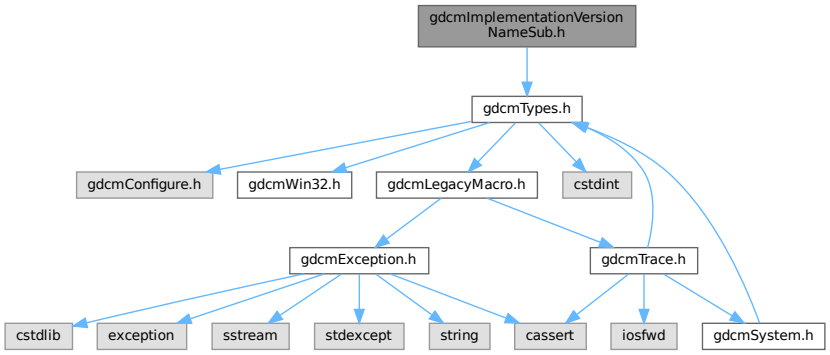
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMPLEMENTATIONUIDSUB_H
#define GDCMIMPLEMENTATIONUIDSUB_H

#include "gdcmTypes.h"

namespace gdcm
{

```

```
00022 namespace network
00023 {
00024
00030 class GDCM_EXPORT ImplementationUIDSub
00031 {
00032 public:
00033   ImplementationUIDSub();
00034   const std::ostream &Write(std::ostream &os) const;
00035 private:
00036   static const uint8_t ItemType;
00037   static const uint8_t Reserved2;
00038   uint16_t ItemLength;
00039   std::string ImplementationClassUID;
00040 };
00041
00042 } // end namespace network
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMMAXIMUMLENGTHSUB_H
```

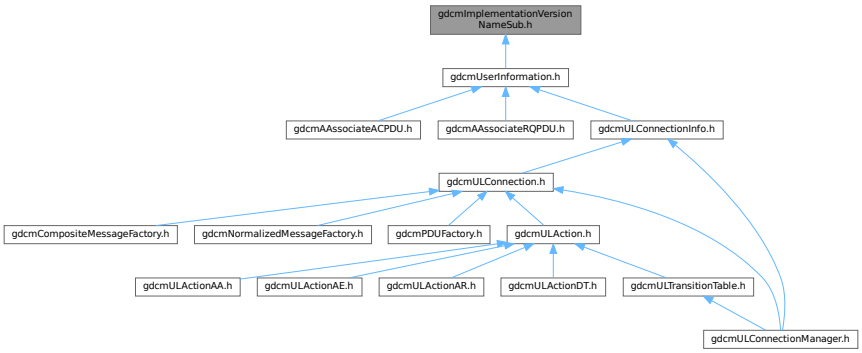
11.507 gdcmImplementationVersionNameSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationVersionNameSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationVersionNameSub

  ImplementationVersionNameSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.508 gdcmImplementationVersionNameSub.h

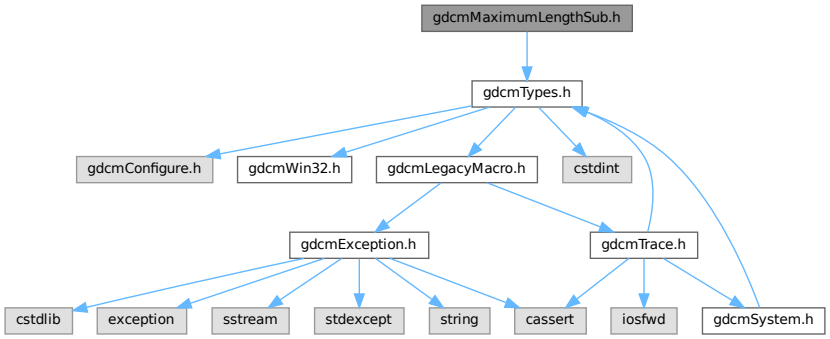
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMIMPLEMENTATIONVERSIONNAMESUB_H
#define GDCMIMPLEMENTATIONVERSIONNAMESUB_H

#include "gdcmTypes.h"

namespace gdcm
{

namespace network
{

class ImplementationVersionNameSub
{
public:
  ImplementationVersionNameSub();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;
  void Print(std::ostream &os) const;

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength;
  std::string ImplementationVersionName;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMMAXIMUMLENGTHSUB_H
```

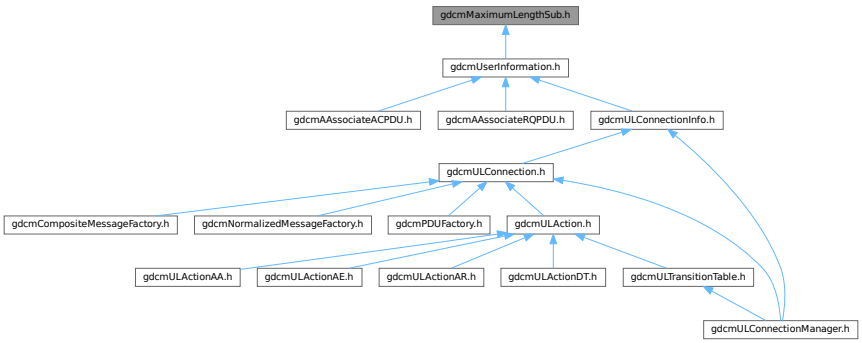
11.509 gdcmMaximumLengthSub.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmMaximumLengthSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::MaximumLengthSub

  MaximumLengthSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.510 gdcmMaximumLengthSub.h

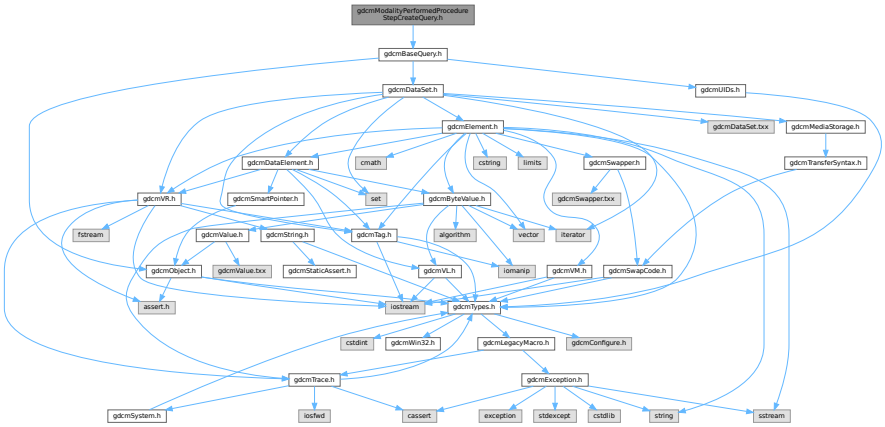
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMAXIMUMLENGTHSUB_H
#define GDCMMAXIMUMLENGTHSUB_H

#include "gdcmTypes.h"

namespace gdcm
{

namespace network
{

class MaximumLengthSub
{
public:
  MaximumLengthSub();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;

  uint32_t GetMaximumLength() const { return MaximumLength; }
  void SetMaximumLength(uint32_t maximumlength);

  void Print(std::ostream &os) const;

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength;
  uint32_t MaximumLength;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMMAXIMUMLENGTHSUB_H
```

11.511 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference

`#include "gdcmBaseQuery.h"`

Include dependency graph for gdcmModalityPerformedProcedureStepCreateQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepCreateQuery

  ModalityPerformedProcedureStepCreateQuery.

Namespaces

- namespace gdcm

11.512 gdcmModalityPerformedProcedureStepCreateQuery.h

Go to the documentation of this file.

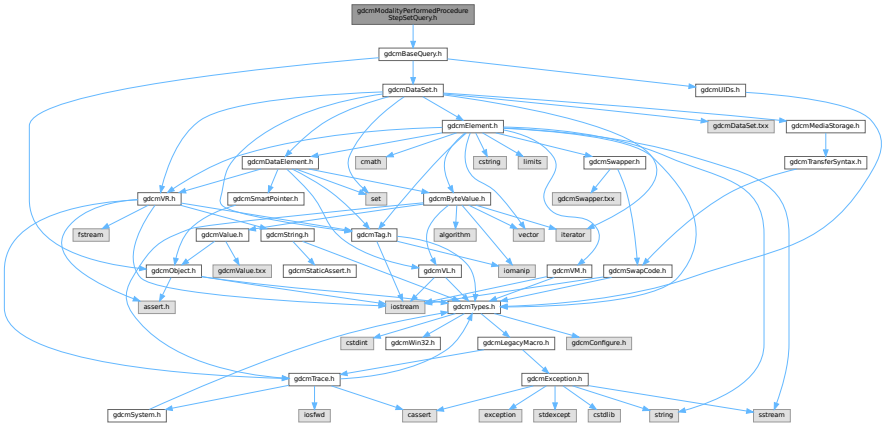
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
#define GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H

#include "gdcmBaseQuery.h"

namespace gdcm
```

```
{
class GDCM_EXPORT ModalityPerformedProcedureStepCreateQuery : public BaseQuery{
  friend class QueryFactory;
public:
  ModalityPerformedProcedureStepCreateQuery( const std::string & iSopInstanceUID );

  gdcm::DataSet GetRequiredDataSet() const;
  bool ValidateQuery(bool inStrict = true) const override;
  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
```

11.513 gdcmModalityPerformedProcedureStepSetQuery.h File Reference

`#include "gdcmBaseQuery.h"`

Include dependency graph for gdcmModalityPerformedProcedureStepSetQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepSetQuery

  ModalityPerformedProcedureStepSetQuery.

Namespaces

- namespace gdcm

11.514 gdcmModalityPerformedProcedureStepSetQuery.h

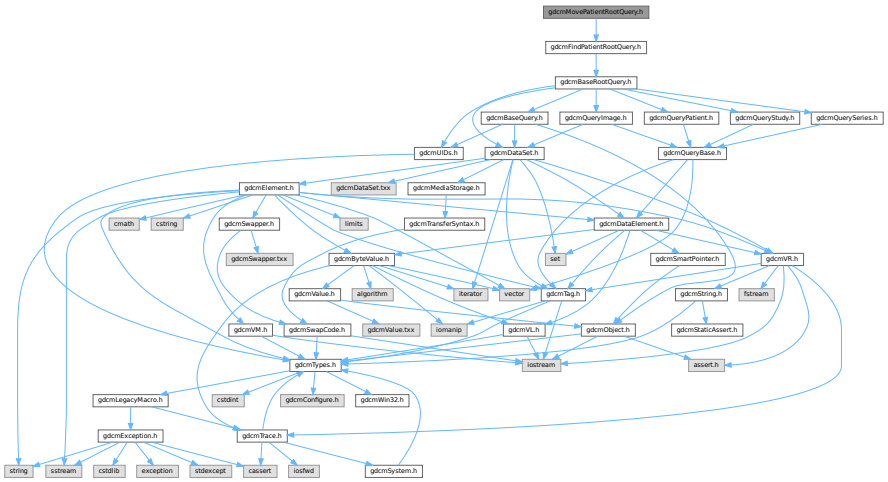
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
#define GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H

#include "gdcmBaseQuery.h"

namespace gdcm
{
class GDCM_EXPORT ModalityPerformedProcedureStepSetQuery : public BaseQuery{
  friend class QueryFactory;
public:
  ModalityPerformedProcedureStepSetQuery( const std::string & iSopInstanceUID );

  gdcm::DataSet GetRequiredDataSet() const;
  bool ValidateQuery(bool inStrict = true) const override;
  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
```

11.515 gdcmMovePatientRootQuery.h File Reference

`#include "gdcmFindPatientRootQuery.h"`

Include dependency graph for gdcmMovePatientRootQuery.h:



Classes

- class gdcm::MovePatientRootQuery

  MovePatientRootQuery.

Namespaces

- namespace gdcm

11.516 gdcmMovePatientRootQuery.h

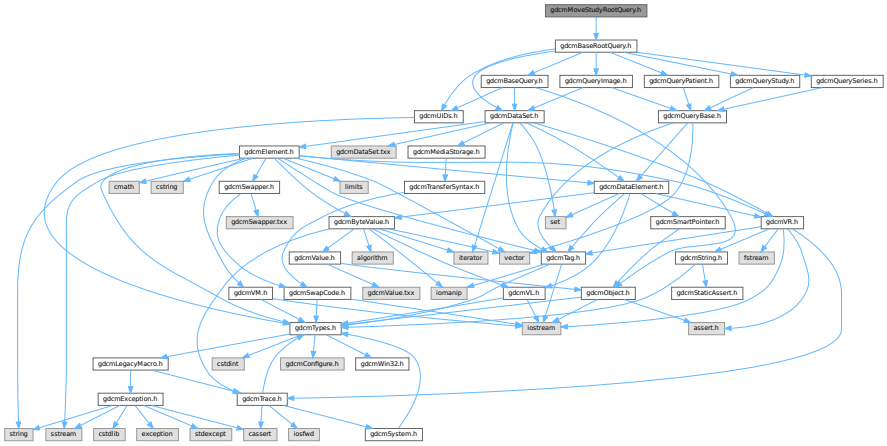
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMMOVEPATIENTROOTQUERY_H
#define GDCMMOVEPATIENTROOTQUERY_H

#include "gdcmFindPatientRootQuery.h"

namespace gdcm
{
class GDCM_EXPORT MovePatientRootQuery : public BaseRootQuery
{
  friend class QueryFactory;
public:
  MovePatientRootQuery();

  void InitializeDataSet(const EQueryLevel& inQueryLevel) override;

  std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;

  bool ValidateQuery(bool inStrict = true) const override;

  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMMOVEPATIENTROOTQUERY_H
```

11.517 gdcmMoveStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmMoveStudyRootQuery.h:



Classes

- class gdcm::MoveStudyRootQuery

  MoveStudyRootQuery.

Namespaces

- namespace gdcm

11.518 gdcmMoveStudyRootQuery.h

Go to the documentation of this file.

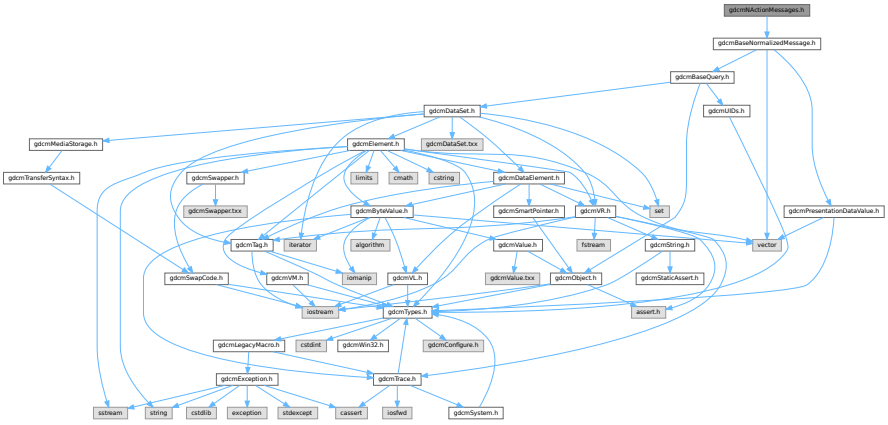
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMOVESTUDYROOTQUERY_H
00015 #define GDCMMOVESTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT MoveStudyRootQuery : public BaseRootQuery
```

```
{
  friend class QueryFactory;
public:
  MoveStudyRootQuery();

  void InitializeDataSet(const EQueryLevel& inQueryLevel) override;

  std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;

  bool ValidateQuery(bool inStrict = true) const override;

  UIDs::TSName GetAbstractSyntaxUID() const override;
};

} // end namespace gdcm

#endif // GDCMMOVESTUDYROOTQUERY_H
```

11.519 gdcmNActionMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNActionMessages.h:



Classes

- class gdcm::network::NActionRQ

  NActionRQ.
- class gdcm::network::NActionRSP

  NActionRSP this file defines the messages for the NAction action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.520 gdcmNActionMessages.h

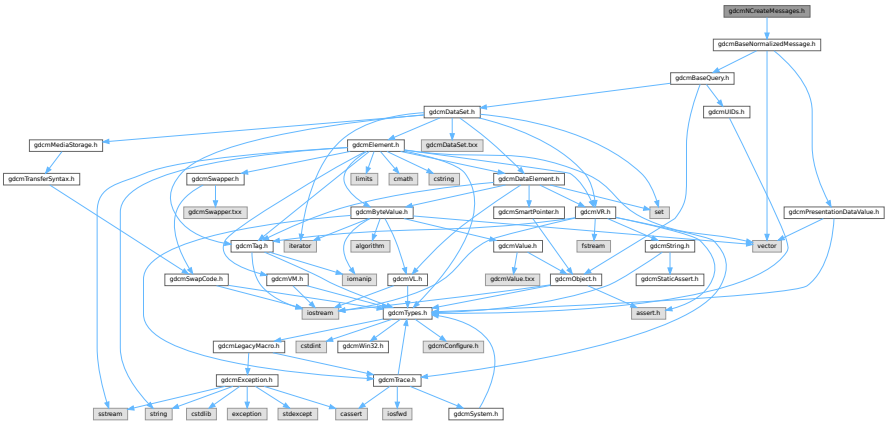
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCNACTIONMESSAGES_H
#define GDCMCNACTIONMESSAGES_H

#include "gdcmBaseNormalizedMessage.h"

namespace gdcm{
  namespace network{

class ULConnection;

class NActionRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NActionRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNACTIONMESSAGES_H
```

11.521 gdcmNCreateMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNCreateMessages.h:



Classes

- class gdcm::network::NCreateRQ

  NCreateRQ.
- class gdcm::network::NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.522 gdcmNCreateMessages.h

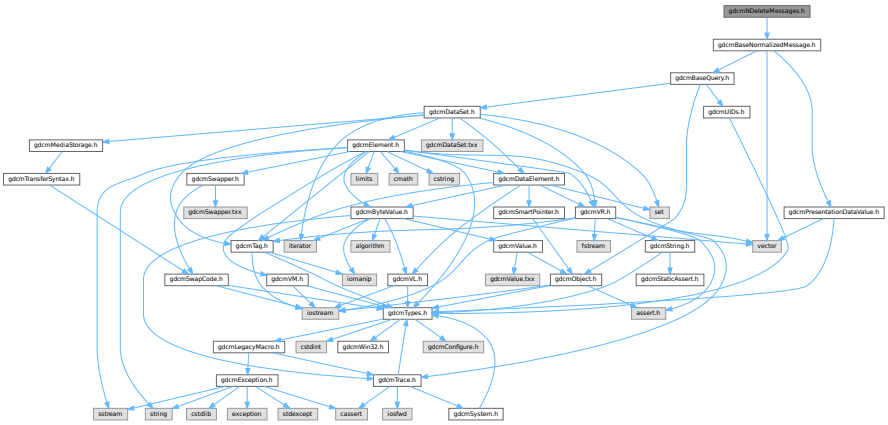
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCNCREATEMESSAGES_H
#define GDCMCNCREATEMESSAGES_H

#include "gdcmBaseNormalizedMessage.h"

namespace gdcm{
  namespace network{

class ULConnection;

class NCreateRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NCreateRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNCREATEMESSAGES_H
```

11.523 gdcmNDeleteMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNDeleteMessages.h:



Classes

- class gdcm::network::NDeleteRQ

  NDeleteRQ.
- class gdcm::network::NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.524 gdcmNDeleteMessages.h

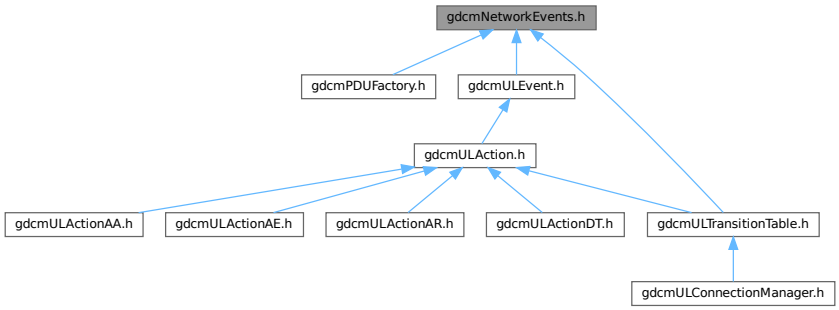
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNDELETEMESSAGES_H
00015 #define GDCMCNDELETEMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
```

```
namespace gdcm{
  namespace network{

class ULConnection;

class NDeleteRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NDeleteRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNDELETEMESSAGES_H
```

11.525 gdcmNetworkEvents.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EEventID {
  gdcm::network::eAASSOCIATERequestLocalUser = 0 ,
  gdcm::network::eTransportConnConfirmLocal ,
  gdcm::network::eASSOCIATE_ACPDUreceived ,
  gdcm::network::eASSOCIATE_RJPDUreceived ,
  gdcm::network::eTransportConnIndicLocal ,
  gdcm::network::eAASSOCIATE_RQPDUreceived ,
  gdcm::network::eAASSOCIATEresponseAccept ,
  gdcm::network::eAASSOCIATEresponseReject ,

gdcm::network::ePDATArequest ,
gdcm::network::ePDATATFPDU ,
gdcm::network::eARELEASERequest ,
gdcm::network::eARELEASE_RQPDUReceivedOpen ,
gdcm::network::eARELEASE_RPPDUReceived ,
gdcm::network::eARELEASEResponse ,
gdcm::network::eAABORTRequest ,
gdcm::network::eAABORTPDUReceivedOpen ,
gdcm::network::eTransportConnectionClosed ,
gdcm::network::eARTIMTimerExpired ,
gdcm::network::eUnrecognizedPDUReceived ,
gdcm::network::eEventDoesNotExist }

Variables

- const int gdcm::network::cMaxEventID = eEventDoesNotExist

11.526 gdcmNetworkEvents.h

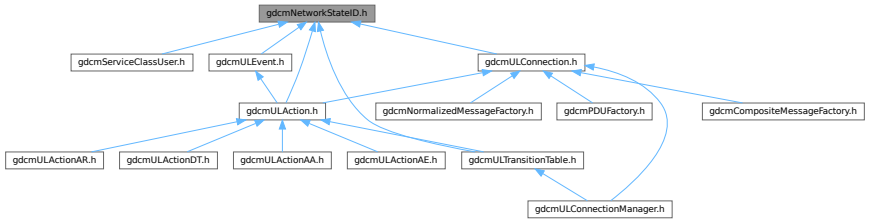
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
/*
The NetworkEvents enumeration defines the inputs into the state of the network connection.

These inputs can come either from user input or input from other things on the socket,
ie, responses from the peer or ARTIM timeouts.

Note that this enumeration is not 'power of two', like the states, because you can't have
multiple simultaneous events.  Multiple state outputs in transition tables, however, is possible.

*/
#ifndef GDCMNETWORKEVENTS_H
#define GDCMNETWORKEVENTS_H

namespace gdcm {
  namespace network{
    typedef enum {
      eAASSOCIATERequestLocalUser = 0,
      eTransportConnConfirmLocal,
      eASSOCIATE_ACPDUreceived,
      eASSOCIATE_RJPDUreceived,
      eTransportConnIndicLocal,
      eAASSOCIATE_RQPDUreceived,
      eAASSOCIATEresponseAccept,
      eAASSOCIATEresponseReject,
      ePDATArequest,
      ePDATATFPDU,
      eARELEASERequest,
      eARELEASE_RQPDUReceivedOpen,
      eARELEASE_RPPDUReceived,
```

```
      eARELEASEResponse,
      eAABORTRequest,
      eAABORTPDUReceivedOpen,
      eTransportConnectionClosed,
      eARTIMTimerExpired,
      eUnrecognizedPDUReceived,
      eEventDoesNotExist
    } EEventID;

    const int cMaxEventID = eEventDoesNotExist;
  }
}

#endif //NETWORKEVENTS_H
```

11.527 gdcmNetworkStateID.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EStateID {
  gdcm::network::eStaDoesNotExist = 0 ,
  gdcm::network::eSta1Idle = 1 ,
  gdcm::network::eSta2Open = 2 ,
  gdcm::network::eSta3WaitLocalAssoc = 4 ,
  gdcm::network::eSta4LocalAssocDone = 8 ,
  gdcm::network::eSta5WaitRemoteAssoc = 16 ,
  gdcm::network::eSta6TransferReady = 32 ,
  gdcm::network::eSta7WaitRelease = 64 ,
  gdcm::network::eSta8WaitLocalRelease = 128 ,
  gdcm::network::eSta9ReleaseCollisionRqLocal = 256 ,
  gdcm::network::eSta10ReleaseCollisionAc = 512 ,
  gdcm::network::eSta11ReleaseCollisionRq = 1024 ,
  gdcm::network::eSta12ReleaseCollisionAcLocal = 2048 ,
  gdcm::network::eSta13AwaitingClose = 4096 }

Functions

- int gdcm::network::GetStateIndex (EStateID inState)

Variables

- const int gdcm::network::cMaxStateID = 13

11.528 gdcmNetworkStateID.h

Go to the documentation of this file.

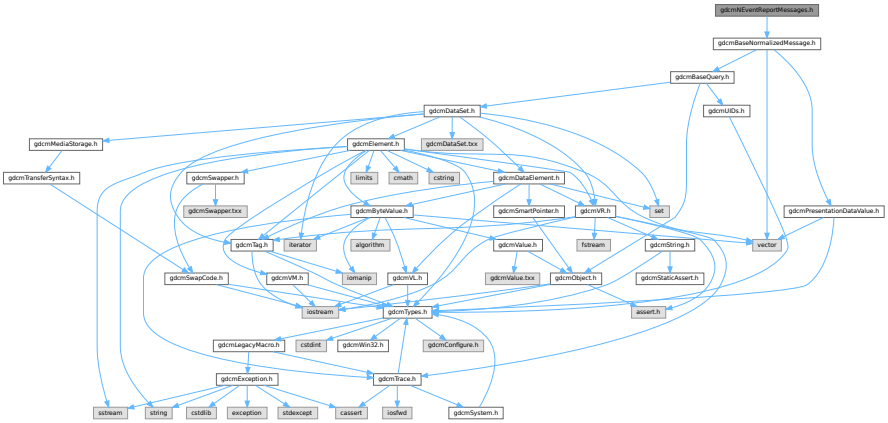
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMNETWORKSTATEID_H
#define GDCMNETWORKSTATEID_H

namespace gdcm {
  namespace network {

    enum EStateID {
      eStaDoesNotExist = 0,
      eSta1Idle = 1,
      eSta2Open = 2,
      eSta3WaitLocalAssoc = 4,
      eSta4LocalAssocDone = 8,
      eSta5WaitRemoteAssoc = 16,
      eSta6TransferReady = 32,
      eSta7WaitRelease = 64,
      eSta8WaitLocalRelease = 128,
      eSta9ReleaseCollisionRqLocal = 256,
      eSta10ReleaseCollisionAc = 512,
      eSta11ReleaseCollisionRq = 1024,
      eSta12ReleaseCollisionAcLocal = 2048,
      eSta13AwaitingClose = 4096
    };

    const int cMaxStateID = 13;

    //the transition table is built on state indices
    //this function will produce the index from the power-of-two EStateID
    inline int GetStateIndex(EStateID inState){
      switch (inState){
        case eStaDoesNotExist:
        default:
          return -1;
        case eSta1Idle:
          return 0;
        case eSta2Open:
          return 1;
        case eSta3WaitLocalAssoc:
          return 2;
        case eSta4LocalAssocDone:
          return 3;
        case eSta5WaitRemoteAssoc:
          return 4;
```

```
        case eSta6TransferReady:
          return 5;
        case eSta7WaitRelease:
          return 6;
        case eSta8WaitLocalRelease:
          return 7;
        case eSta9ReleaseCollisionRqLocal:
          return 8;
        case eSta10ReleaseCollisionAc:
          return 9;
        case eSta11ReleaseCollisionRq:
          return 10;
        case eSta12ReleaseCollisionAcLocal:
          return 11;
        case eSta13AwaitingClose:
          return 12;
      }
    }
  }
}

#endif //GDCMNETWORKSTATEID_H
```

11.529 gdcmNEventReportMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNEventReportMessages.h:



Classes

- class gdcm::network::NEventReportRQ

  NEventReportRQ.
- class gdcm::network::NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.530 gdcmNEventReportMessages.h

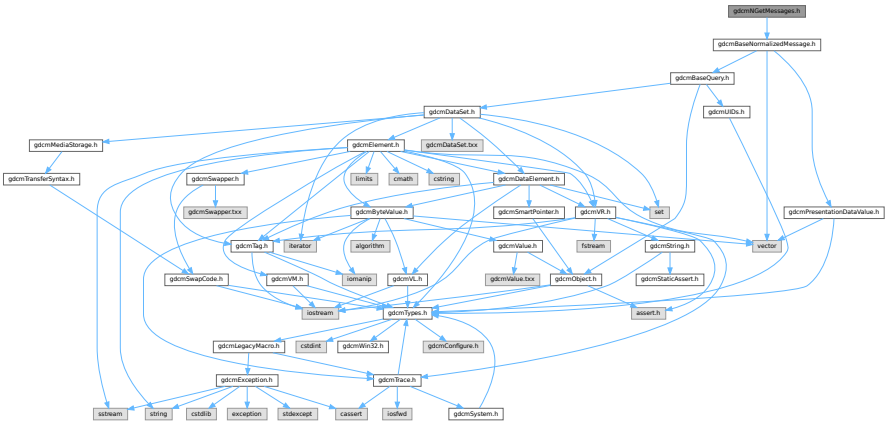
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCNEVENTREPORTMESSAGES_H
#define GDCMCNEVENTREPORTMESSAGES_H

#include "gdcmBaseNormalizedMessage.h"

namespace gdcm{
  namespace network{

class ULConnection;

class NEventReportRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NEventReportRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNEVENTREPORTMESSAGES_H
```

11.531 gdcmNGetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNGetMessages.h:



Classes

- class gdcm::network::NGetRQ

  NGetRQ.
- class gdcm::network::NGetRSP

  NGetRSP this file defines the messages for the nget action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.532 gdcmNGetMessages.h

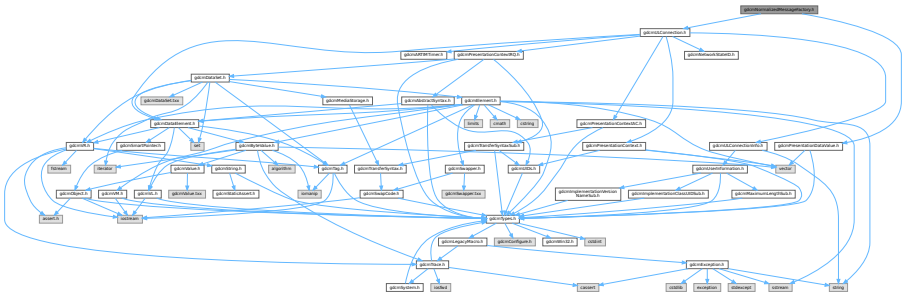
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMCNGETMESSAGES_H
#define GDCMCNGETMESSAGES_H

#include "gdcmBaseNormalizedMessage.h"

namespace gdcm{
  namespace network{

class ULConnection;

class NGetRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NGetRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNGETMESSAGES_H
```

11.533 gdcmNormalizedMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmNormalizedMessageFactory.h:



Classes

- class gdcm::network::NormalizedMessageFactory

Namespaces

- namespace gdcm
- namespace gdcm::network

11.534 gdcmNormalizedMessageFactory.h

Go to the documentation of this file.

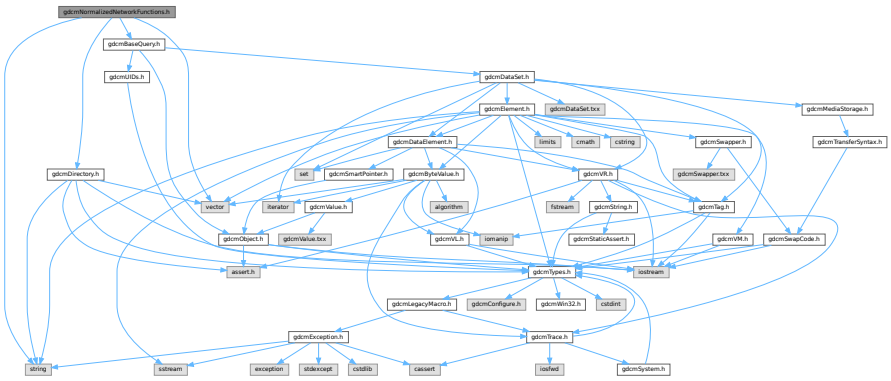
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMNORMALIZEDMESSAGEFACTORY_H
#define GDCMNORMALIZEDMESSAGEFACTORY_H

#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"

namespace gdcm {
  class BaseQuery;
  class File;
  namespace network {
    class BasePDU;

class NormalizedMessageFactory
{
    public:
      static  std::vector<PresentationDataValue> ConstructNEventReport (const ULConnection& inConnection, const BaseQuery* inQuery);
      static  std::vector<PresentationDataValue> ConstructNGet     (const ULConnection& inConnection, const BaseQuery* inQuery);
      static  std::vector<PresentationDataValue> ConstructNSet     (const ULConnection& inConnection, const BaseQuery* inQuery);
```

```
      static  std::vector<PresentationDataValue> ConstructNAction   (const ULConnection& inConnection, const BaseQuery* inQuery);
      static  std::vector<PresentationDataValue> ConstructNCreate   (const ULConnection& inConnection, const BaseQuery* inQuery);
      static  std::vector<PresentationDataValue> ConstructNDelete   (const ULConnection& inConnection, const BaseQuery* inQuery);


    };
  }
}

#endif // GDCMNORMALIZEDMESSAGEFACTORY_H
```

11.535 gdcmNormalizedNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseQuery.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmNormalizedNetworkFunctions.h:



Classes

- class gdcm::NormalizedNetworkFunctions

  Normalized Network Functions.

Namespaces

- namespace gdcm

11.536 gdcmNormalizedNetworkFunctions.h

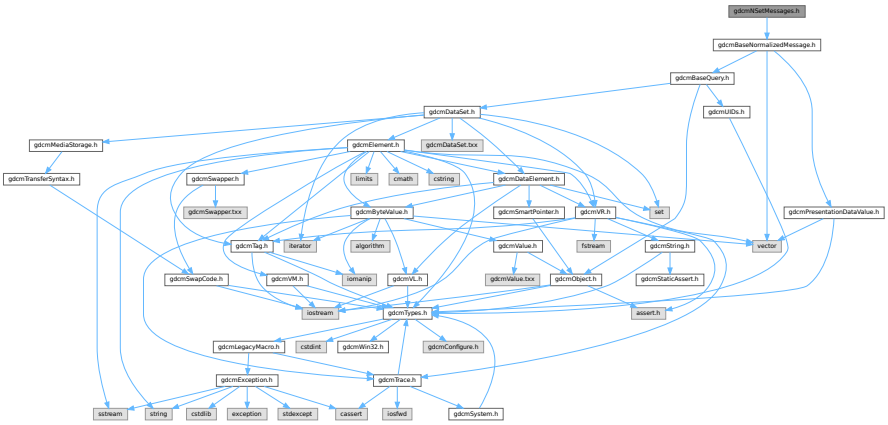
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2014 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMNORMALIZEDNETWORKFUNCTIONS_H
#define GDCMNORMALIZEDNETWORKFUNCTIONS_H

#include "gdcmDirectory.h"
#include "gdcmBaseQuery.h" // EQueryLevel / EQueryType

#include <vector>
#include <string>

namespace gdcm
{
class GDCM_EXPORT NormalizedNetworkFunctions
{
public:
  static BaseQuery* ConstructQuery(  const std::string & sopInstanceUID,
                     const DataSet& queryds, ENQueryType queryType = eCreateMMPS );
  static bool NEventReport( const char *remote, uint16_t portno,
                const BaseQuery* query, std::vector<DataSet> &retDataSets,
                const char *aetitle, const char *call );
  static bool NGet( const char *remote, uint16_t portno,
                      const BaseQuery* query, std::vector<DataSet> &retDataSets,
                      const char *aetitle, const char *call );
  static bool NSet( const char *remote, uint16_t portno,
                      const BaseQuery* query, std::vector<DataSet> &retDataSets,
                      const char *aetitle, const char *call );
  static bool NAction( const char *remote, uint16_t portno,
                      const BaseQuery* query, std::vector<DataSet> &retDataSets,
                      const char *aetitle, const char *call );
  static bool NCreate( const char *remote, uint16_t portno,
                      BaseQuery* query, std::vector<DataSet> &retDataSets,
                      const char *aetitle, const char *call );
  static bool NDelete( const char *remote, uint16_t portno,
                      const BaseQuery* query, std::vector<DataSet> &retDataSets,
                      const char *aetitle, const char *call );
};

} // end namespace gdcm

#endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```

11.537 gdcmNSetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNSetMessages.h:



Classes

- class gdcm::network::NSetRQ

  NSetRQ.
- class gdcm::network::NSetRSP

  NSetRSP this file defines the messages for the nset action.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.538 gdcmNSetMessages.h

Go to the documentation of this file.

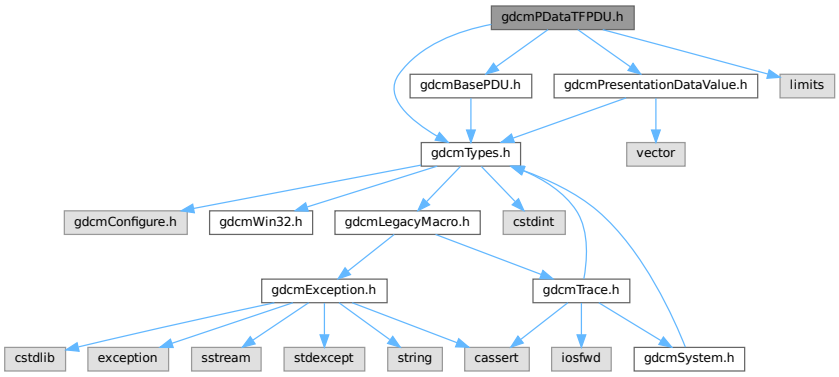
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNSETMESSAGES_H
00015 #define GDCMCNSETMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
```

```
namespace gdcm{
  namespace network{

class ULConnection;

class NSetRQ : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
        const BaseQuery* inQuery) override;
    };

    class NSetRSP : public BaseNormalizedMessage {
    public:
      std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
    };
  }
}
#endif // GDCMCNSETMESSAGES_H
```

11.539 gdcmPDataTFPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmBasePDU.h"
#include <limits>
```

Include dependency graph for gdcmPDataTFPDU.h:



Classes

- class gdcm::network::PDataTFPDU

  PDataTFPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.540 gdcmPDataTFPDU.h

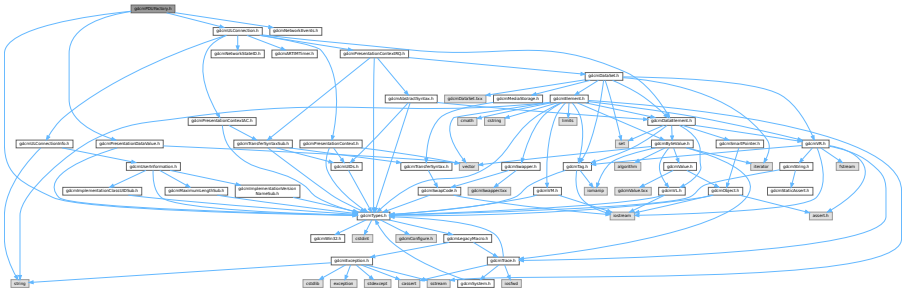
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPDATATFPDU_H
#define GDCMPDATATFPDU_H

#include "gdcmTypes.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmBasePDU.h"
#include <limits>

namespace gdcm
{

namespace network
{

class GDCM_EXPORT PDataTFPDU : public BasePDU
{
public:
  PDataTFPDU();
  std::istream &Read(std::istream &is) override;
  const std::ostream &Write(std::ostream &os) const override;

  size_t Size() const override;

  void AddPresentationDataValue( PresentationDataValue const &pdv ) {
    V.push_back( pdv );
    assert(Size() < std::numeric_limits<uint32_t>::max());
    ItemLength = (uint32_t)Size() - 6;
    }

  typedef std::vector<PresentationDataValue>::size_type SizeType;
  PresentationDataValue const &GetPresentationDataValue(SizeType i) const {
    assert( !V.empty() && i < V.size() );
    return V[i];
  }
  SizeType GetNumberOfPresentationDataValues() const {
    return V.size();
    }

  void Print(std::ostream &os) const override;
  bool IsLastFragment() const override;

protected:
  std::istream &ReadInto(std::istream &is, std::ostream &os);
private:
  static const uint8_t ItemType; // PDUType ?
  static const uint8_t Reserved2;
  uint32_t ItemLength; // PDU Length ?
  std::vector<PresentationDataValue> V;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMPDATATFPDU_H
```

11.541 gdcmPDUFactory.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULConnection.h"
#include "gdcmPresentationDataValue.h"
```

Include dependency graph for gdcmPDUFactory.h:



Classes

- class gdcm::network::PDUFactory

  PDUFactory basically, given an initial byte, construct the.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.542 gdcmPDUFactory.h

Go to the documentation of this file.

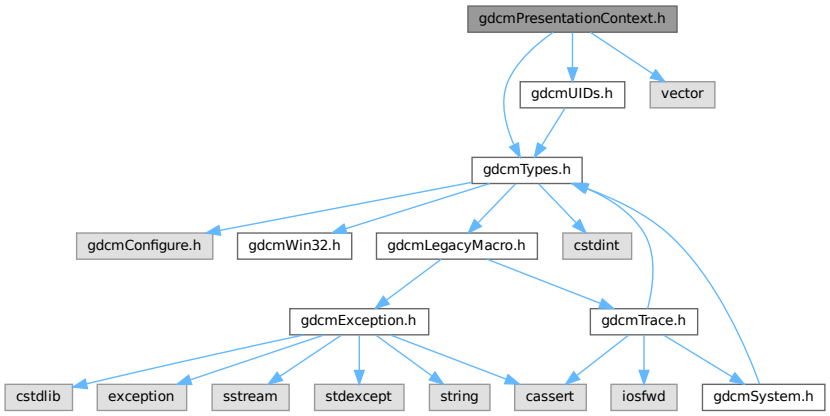
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMPDUFACTORY_H
#define GDCMPDUFACTORY_H

#include "gdcmTypes.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULConnection.h"
```

```
#include "gdcmPresentationDataValue.h"

namespace gdcm{
  class BaseRootQuery;
  class BaseQuery;
  class File;
  namespace network{
    class BasePDU;

  class PDUFactory {
      public:
      static BasePDU* ConstructPDU(uint8_t itemtype);//eventually needs to be smartpointer'd
      static EEventID DetermineEventByPDU(const BasePDU* inPDU);
      static BasePDU* ConstructReleasePDU();
      static BasePDU* ConstructAbortPDU();

      //these are the composite PDU construction methods for the PDataPDUs.
      //basically, builds a pdatapdu, and then puts the appropriate information in
      //for the appropriate composite service (c-echo, c-find, c-store, c-get, c-move)
      //the connection is necessary to construct the stream of PDVs that will
      //be then placed into the vector of PDUs
      static std::vector<BasePDU*> CreateCEchoPDU(const ULConnection& inConnection);
      static std::vector<BasePDU*> CreateCStoreRQPDU(const ULConnection& inConnection, const File &file, bool writeDataSet = true );
      static std::vector<BasePDU*> CreateCStoreRSPPDU(const DataSet *inDataSet, const BasePDU* inPC);
      static std::vector<BasePDU*> CreateCFindPDU(const ULConnection& inConnection, const BaseRootQuery* inRootQuery);
      static std::vector<BasePDU*> CreateCMovePDU(const ULConnection& inConnection, const BaseRootQuery* inRootQuery);

    static std::vector<BasePDU*> CreateNEventReportPDU (const ULConnection& inConnection, const BaseQuery *inQuery);
    static std::vector<BasePDU*> CreateNGetPDU     (const ULConnection& inConnection, const BaseQuery *inQuery);
    static std::vector<BasePDU*> CreateNSetPDU     (const ULConnection& inConnection, const BaseQuery *inQuery);
    static std::vector<BasePDU*> CreateNActionPDU     (const ULConnection& inConnection, const BaseQuery *inQuery);
    static std::vector<BasePDU*> CreateNCreatePDU     (const ULConnection& inConnection, const BaseQuery *inQuery);
    static std::vector<BasePDU*> CreateNDeletePDU     (const ULConnection& inConnection, const BaseQuery *inQuery);


      //given data pdus, produce the presentation data values stored within.
      //all operations have these as the payload of the data sending operation
      //however, echo does not have a dataset in the pdv.
      static std::vector<PresentationDataValue> GetPDVs(const std::vector<BasePDU*> & inDataPDUs);
    };
  }
}
#endif //GDCMPDUFACTORY_H
```

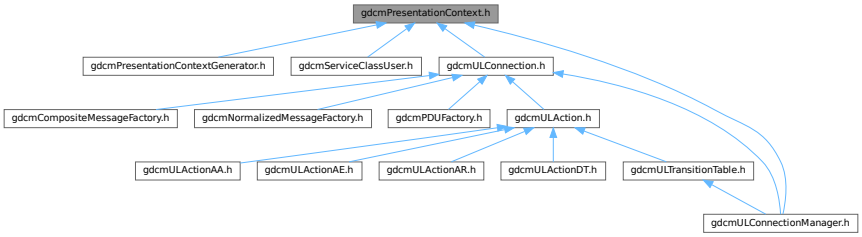
11.543 gdcmPresentationContext.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include <vector>
```

Include dependency graph for gdcmPresentationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PresentationContext

  PresentationContext.

Namespaces

- namespace gdcm

11.544 gdcmPresentationContext.h

Go to the documentation of this file.

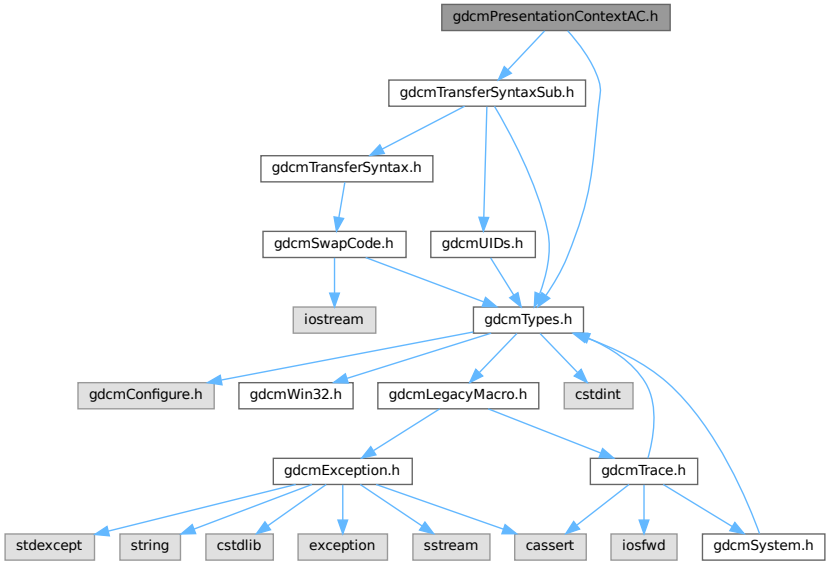
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRESENTATIONCONTEXT_H
#define GDCMPRESENTATIONCONTEXT_H

#include "gdcmTypes.h"
#include "gdcmUIDs.h"

#include <vector>

namespace gdcm
{

class GDCM_EXPORT PresentationContext
{
public:
  PresentationContext();

  PresentationContext( UIDs::TSName asname,
    UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM );

  void SetAbstractSyntax( const char *absyn ) { AbstractSyntax = absyn; }
  const char *GetAbstractSyntax() const { return AbstractSyntax.c_str(); }

  void AddTransferSyntax( const char *tsstr );
  typedef std::vector<std::string> TransferSyntaxArrayType;
  typedef TransferSyntaxArrayType::size_type SizeType;
  const char *GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i].c_str(); }
  SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }

  void SetPresentationContextID( uint8_t id );
  uint8_t GetPresentationContextID() const;

  void Print(std::ostream &os) const;

  bool operator==(const PresentationContext & pc) const
    {
    assert( TransferSyntaxes.size() == 1 ); // TODO
    assert( pc.TransferSyntaxes.size() == 1 );
    return AbstractSyntax == pc.AbstractSyntax && TransferSyntaxes == pc.TransferSyntaxes;
    }

protected :
  std::string AbstractSyntax;
  std::vector<std::string> TransferSyntaxes;
  uint8_t /*PresentationContext*/ID;
};

} // end namespace gdcm

#endif //GDCMPRESENTATIONCONTEXT_H
```

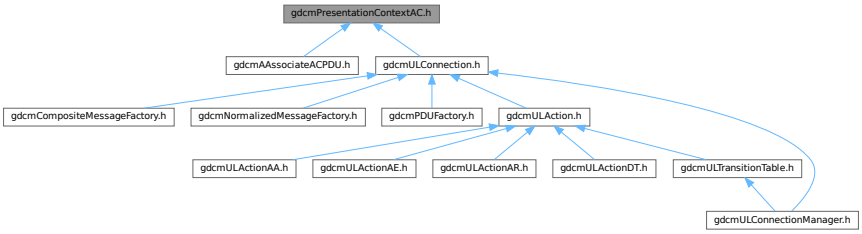
11.545 gdcmPresentationContextAC.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntaxSub.h"
```

Include dependency graph for gdcmPresentationContextAC.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextAC

  PresentationContextAC.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.546 gdcmPresentationContextAC.h

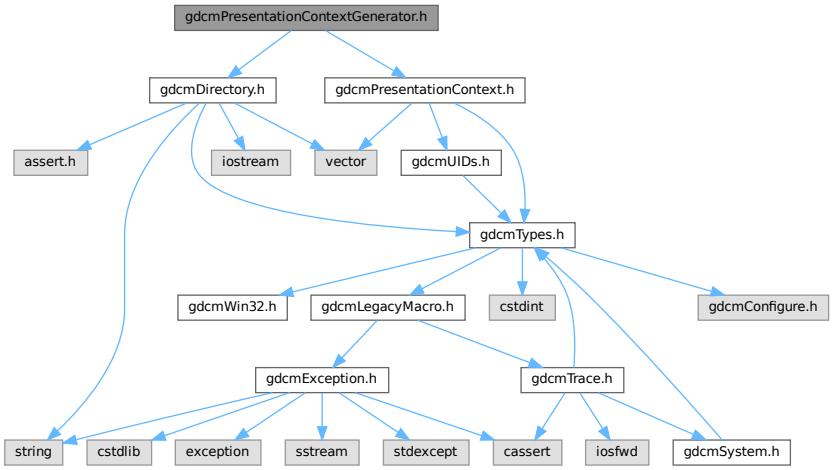
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRESENTATIONCONTEXTAC_H
#define GDCMPRESENTATIONCONTEXTAC_H

#include "gdcmTypes.h"
#include "gdcmTransferSyntaxSub.h"

namespace gdcm
{

namespace network
{

class PresentationContextAC
{
public:
  PresentationContextAC();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;

  void SetTransferSyntax( TransferSyntaxSub const &ts );
  void SetPresentationContextID( uint8_t id );

  void Print(std::ostream &os) const;

  uint8_t GetPresentationContextID() const
    {
    return ID;
    }
  TransferSyntaxSub const & GetTransferSyntax() const { return SubItems; }

  void SetReason( uint8_t r ) { Result = r; }
  uint8_t GetReason() const { return Result; }

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength; // len of last transfer syntax
  uint8_t /*PresentationContext*/ID;
  static const uint8_t Reserved6;
  uint8_t /*Reason*/Result;
  static const uint8_t Reserved8;
  TransferSyntaxSub SubItems;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMPRESENTATIONCONTEXTAC_H
```

11.547 gdcmPresentationContextGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmPresentationContextGenerator.h:



Classes

- class gdcm::PresentationContextGenerator

  PresentationContextGenerator.

Namespaces

- namespace gdcm

11.548 gdcmPresentationContextGenerator.h

Go to the documentation of this file.

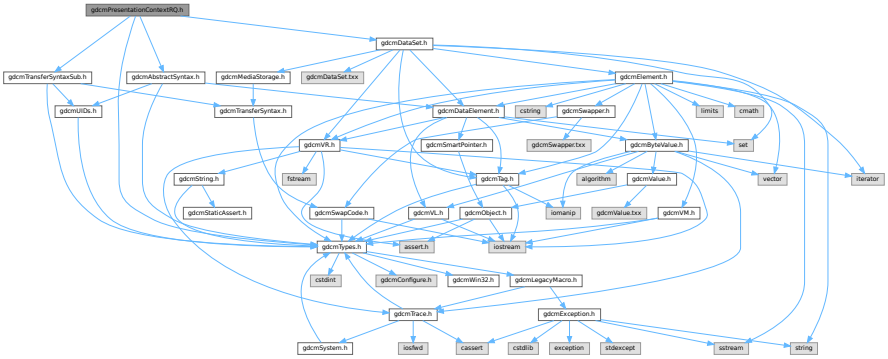
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRESENTATIONCONTEXTGENERATOR_H
#define GDCMPRESENTATIONCONTEXTGENERATOR_H

#include "gdcmDirectory.h"
#include "gdcmPresentationContext.h"

namespace gdcm
{
class TransferSyntax;
class File;
```

```
00024
00053 class GDCM_EXPORT PresentationContextGenerator
00054 {
00055 public:
00056   PresentationContextGenerator();
00057
00058   // Set MergeMode
00059   // Default mode, each pair AbstractSyntax/TransferSyntax are only merged when
00060   // exactly identical
00061   void SetMergeModeToAbstractSyntax();
00062
00063   // Set MergeMode
00064   // Merge is done on a per AbstractSyntax basis. Any new TransferSyntax for a
00065   // given AbstractSyntax is merge to the existing PresentationContext referring
00066   // to that AbstractSyntax
00067   void SetMergeModeToTransferSyntax();
00068
00070   bool GenerateFromUID(UIDs::TSName asname);
00071
00075   bool GenerateFromFilenames(const Directory::FilenamesType &files);
00076
00079   bool AddFromFile(const File &file);
00080
00081   typedef std::vector<PresentationContext> PresentationContextArrayType;
00082   typedef PresentationContextArrayType::size_type SizeType;
00083   PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }
00084
00086   void SetDefaultTransferSyntax( const TransferSyntax &ts );
00087 protected:
00088   bool AddPresentationContext( const char *absyn, const char *ts );
00089   const char *GetDefaultTransferSyntax() const;
00090
00091 private:
00092   std::vector<PresentationContext> PresContext;
00093   static std::string DefaultTransferSyntax;
00094 };
00095
00096 } // end namespace gdcm
00097
00098 #endif //GDCMPRESENTATIONCONTEXTGENERATOR_H
```

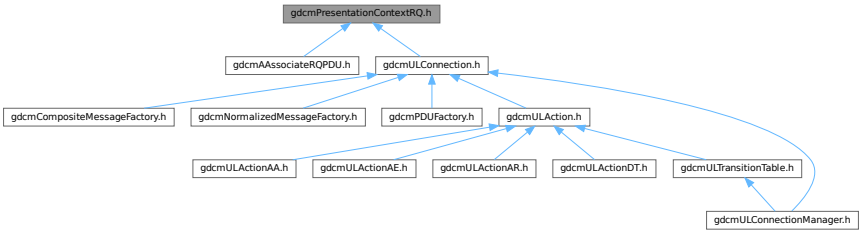
11.549 gdcmPresentationContextRQ.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAbstractSyntax.h"
#include "gdcmTransferSyntaxSub.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmPresentationContextRQ.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextRQ

  PresentationContextRQ.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.550 gdcmPresentationContextRQ.h

Go to the documentation of this file.

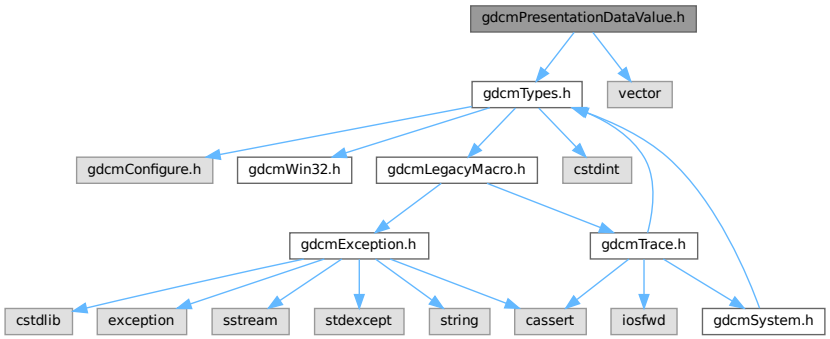
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTRQ_H
00015 #define GDCMPRESENTATIONCONTEXTRQ_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAbstractSyntax.h"
00019 #include "gdcmTransferSyntaxSub.h"
00020 #include "gdcmDataSet.h"
00021
00022 namespace gdcm
00023 {
00024 class PresentationContext;
00025 namespace network
00026 {
00027
00034 class GDCM_EXPORT PresentationContextRQ
00035 {
00036 public:
00037   PresentationContextRQ();
00038
00042   PresentationContextRQ( UIDs::TSName asname, UIDs::TSName tsname =
00043     UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM  );
```

```
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;
  size_t Size() const;

  void SetAbstractSyntax( AbstractSyntax const & absyn );
  AbstractSyntax const &GetAbstractSyntax() const { return SubItems; }
  AbstractSyntax &GetAbstractSyntax() { return SubItems; }

  void AddTransferSyntax( TransferSyntaxSub const &ts );
  typedef std::vector<TransferSyntaxSub>::size_type SizeType;
  TransferSyntaxSub const & GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i]; }
  TransferSyntaxSub & GetTransferSyntax(SizeType i) { return TransferSyntaxes[i]; }
  std::vector<TransferSyntaxSub> const & GetTransferSyntaxes() const {return TransferSyntaxes; }
  SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }

  void SetPresentationContextID( uint8_t id );
  uint8_t GetPresentationContextID() const;

  void Print(std::ostream &os) const;

  bool operator==(const PresentationContextRQ & pc) const
    {
    assert( TransferSyntaxes.size() == 1 ); // TODO
    assert( pc.TransferSyntaxes.size() == 1 );
    return SubItems == pc.SubItems && TransferSyntaxes == pc.TransferSyntaxes;
    }

  PresentationContextRQ(const PresentationContext & pc);

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength; // len of last transfer syntax
  uint8_t /*PresentationContext*/ID;
  static const uint8_t Reserved6;
  static const uint8_t Reserved7;
  static const uint8_t Reserved8;
  /*
  This variable field shall contain the following sub-items: one Abstract
  Syntax and one or more Transfer Syntax(es). For a complete
  description of the use and encoding of these sub-items see Sections
  9.3.2.2.1 and 9.3.2.2.2.
   */
  AbstractSyntax SubItems;
  std::vector<TransferSyntaxSub> TransferSyntaxes;
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMPRESENTATIONCONTEXTRQ_H
```

11.551 gdcmPresentationDataValue.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
```

Include dependency graph for gdcmPresentationDataValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::network::PresentationDataValue

  PresentationDataValue.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.552 gdcmPresentationDataValue.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPRESENTATIONDATAVALUE_H
#define GDCMPRESENTATIONDATAVALUE_H
```

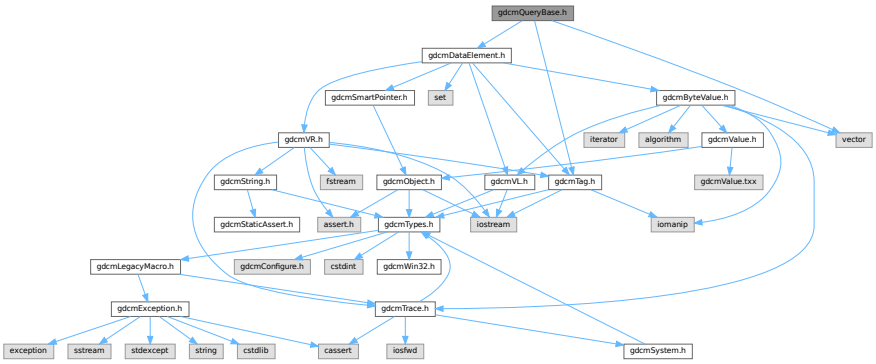
```
#include "gdcmTypes.h"

#include <vector>

namespace gdcm
{
class DataSet;
namespace network
{

class GDCM_EXPORT PresentationDataValue
{
public:
  PresentationDataValue();
  std::istream &Read(std::istream &is);
  std::istream &ReadInto(std::istream &is, std::ostream &os);

  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;

  void SetDataSet(const DataSet & ds);
  void SetBlob(const std::string & partialblob);
  const std::string &GetBlob() const;

  uint8_t GetPresentationContextID() const { return PresentationContextID; }
  void SetPresentationContextID(uint8_t id) {
    assert( id );
    PresentationContextID = id;
  }
  uint8_t GetMessageHeader() const {
    assert( MessageHeader <= 0x3 );
    return MessageHeader;
  }
  // E.2 MESSAGE CONTROL HEADER ENCODING
  // Only the first two bits are considered
  void SetMessageHeader(uint8_t messageheader) {
    MessageHeader = messageheader;
    assert( MessageHeader <= 0x3 );
  }
  //flip the least significant bit of the message header to 1
  //if this is a command, else set it to 0.
  void SetCommand(bool inCommand);
  void SetLastFragment(bool inLast);//set to true if this is the last PDV of a set

  bool GetIsCommand() const;
  bool GetIsLastFragment() const;

  void Print(std::ostream &os) const;

  //NOTE that the PDVs have to be given in the order in which they were received!
  //also note that a dataset may be across multiple PDVs
  static DataSet ConcatenatePDVBlobs(const std::vector<PresentationDataValue>& inPDVs);

  static DataSet ConcatenatePDVBlobsAsExplicit(const std::vector<PresentationDataValue>& inPDVs);

private:
  uint32_t ItemLength;
  uint8_t PresentationContextID;
  uint8_t MessageHeader;
  std::string Blob;
};
} // end namespace network

} // end namespace gdcm

#endif //GDCMPRESENTATIONDATAVALUE_H
```

11.553 gdcmQueryBase.h File Reference

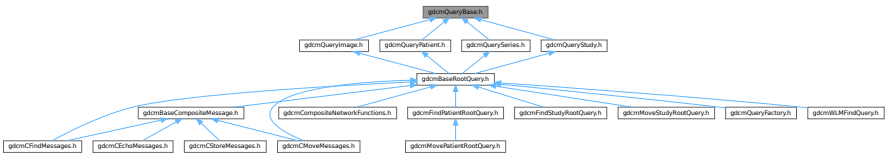
```
#include "gdcmTag.h"
#include "gdcmDataElement.h"
```

```
#include <vector>
```

Include dependency graph for gdcmQueryBase.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryBase

  QueryBase.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ERootType {
  gdcm::ePatientRootType ,
  gdcm::eStudyRootType }

11.554 gdcmQueryBase.h

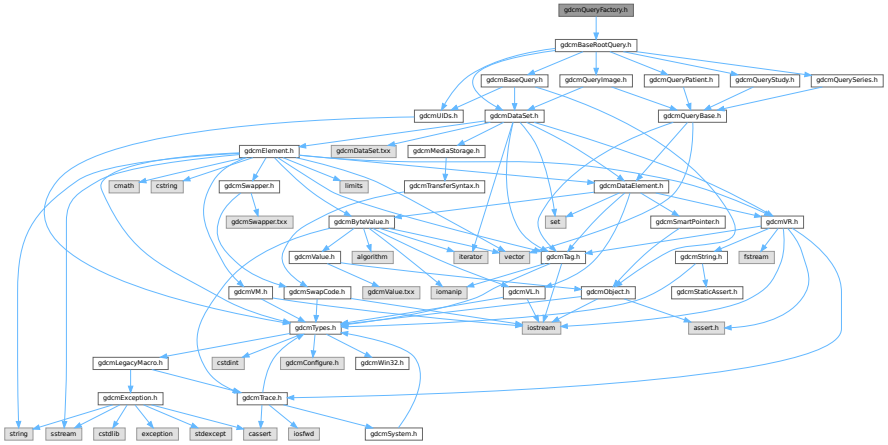
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMQUERYBASE_H
#define GDCMQUERYBASE_H

#include "gdcmTag.h"
#include "gdcmDataElement.h"

#include <vector>

namespace gdcm
{
  enum ERootType
    {
    ePatientRootType,
    eStudyRootType
    };

class GDCM_EXPORT QueryBase
{
  public:
    virtual ~QueryBase() = default;

    virtual std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const = 0;
    virtual std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const = 0;
    virtual std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const = 0;
    // C.4.1.2.1 Baseline Behavior of SCU
    // All C-FIND SCUs shall be capable of generating query requests which
    // meet the requirements of the Hierarchical Search.
    // The Identifier contained in a C-FIND request shall contain a single
    // value in the Unique Key Attribute for each level above the
    // Query/Retrieve level. No Required or Optional Keys shall be
    // specified which are associated with levels above the Query/Retrieve
    // level.
    virtual std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const = 0;

    std::vector<Tag> GetAllTags(const ERootType& inRootType) const;

    std::vector<Tag> GetAllRequiredTags(const ERootType& inRootType) const;

    virtual const char * GetName() const = 0;
    virtual DataElement GetQueryLevel() const = 0;
  };
}

#endif //GDCMQUERYBASE_H
```

11.555 gdcmQueryFactory.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmQueryFactory.h:



Classes

- class gdcm::QueryFactory

  QueryFactory.h.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ECharSet {
  gdcm::eLatin1 = 0 ,
  gdcm::eLatin2 ,
  gdcm::eLatin3 ,
  gdcm::eLatin4 ,
  gdcm::eCyrillic ,
  gdcm::eArabic ,
  gdcm::eGreek ,
  gdcm::eHebrew ,
  gdcm::eLatin5 ,
  gdcm::eJapanese ,
  gdcm::eThai ,
  gdcm::eJapaneseKanjiMultibyte ,
  gdcm::eJapaneseSupplementaryKanjiMultibyte ,
  gdcm::eKoreanHangulHanjaMultibyte ,
  gdcm::eUTF8 ,
  gdcm::eGB18030 }

11.556 gdcmQueryFactory.h

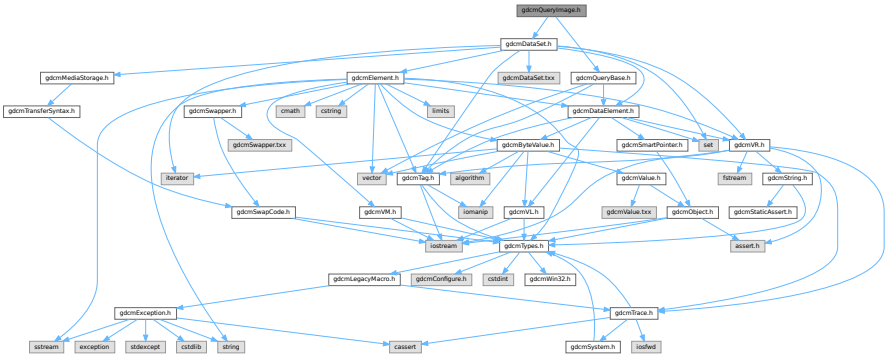
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMQUERYFACTORY_H
#define GDCMQUERYFACTORY_H

#include "gdcmBaseRootQuery.h"

namespace gdcm{
  enum ECharSet {
    eLatin1 = 0,
    eLatin2,
    eLatin3,
    eLatin4,
    eCyrillic,
    eArabic,
    eGreek,
    eHebrew,
    eLatin5, // Latin Alphabet No. 5 (Turkish) Extended
    eJapanese, // JIS X 0201 (Shift JIS) Extended
    eThai, // TIS 620-2533 (Thai) Extended
    eJapaneseKanjiMultibyte, // JIS X 0208 (Kanji) Extended
    eJapaneseSupplementaryKanjiMultibyte, // JIS X 0212 (Kanji) Extended
    eKoreanHangulHanjaMultibyte, // KS X 1001 (Hangul and Hanja) Extended
    eUTF8,
    eGB18030 // Chinese (Simplified) Extended
  };

class GDCM_EXPORT QueryFactory
{
public:

  static BaseQuery* ProduceQuery( const std::string & sopInstanceUID, ENQueryType inQueryType );
  static BaseRootQuery* ProduceQuery(ERootType inRootType, EQueryType inQueryType,
    EQueryLevel inQueryLevel);

  static DataElement ProduceCharacterSetDataElement(
    const std::vector<ECharSet>& inCharSetType);

  static ECharSet GetCharacterFromCurrentLocale();

  static void ListCharSets(std::ostream& os);
};

} // end namespace gdcm

#endif // GDCMQUERYFACTORY_H
```

11.557 gdcmQueryImage.h File Reference

```
#include "gdcmQueryBase.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmQueryImage.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QueryImage

  QueryImage.

Namespaces

- namespace gdcm

11.558 gdcmQueryImage.h

Go to the documentation of this file.

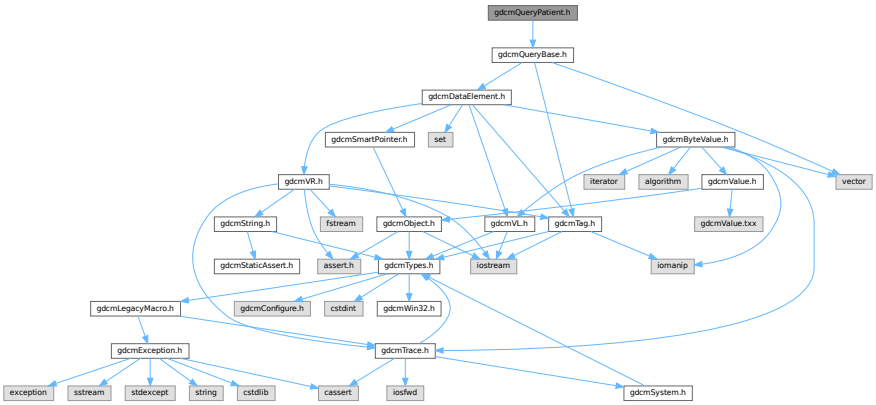
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
```

```
 *=============================================================================*/
#ifndef GDCMQUERYIMAGE_H
#define GDCMQUERYIMAGE_H

#include "gdcmQueryBase.h"
#include "gdcmDataSet.h"

namespace gdcm
{
class GDCM_EXPORT QueryImage : public QueryBase
{
public:
  std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;

  const char * GetName() const override;

  DataElement GetQueryLevel() const override;
};

} // end namespace gdcm

#endif // GDCMQUERYIMAGE_H
```

11.559 gdcmQueryPatient.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQueryPatient.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QueryPatient

  QueryPatient.

Namespaces

- namespace gdcm

11.560 gdcmQueryPatient.h

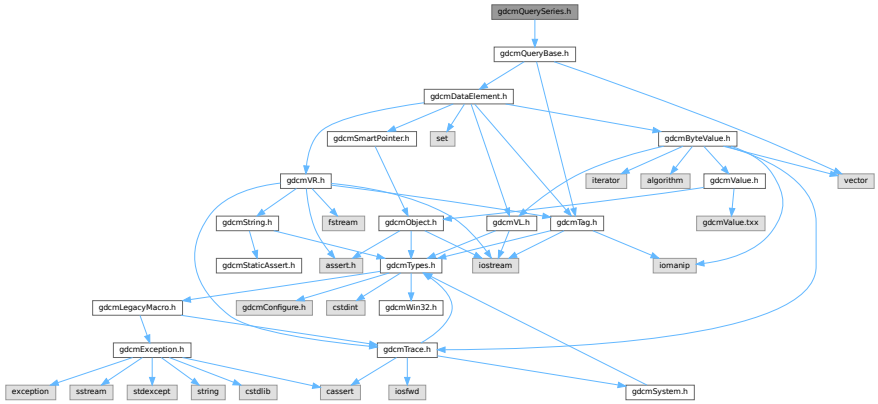
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMQUERYPATIENT_H
#define GDCMQUERYPATIENT_H

#include "gdcmQueryBase.h"

namespace gdcm
{
class GDCM_EXPORT QueryPatient : public QueryBase
{
public:
  std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;

  const char * GetName() const override;
  DataElement GetQueryLevel() const override;
};

} // end namespace gdcm

#endif //GDCMQUERYPATIENT_H
```

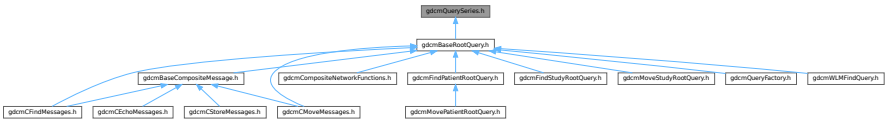
11.561 gdcmQuerySeries.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQuerySeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QuerySeries

  QuerySeries.

Namespaces

- namespace gdcm

11.562 gdcmQuerySeries.h

Go to the documentation of this file.

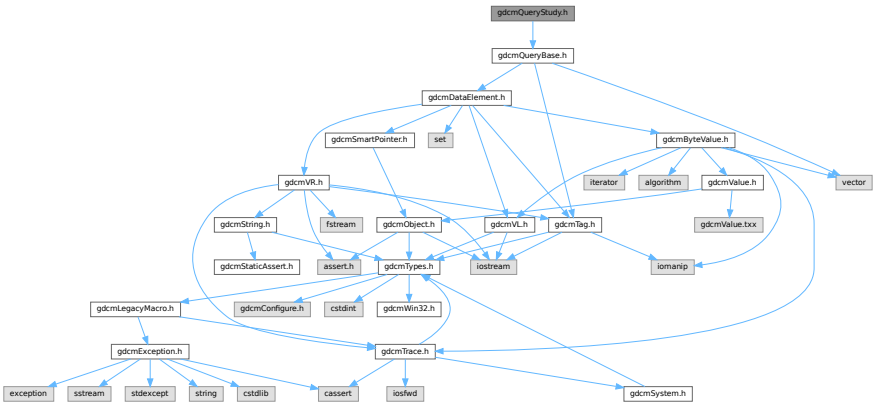
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
```

```
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMQUERYSERIES_H
#define GDCMQUERYSERIES_H

#include "gdcmQueryBase.h"

namespace gdcm
{
class GDCM_EXPORT QuerySeries : public QueryBase
{
public:
  std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;

  const char * GetName() const override;
  DataElement GetQueryLevel() const override;
};

} // end namespace gdcm

#endif //GDCMQUERYSERIES_H
```

11.563 gdcmQueryStudy.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQueryStudy.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QueryStudy

  QueryStudy.h.

Namespaces

- namespace gdcm

11.564 gdcmQueryStudy.h

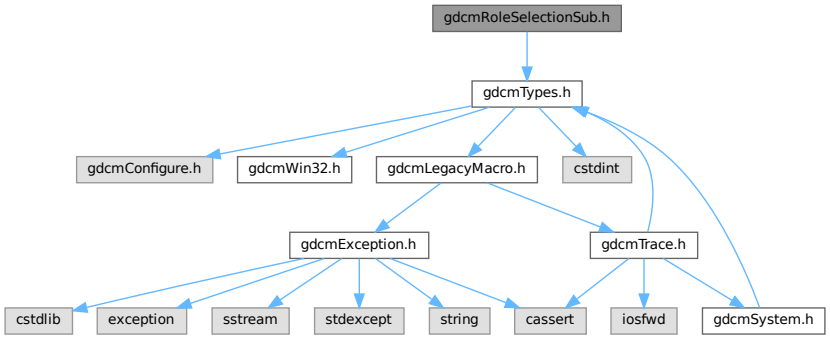
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMQUERYSTUDY_H
#define GDCMQUERYSTUDY_H

#include "gdcmQueryBase.h"

namespace gdcm
{
class GDCM_EXPORT QueryStudy : public QueryBase
{
public:
  std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
  std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;

  const char *GetName() const override;
  DataElement GetQueryLevel() const override;
};

} // end namespace gdcm

#endif //GDCMQUERYSTUDY_H
```

11.565 gdcmRoleSelectionSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmRoleSelectionSub.h:



Classes

- class gdcm::network::RoleSelectionSub

  RoleSelectionSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.566 gdcmRoleSelectionSub.h

Go to the documentation of this file.

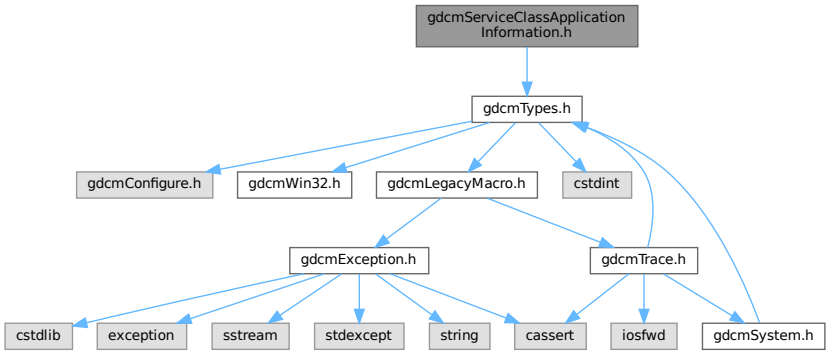
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMROLESELECTIONSUB_H
#define GDCMROLESELECTIONSUB_H

#include "gdcmTypes.h"

namespace gdcm
{

```

```
namespace network
{

class RoleSelectionSub
{
public:
  RoleSelectionSub();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;
  void Print(std::ostream &os) const;

  void SetTuple(const char *uid, uint8_t scurole, uint8_t scprole);

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength;
  uint16_t UIDLength;
  std::string /*SOP-class-uid*/ Name; // UID
  uint8_t SCURole;
  uint8_t SCPRole;
};

} // end namespace network

} // end namespace gdcm

#endif // GDCMROLESELECTIONSUB_H
```

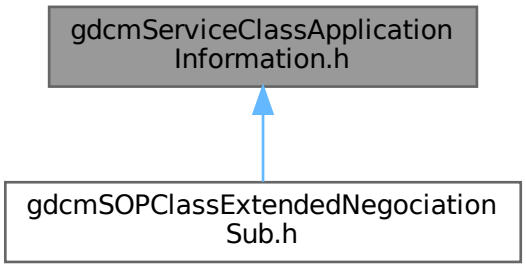
11.567 gdcmServiceClassApplicationInformation.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmServiceClassApplicationInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ServiceClassApplicationInformation

Namespaces

- namespace gdcm
- namespace gdcm::network

11.568 gdcmServiceClassApplicationInformation.h

Go to the documentation of this file.

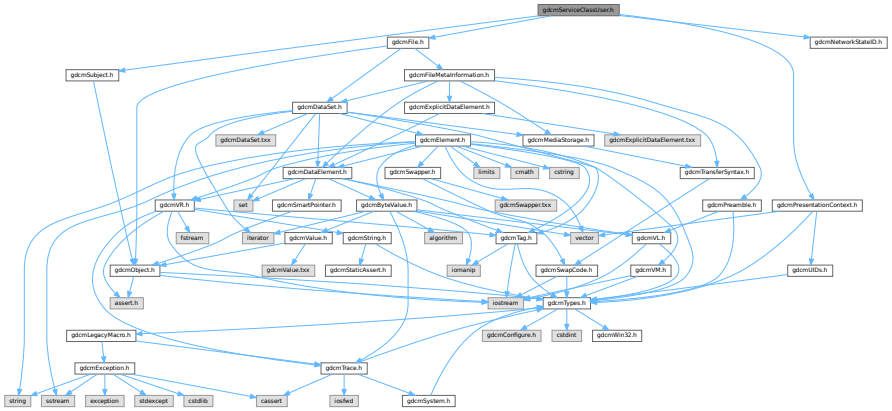
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSERVICECLASSAPPLICATIONINFORMATION_H
#define GDCMSERVICECLASSAPPLICATIONINFORMATION_H

#include "gdcmTypes.h"

namespace gdcm
{

namespace network
{

class ServiceClassApplicationInformation
{
public:
  ServiceClassApplicationInformation();
```

```
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;
  void SetTuple(uint8_t levelofsupport, uint8_t levelofdigitalsig,
    uint8_t elementcoercion);

  void Print(std::ostream &os) const;
private:
  uint8_t InternalArray[6];
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMSERVICECLASSAPPLICATIONINFORMATION_H
```

11.569 gdcmServiceClassUser.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
#include "gdcmFile.h"
#include "gdcmNetworkStateID.h"
```

Include dependency graph for gdcmServiceClassUser.h:



Classes

- class gdcm::ServiceClassUser

  ServiceClassUser.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.570 gdcmServiceClassUser.h

Go to the documentation of this file.

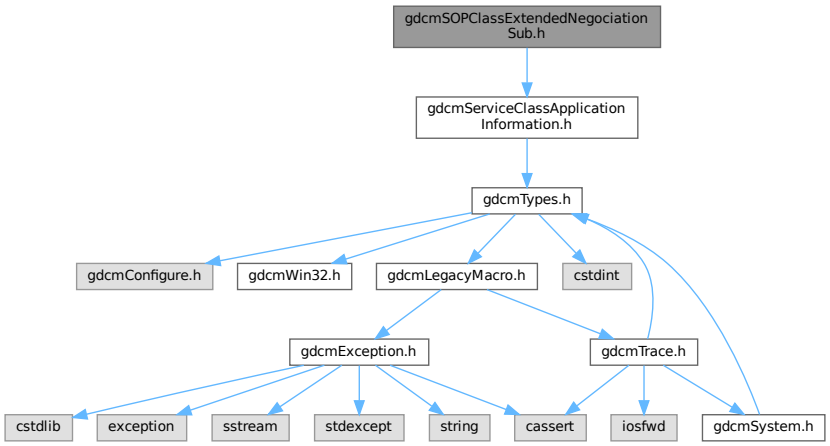
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSERVICECLASSUSER_H
#define GDCMSERVICECLASSUSER_H

#include "gdcmSubject.h"

#include "gdcmPresentationContext.h"
#include "gdcmFile.h"

#include "gdcmNetworkStateID.h" // EStateID

namespace gdcm
{
class ServiceClassUserInternals;
class BaseRootQuery;
namespace network{
class ULEvent;
class ULConnection;
class ULConnectionCallback;
}
class GDCM_EXPORT ServiceClassUser : public Subject
{
public:
  ServiceClassUser();
  ~ServiceClassUser() override;
  ServiceClassUser(const ServiceClassUser&) = delete;
  void operator=(const ServiceClassUser &) = delete;

  void SetHostname( const char *hostname );

  void SetPort( uint16_t port );

  void SetPortSCP( uint16_t portscp );

  void SetAETitle(const char *aetitle);
  const char *GetAETitle() const;

  void SetCalledAETitle(const char *aetitle);
  const char *GetCalledAETitle() const;

  void SetTimeout(double t);
  double GetTimeout() const;

  bool InitializeConnection();

  void SetPresentationContexts(std::vector<PresentationContext> const & pcs);

  bool IsPresentationContextAccepted(const PresentationContext& pc) const;

  bool StartAssociation();

  bool StopAssociation();

  bool SendEcho();

  bool SendStore(const char *filename);
  bool SendStore(File const &file);
  bool SendStore(DataSet const &ds);

  bool SendFind(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);

  bool SendMove(const BaseRootQuery* query, const char *outputdir);
  bool SendMove(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);
  bool SendMove(const BaseRootQuery* query, std::vector<File> &retFile);
```

```
  static SmartPointer<ServiceClassUser> New() { return new ServiceClassUser; }

private:
  network::EStateID RunEventLoop(network::ULEvent& inEvent,
    network::ULConnection* inWhichConnection,
    network::ULConnectionCallback* inCallback, const bool& startWaiting);
  network::EStateID RunMoveEventLoop(network::ULEvent& inEvent,
    network::ULConnectionCallback* inCallback);

private:
  ServiceClassUserInternals *Internals;
};

} // end namespace gdcm

#endif // GDCMSERVICECLASSUSER_H
```

11.571 gdcmSOPClassExtendedNegociationSub.h File Reference

`#include "gdcmServiceClassApplicationInformation.h"`

Include dependency graph for gdcmSOPClassExtendedNegociationSub.h:



Classes

- class gdcm::network::SOPClassExtendedNegociationSub

  SOPClassExtendedNegociationSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.572 gdcmSOPClassExtendedNegociationSub.h

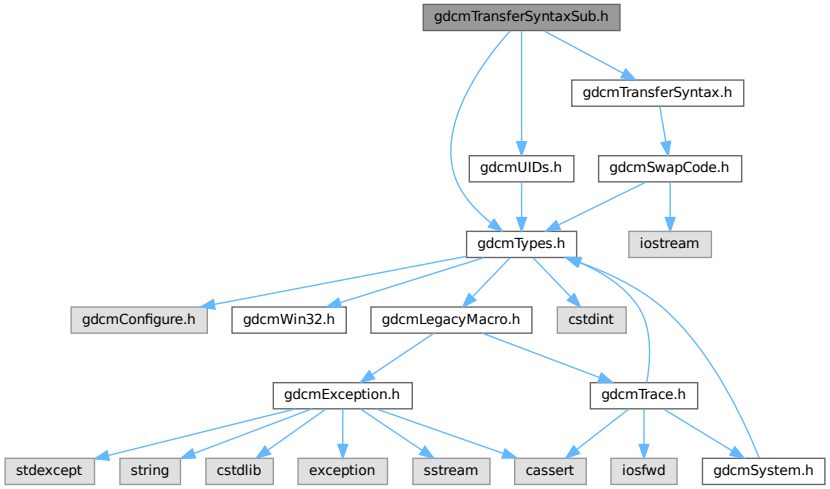
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
#define GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H

#include "gdcmServiceClassApplicationInformation.h"

namespace gdcm
{
namespace network
{

class SOPClassExtendedNegociationSub
{
public:
  SOPClassExtendedNegociationSub();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;

  size_t Size() const;
  void Print(std::ostream &os) const;

  void SetTuple(const char *uid, uint8_t levelofsupport = 3,
    uint8_t levelofdigitalsig = 0,
    uint8_t elementcoercion = 2);

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength;
  uint16_t UIDLength;
  std::string /*SOP-class-uid*/ Name; // UID
  ServiceClassApplicationInformation SCAI;
};

} // end namespace network

} // end namespace gdcm

#endif // GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
```

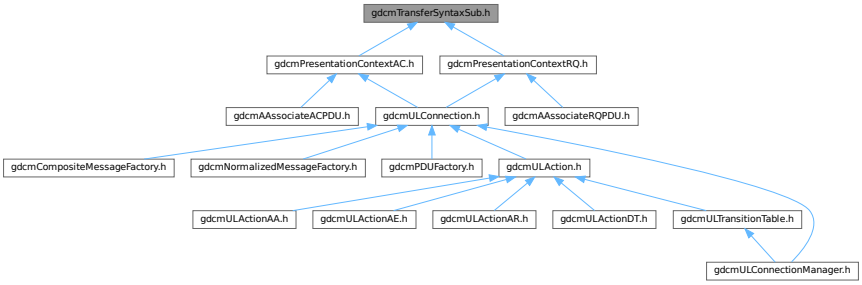
11.573 gdcmTransferSyntaxSub.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDs.h"
```

Include dependency graph for gdcmTransferSyntaxSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TransferSyntaxSub

  TransferSyntaxSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.574 gdcmTransferSyntaxSub.h

Go to the documentation of this file.

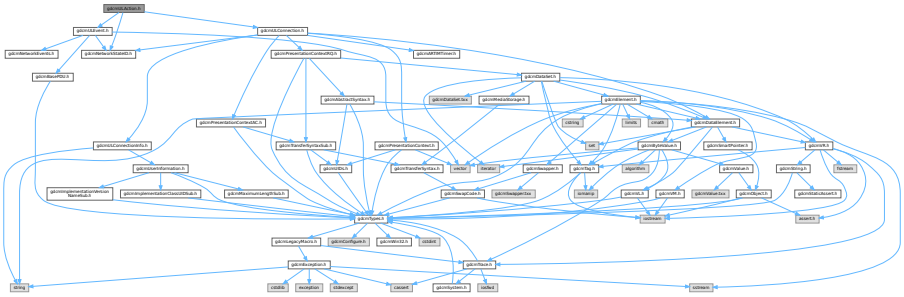
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMTRANSFERSYNTAXSUB_H
#define GDCMTRANSFERSYNTAXSUB_H

#include "gdcmTypes.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDs.h"

namespace gdcm
{

namespace network
{

class TransferSyntaxSub
{
public:
  TransferSyntaxSub();
  void SetName( const char *name );
  const char *GetName() const { return Name.c_str(); }

  // accept a UIDs::TSType also...
  void SetNameFromUID( UIDs::TSName tsname );

  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;
  size_t Size() const;
  void Print(std::ostream &os) const;

  bool operator==(const TransferSyntaxSub & ts) const
    {
    return Name == ts.Name;
    }

private:
  void UpdateName( const char *name );
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength; // len of
  std::string /*TransferSyntaxSub*/ Name; // UID
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMTRANSFERSYNTAXSUB_H
```

11.575 gdcmULAction.h File Reference

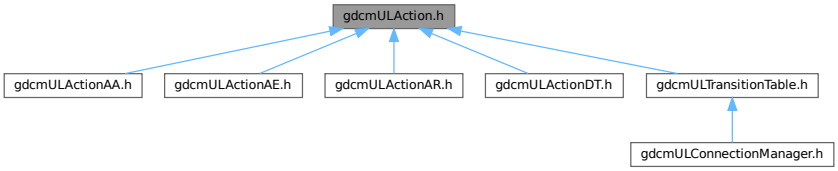
```
#include "gdcmNetworkStateID.h"
#include "gdcmULEvent.h"
```

`#include "gdcmULConnection.h"`

Include dependency graph for gdcmULAction.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULAction

  ULAction.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.576 gdcmULAction.h

Go to the documentation of this file.

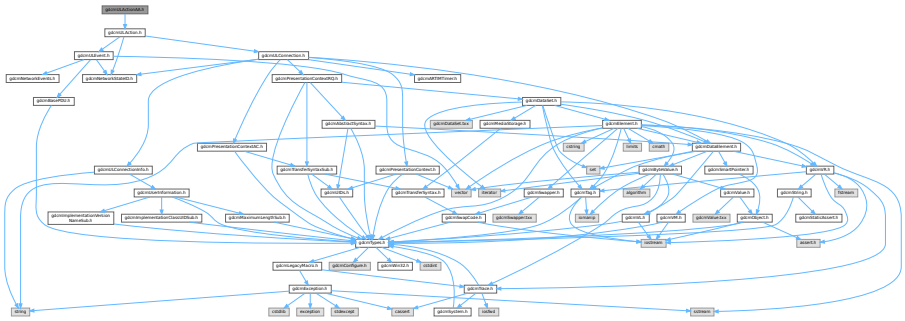
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
```

```
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULACTION_H
#define GDCMULACTION_H

#include "gdcmNetworkStateID.h"
#include "gdcmULEvent.h"
#include "gdcmULConnection.h"

namespace gdcm {
class Subject;
  namespace network {

class ULAction {

    protected:


    public:
      ULAction() = default;
      //make sure destructors are virtual to avoid memory leaks
      virtual ~ULAction() = default;
      //cannot copy a ULAction
      ULAction(const ULAction& inAction) = delete;
      void operator=(const ULAction&) = delete;

      virtual EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) = 0;
    };
  }
}

#endif // GDCMULACTION_H
```

11.577 gdcmULActionAA.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAA.h:



Classes

- class gdcm::network::ULActionAA1
- class gdcm::network::ULActionAA2
- class gdcm::network::ULActionAA3
- class gdcm::network::ULActionAA4

- class gdcm::network::ULActionAA5
- class gdcm::network::ULActionAA6
- class gdcm::network::ULActionAA7
- class gdcm::network::ULActionAA8

Namespaces

- namespace gdcm
- namespace gdcm::network

11.578 gdcmULActionAA.h

Go to the documentation of this file.

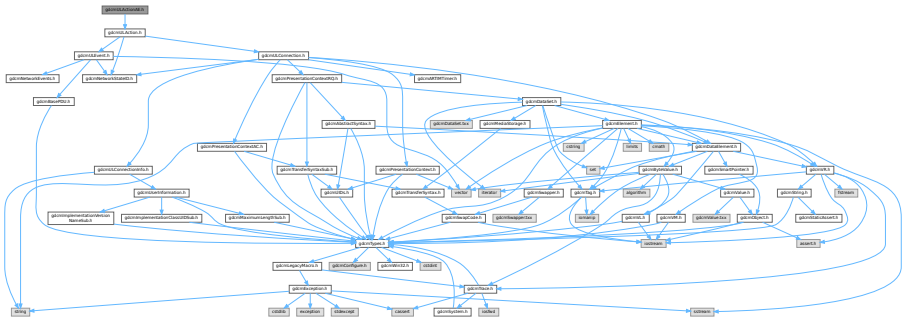
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULACTIONAA_H
#define GDCMULACTIONAA_H

#include "gdcmULAction.h"

namespace gdcm {
  namespace network {

    //Send A-ABORT PDU (service-user source) and start (or restart if already started) ARTIM timer
    //Next State: eSta13AwaitingClose
    class ULActionAA1 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Stop ARTIM timer if running.  Close transport connection.
    //Next State: eSta1Idle
    class ULActionAA2 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //If (service-user initiated abort)
    //- issue A-ABORT indication and close transport connection
    //otherwise (service-provider initiated abort):
    //- issue A-P-ABORT indication and close transport connection
    //Next State: eSta1Idle
    class ULActionAA3 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-P-ABORT indication primitive
    //Next State: eSta1Idle
    class ULActionAA4 : public ULAction {
    public:
```

```
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Stop ARTIM timer
    //Next State: eSta1Idle
    class ULActionAA5 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Ignore PDU
    //Next State: eSta13AwaitingClose
    class ULActionAA6 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-ABORT PDU
    //Next State: eSta13AwaitingClose
    class ULActionAA7 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-ABORT PDU (service-provider source), issue an A-P-ABORT indication, and start ARTIM timer
    //Next State: eSta13AwaitingClose
    class ULActionAA8 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };
  }
}

#endif // GDCMULACTIONAA_H
```

11.579 gdcmULActionAE.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAE.h:



Classes

- class gdcm::network::ULActionAE1
- class gdcm::network::ULActionAE2
- class gdcm::network::ULActionAE3

- class gdcm::network::ULActionAE4
- class gdcm::network::ULActionAE5
- class gdcm::network::ULActionAE6
- class gdcm::network::ULActionAE7
- class gdcm::network::ULActionAE8

Namespaces

- namespace gdcm
- namespace gdcm::network

11.580 gdcmULActionAE.h

Go to the documentation of this file.

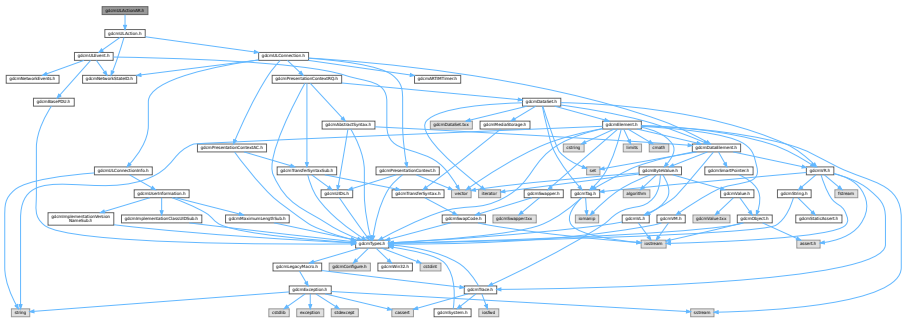
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULACTIONAE_H
#define GDCMULACTIONAE_H

#include "gdcmULAction.h"

namespace gdcm {
  namespace network {

    //Issue TRANSPORT CONNECT request primitive to local transport service.
    class ULActionAE1 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-ASSOCIATE-RQ-PDU
    //Next State: eSta5WaitRemoteAssoc
    class ULActionAE2 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-ASSOCIATE confirmation (accept) primitive
    //Next State: eSta6TransferReady
    class ULActionAE3 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-ASSOCIATE confirmation (reject) primitive and close transport connection
    //Next State: eSta1Idle
    class ULActionAE4 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
```

```
    };

    //Issue Transport connection response primitive, start ARTIM timer
    //Next State: eSta2Open
    class ULActionAE5 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Stop ARTIM timer and if A-ASSOCIATE-RQ acceptable by service-provider:
    //- issue A-ASSOCIATE indication primitive
    //Next state: eSta3WaitLocalAssoc
    //otherwise:
    //- issue A-ASSOCIATE-RJ-PDU and start ARTIM timer
    //Next state: eSta13AwaitingClose
    class ULActionAE6 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-ASSOCIATE-AC PDU
    //Next State: eSta6TransferReady
    class ULActionAE7 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-ASSOCIATE-RJ PDU and start ARTIM timer
    //Next State: eSta13AwaitingClose
    class ULActionAE8 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };
  }
}
#endif // GDCMULACTIONAE_H
```

11.581 gdcmULActionAR.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAR.h:



Classes

- class gdcm::network::ULActionAR1
- class gdcm::network::ULActionAR10

- class gdcm::network::ULActionAR2
- class gdcm::network::ULActionAR3
- class gdcm::network::ULActionAR4
- class gdcm::network::ULActionAR5
- class gdcm::network::ULActionAR6
- class gdcm::network::ULActionAR7
- class gdcm::network::ULActionAR8
- class gdcm::network::ULActionAR9

Namespaces

- namespace gdcm
- namespace gdcm::network

11.582 gdcmULActionAR.h

Go to the documentation of this file.

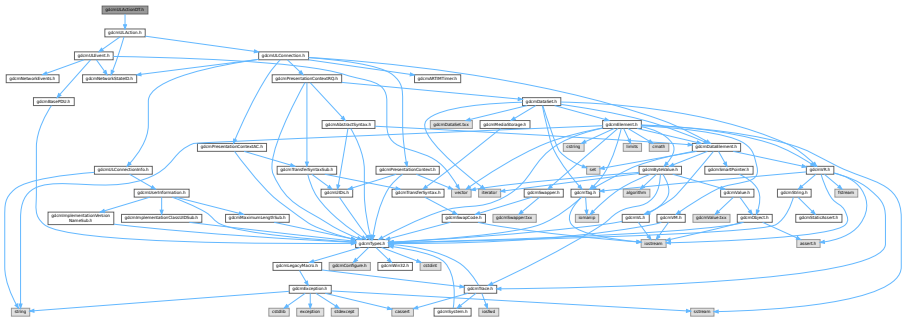
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULACTIONAR_H
#define GDCMULACTIONAR_H

#include "gdcmULAction.h"

namespace gdcm {
  namespace network {

    //Send A-RELEASE-RQ-PDU
    //Next State: eSta7WaitRelease
    class ULActionAR1 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-RELEASE indication primitive
    //Next State: eSta8WaitLocalRelease
    class ULActionAR2 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-RELEASE confirmation primitive, and close transport connection
    //Next State: eSta1Idle
    class ULActionAR3 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

```

```
    //Issue A-RELEASE-RP PDU and start ARTIM timer
    //Next State: eSta13AwaitingClose
    class ULActionAR4 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Stop ARTIM timer
    //Next State: eSta1Idle
    class ULActionAR5 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue P-Data indication
    //Next State: eSta7WaitRelease
    class ULActionAR6 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue P-DATA-TF PDU
    //Next State: eSta8WaitLocalRelease
    class ULActionAR7 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-RELEASE indication (release collision):
    //- If association-requestor, next state is eSta9ReleaseCollisionRqLocal
    //- if not, next state is eSta10ReleaseCollisionAc
    class ULActionAR8 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send A-RELEASE-RP PDU
    //Next State: eSta11ReleaseCollisionRq
    class ULActionAR9 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Issue A-RELEASE confirmation primitive
    //Next State: eSta12ReleaseCollisionAcLocal
    class ULActionAR10 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };
  }
}
#endif // GDCMULACTIONAR_H
```

11.583 gdcmULActionDT.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionDT.h:



Classes

- class gdcm::network::ULActionDT1
- class gdcm::network::ULActionDT2

Namespaces

- namespace gdcm
- namespace gdcm::network

11.584 gdcmULActionDT.h

Go to the documentation of this file.

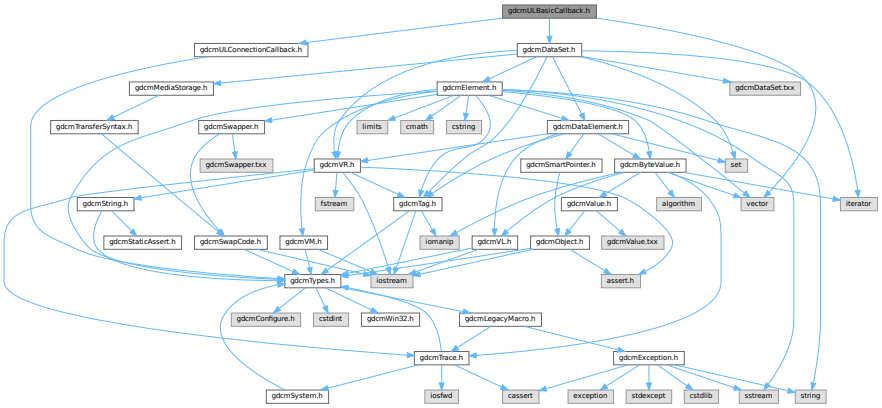
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULACTIONDT_H
#define GDCMULACTIONDT_H

#include "gdcmULAction.h"

namespace gdcm {
  namespace network {

    //Send P-DATA-TF PDU
```

```
    //Next state: eSta6TransferReady
    class ULActionDT1 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };

    //Send P-DATA indication primitive
    //Next state: eSta6TransferReady
    class ULActionDT2 : public ULAction {
    public:
      EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
    };
  }
}
#endif // GDCMULACTIONDT_H
```

11.585 gdcmULBasicCallback.h File Reference

```
#include "gdcmULConnectionCallback.h"
#include "gdcmDataSet.h"
#include <vector>
```

Include dependency graph for gdcmULBasicCallback.h:



Classes

- class gdcm::network::ULBasicCallback

  ULBasicCallback.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.586 gdcmULBasicCallback.h

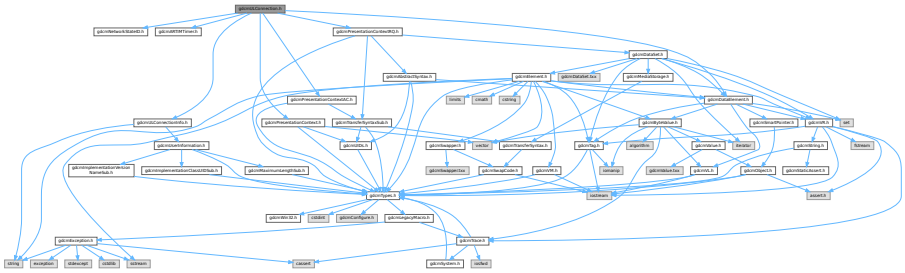
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTIONBASICCALLBACK_H
#define GDCMULCONNECTIONBASICCALLBACK_H

#include "gdcmULConnectionCallback.h"
#include "gdcmDataSet.h"
#include <vector>

namespace gdcm
{
  namespace network
    {
    class GDCM_EXPORT ULBasicCallback : public ULConnectionCallback
    {
    std::vector<DataSet> mDataSets;
    std::vector<DataSet> mResponses;
  public:
    ULBasicCallback() = default;
    ~ULBasicCallback() override = default; //empty, for later inheritance

    void HandleDataSet(const DataSet& inDataSet) override;
    void HandleResponse(const DataSet& inDataSet) override;

    std::vector<DataSet> const & GetDataSets() const;
    std::vector<DataSet> const & GetResponses() const;
    };
    } // end namespace network
} // end namespace gdcm

#endif // GDCMULCONNECTIONBASICCALLBACK_H
```

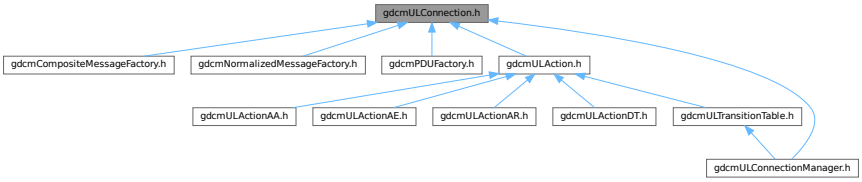
11.587 gdcmULConnection.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmARTIMTimer.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmDataElement.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnection.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnection

  ULConnection.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.588 gdcmULConnection.h

Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
```

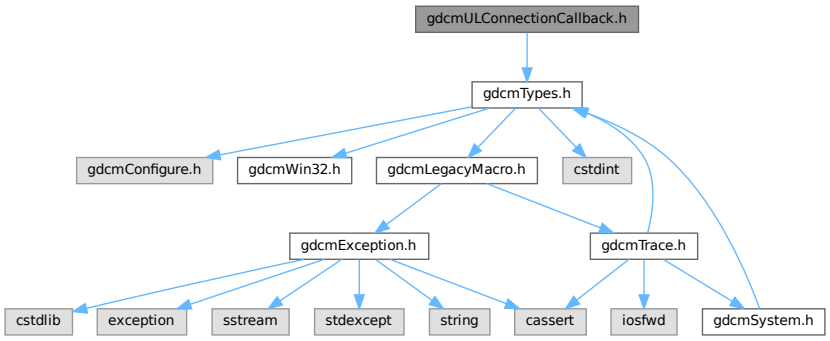
```
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTION_H
#define GDCMULCONNECTION_H

#include "gdcmNetworkStateID.h"
#include "gdcmARTIMTimer.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmDataElement.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmPresentationContext.h"

class iosockinet;
class echo;
namespace gdcm{
  namespace network{

class GDCM_EXPORT ULConnection
{
      ULConnectionInfo mInfo;
      //this is a dirty dirty hack
      //but to establish an outgoing connection (scu), we need the echo service
      //to establish incoming, we just need a port and localhost, so an iosockinet works while an
      //echo would fail (probably because one already exists)
      echo* mEcho;
      iosockinet* mSocket;//of the three protocols offered by socket++-- echo, smtp, and ftp--
      //echo most closely matches what the DICOM standard describes as a network connection
      ARTIMTimer mTimer;

      EStateID mCurrentState;

      std::vector<PresentationContextRQ> mPresentationContexts;
      //this is our list of presentation contexts of what we can send
      uint32_t mMaxPDUSize;

      std::vector<PresentationContextAC> mAcceptedPresentationContexts;//these come back from the server
      //and tell us what can be sent over this connection

      TransferSyntaxSub cstorets;

      friend class ULActionAE6;
      void SetCStoreTransferSyntax( TransferSyntaxSub const & ts );
      friend class ULConnectionManager;
      TransferSyntaxSub const & GetCStoreTransferSyntax( ) const;
    public:

      ULConnection(const ULConnectionInfo& inUserInformation);
      //destructors are virtual to prevent memory leaks by inherited classes
      virtual ~ULConnection();

      EStateID GetState() const;
      void SetState(const EStateID& inState);//must be able to update state...

      //echo* GetProtocol();
      std::iostream* GetProtocol();
      void StopProtocol();

      ARTIMTimer& GetTimer();

      const ULConnectionInfo &GetConnectionInfo() const;

      //when the connection is first associated, the connection is told
      //the max packet/PDU size and the way in which to present data
      //(presentation contexts, etc). Store that here.
      void SetMaxPDUSize(uint32_t inSize);
      uint32_t GetMaxPDUSize() const;

      const PresentationContextAC *GetPresentationContextACByID(uint8_t id) const;
      const PresentationContextRQ *GetPresentationContextRQByID(uint8_t id) const;

      uint8_t GetPresentationContextIDFromPresentationContext(PresentationContextRQ const & pc) const;

      std::vector<PresentationContextRQ> const & GetPresentationContexts() const;
      void SetPresentationContexts(const std::vector<PresentationContextRQ>& inContexts);

      void SetPresentationContexts(const std::vector<PresentationContext>& inContexts);

      //given a particular data element, presumably the SOP class,
      //find the presentation context for that SOP
      //NOT YET IMPLEMENTED
```

```
      PresentationContextRQ FindContext(const DataElement& de) const;

      std::vector<PresentationContextAC> const & GetAcceptedPresentationContexts() const;
      std::vector<PresentationContextAC> & GetAcceptedPresentationContexts();
      void AddAcceptedPresentationContext(const PresentationContextAC& inPC);

      bool InitializeConnection();

      bool InitializeIncomingConnection();

      ULConnection(const ULConnection&) = delete;
      void operator=(const ULConnection&) = delete;
    };
  }
}

#endif // ULCONNECTION_H
```

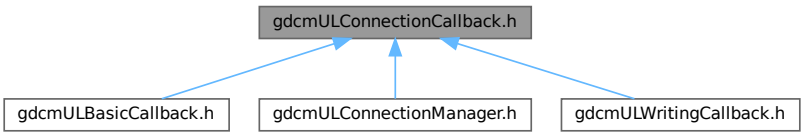
11.589 gdcmULConnectionCallback.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmULConnectionCallback.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

11.590 gdcmULConnectionCallback.h

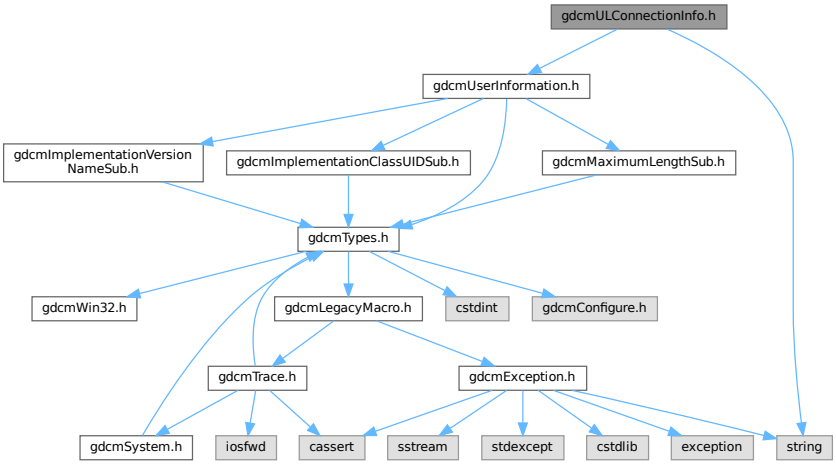
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTIONCALLBACK_H
#define GDCMULCONNECTIONCALLBACK_H

#include "gdcmTypes.h" //to be able to export the class

namespace gdcm
{
  class DataSet;
  namespace network
  {
    class GDCM_EXPORT ULConnectionCallback {
      bool mHandledDataSet;
    protected:
      bool mImplicit;
      //inherited callbacks MUST call this function for the cmove loop to work properly
      void DataSetHandled() { mHandledDataSet = true; }
    public:
      ULConnectionCallback():mHandledDataSet(false),mImplicit(true){}
      virtual ~ULConnectionCallback() = default; //placeholder for inherited objects
      virtual void HandleDataSet(const DataSet& inDataSet) = 0;
      virtual void HandleResponse(const DataSet& inDataSet) = 0;

      bool DataSetHandles() const { return mHandledDataSet; }
      void ResetHandledDataSet() { mHandledDataSet = false; }

      void SetImplicitFlag( const bool imp ) { mImplicit = imp; }
    };
  }
}
#endif //GDCMULCONNECTIONCALLBACK_H
```

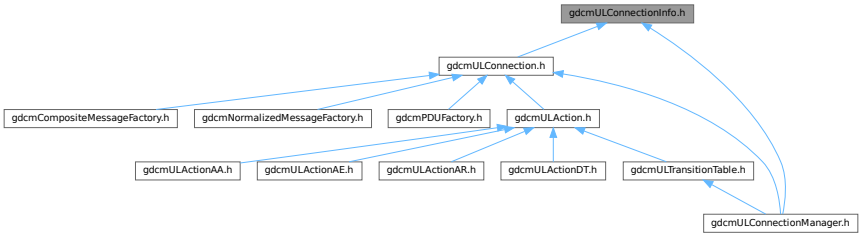
11.591 gdcmULConnectionInfo.h File Reference

```
#include "gdcmUserInformation.h"
#include <string>
```

Include dependency graph for gdcmULConnectionInfo.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionInfo

  ULConnectionInfo.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.592 gdcmULConnectionInfo.h

Go to the documentation of this file.

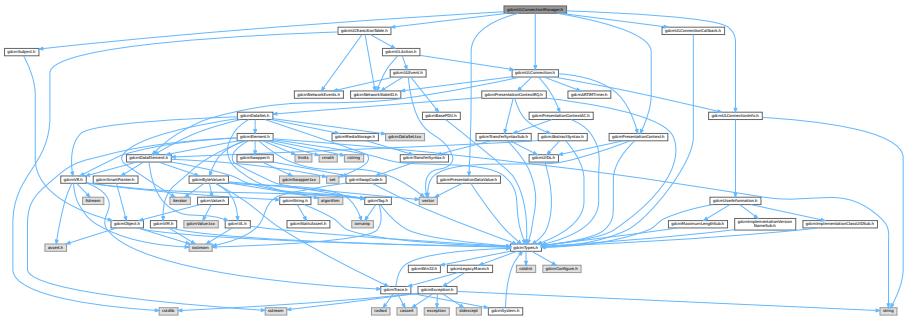
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTIONINFO_H
#define GDCMULCONNECTIONINFO_H

#include "gdcmUserInformation.h"
#include <string>

namespace gdcm{
  namespace network {
class ULConnectionInfo {
      UserInformation mUserInformation;

      std::string mCalledAETitle;
      std::string mCallingAETitle;

      unsigned long mCalledIPAddress;
      int mCalledIPPort;
      std::string mCalledComputerName; //either the IP or the name has to be filled in

      unsigned long mMaxPDULength;
    public:
      ULConnectionInfo();

      //it is possible to misinitialize this object, so
      //have it return false if something breaks (ie, given AEs are bigger than 16 characters,
      //no name or IP address).
      bool Initialize(UserInformation const &inUserInformation,
        const char *inCalledAETitle, const char *inCallingAETitle,
        unsigned long inCalledIPAddress, int inCalledIPPort,
        std::string inCalledComputerName);

      //UserInformation GetUserInformation() const;
      const char* GetCalledAETitle() const;
      const char* GetCallingAETitle() const;

      unsigned long GetCalledIPAddress() const;
      int GetCalledIPPort() const;
      std::string GetCalledComputerName() const;

      //CStore needs to know the max pdu length, so the value gets initialized
      //when a cstore connection is established (but not for the others).
      void SetMaxPDULength(unsigned long inMaxPDULength);
      unsigned long GetMaxPDULength() const;
    };
  }
}

#endif //GDCMULCONNECTIONINFO_H
```

11.593 gdcmULConnectionManager.h File Reference

```
#include "gdcmULTransitionTable.h"
#include "gdcmULConnection.h"
```

```
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnectionCallback.h"
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnectionManager.h:



Classes

- class gdcm::network::ULConnectionManager

  ULConnectionManager.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.594 gdcmULConnectionManager.h

Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTIONMANAGER_H
#define GDCMULCONNECTIONMANAGER_H

#include "gdcmULTransitionTable.h"
#include "gdcmULConnection.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationDataValue.h"
```

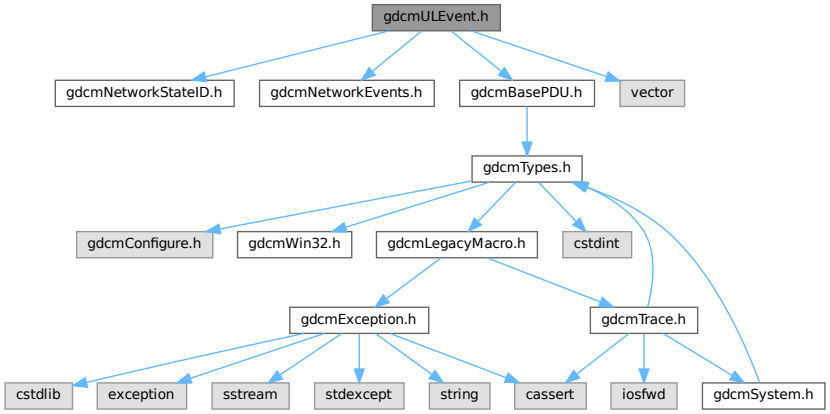
```
#include "gdcmULConnectionCallback.h"
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"

namespace gdcm {
  class File;
  class BaseRootQuery;
  class BaseQuery;

  namespace network {

  class GDCM_EXPORT ULConnectionManager : public Subject
  {
    protected:
      ULConnection* mConnection;
      ULConnection* mSecondaryConnection;
      ULTransitionTable mTransitions;

      //no copying
      ULConnectionManager(const ULConnectionManager& inCM);

      //event handler loop.
      //will just keep running until the current event is nonexistent.
      //at which point, it will return the current state of the connection
      //this starts by initiating an action, but can be put into a passive mode
      //for a cmove/cstore combination by setting startWaiting to true
      EStateID RunEventLoop(ULEvent& inEvent, ULConnection* inWhichConnection,
        ULConnectionCallback* inCallback, const bool& startWaiting);

      //like the above, but will manage the event loop for a move event (which
      //is basically two simultaneous connections interwoven, one inbound and
      //the other outbound.  Note, for instance, that cmoversp's can be sent back
      //during the other connection's operation.
      EStateID RunMoveEventLoop(ULEvent& inEvent, ULConnectionCallback* inCallback);

    public:
      ULConnectionManager();
      ~ULConnectionManager() override;

      // NOTE: (MM) The following two functions are difficult to use, therefore marking
      // them as internal for now.

      // \internal
      bool EstablishConnection(const std::string& inAETitle,
        const std::string& inConnectAETitle,
        const std::string& inComputerName, long inIPAddress,
        uint16_t inConnectPort, double inTimeout,
        std::vector<PresentationContext> const & pcVector );

      bool EstablishConnectionMove(const std::string& inAETitle,
        const std::string& inConnectAETitle,
        const std::string& inComputerName, long inIPAddress,
        uint16_t inConnectPort, double inTimeout,
        uint16_t inReturnPort,
        std::vector<PresentationContext> const & pcVector);
      // \endinternal


      //bool ReestablishConnection(const EConnectionType& inConnectionType,
      //  const DataSet& inDS);

      //allows for a connection to be broken, but waits for an acknowledgement
      //of the breaking for a certain amount of time.  Returns true of the
      //other side acknowledges the break
      bool BreakConnection(const double& inTimeout);

      //severs the connection, if it's open, without waiting for any kind of response.
      //typically done if the program is going down.
      void BreakConnectionNow();

      //This function will send a given piece of data
      //across the network connection.  It will return true if the
      //sending worked, false otherwise.
      //note that sending is asynchronous; as such, there's
      //also a 'receive' option, but that requires a callback function.
      //bool SendData();

      //send the Data PDU associated with Echo (ie, a default DataPDU)
      //this lets the user confirm that the connection is alive.
      //the user should look to cout to see the response of the echo command
      //returns the PresentationDataValue that was returned by the remote
```

```
      //host.  Note that the PDV can be uninitialized, which would indicate failure.
      //Echo does not use a callback for results.
      std::vector<PresentationDataValue> SendEcho();

      // \internal
      // API will change...
      std::vector<DataSet> SendStore(const File &file, std::istream * pStream = nullptr, std::streampos dataSetOffset = 0  );
      std::vector<DataSet> SendFind(const BaseRootQuery* inRootQuery);
      std::vector<DataSet> SendMove(const BaseRootQuery* inRootQuery);

    std::vector<DataSet> SendNEventReport (const BaseQuery* inQuery);
      std::vector<DataSet> SendNGet     (const BaseQuery* inQuery);
      std::vector<DataSet> SendNSet     (const BaseQuery* inQuery);
      std::vector<DataSet> SendNAction   (const BaseQuery* inQuery);
      std::vector<DataSet> SendNCreate   (const BaseQuery* inQuery);
      std::vector<DataSet> SendNDelete   (const BaseQuery* inQuery);
      // \endinternal

      void SendStore(const File & file, ULConnectionCallback* inCallback, std::istream * pStream = nullptr, std::streampos dataSetOffset = 0 );
      void SendFind(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);
      bool SendMove(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);

      void SendNEventReport (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
      void SendNGet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
      void SendNSet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
      void SendNAction   (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
      void SendNCreate   (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
      void SendNDelete   (const BaseQuery* inQuery, ULConnectionCallback* inCallback);

    };
  }
}

#endif // GDCMULCONNECTIONMANAGER_H
```

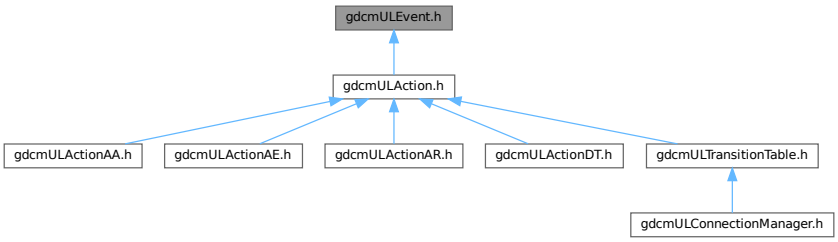
11.595 gdcmULEvent.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmULEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULEvent

  ULEvent.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.596 gdcmULEvent.h

Go to the documentation of this file.

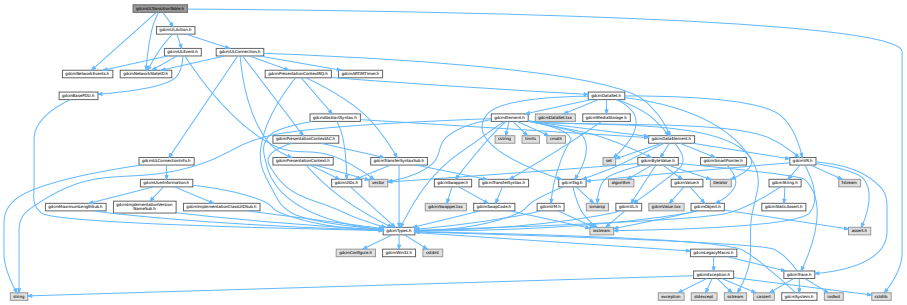
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULEVENT_H
#define GDCMULEVENT_H

#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmBasePDU.h"
#include <vector>

namespace gdcm {
  namespace network {

class ULEvent {
      EEventID mEvent;
      std::vector<BasePDU*> mBasePDU;
    std::istream * m_pStream ;
```

```
    std::streampos m_posDataSet ;
      void DeletePDUVector(){
        std::vector<BasePDU*>::iterator baseItor;
        for (baseItor = mBasePDU.begin(); baseItor < mBasePDU.end(); baseItor++){
          if (*baseItor != nullptr){
            delete *baseItor;
            *baseItor = nullptr;
          }
        }
      }

    public:
      ULEvent(const EEventID& inEventID, std::vector<BasePDU*> inBasePDU, std::istream * iStream = nullptr, std::streampos posDataSet = 0 ){
        mEvent = inEventID;
        mBasePDU = inBasePDU;
    m_pStream = iStream ;
    m_posDataSet = posDataSet ;
      }
      ULEvent(const EEventID& inEventID, BasePDU* inBasePDU, std::istream * iStream = nullptr, std::streampos posDataSet = 0 ){
        mEvent = inEventID;
        mBasePDU.push_back(inBasePDU);
    m_pStream = iStream ;
    m_posDataSet = posDataSet ;
      }
      ~ULEvent(){
        DeletePDUVector();
      }

      EEventID GetEvent() const { return mEvent; }
      std::vector<BasePDU*> const & GetPDUs() const { return mBasePDU; }
    std::istream * GetIStream() const { return m_pStream; }
    std::streampos GetDataSetPos() const { return m_posDataSet; }

      void SetEvent(const EEventID& inEvent) { mEvent = inEvent; }
      void SetPDU(std::vector<BasePDU*> const & inPDU) {
        DeletePDUVector();
        mBasePDU = inPDU;
      }
    };
  }
}

#endif //GDCMULEVENT_H
```

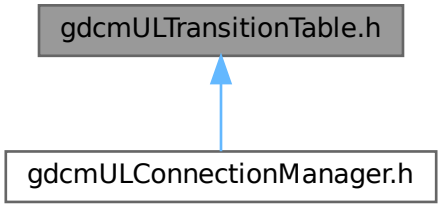
11.597 gdcmULTransitionTable.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULAction.h"
#include <cstdlib>
```

Include dependency graph for gdcmULTransitionTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TableRow
- struct gdcm::network::Transition
- class gdcm::network::ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.598 gdcmULTransitionTable.h

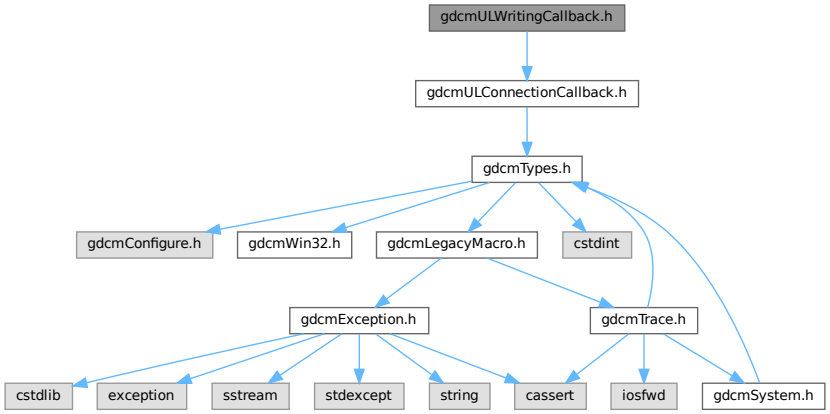
Go to the documentation of this file.

```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULTRANSITIONTABLE_H
#define GDCMULTRANSITIONTABLE_H

#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULAction.h"

#include <cstdlib>  // NULL
```

```

namespace gdcm {
class Subject;
  namespace network{
class ULConnection;
class ULAction;
class ULEvent;

    //The transition dictates the action that should be taken from the start state to the end state
    struct Transition {
      int mEnd;
      ULAction* mAction;
      Transition(){
        mEnd = eStaDoesNotExist;
        mAction = nullptr;
      }
      ~Transition(){
        if (mAction != nullptr){
          delete mAction;
          mAction = nullptr;
        }
      }
      Transition(int inEndState, ULAction* inAction){
        mEnd = inEndState;
        mAction = inAction;
      }
      static Transition* MakeNew(int inEndState, ULAction* inAction){
        return new Transition(inEndState, inAction);
      }
    };

    //used to define a row in table 9-10 of 3.8 2009
    //the transition table is events, then state,
    //then the transition itself (which has the event
    //and start state implied by their starting locations)
    //don't need to store the event; that's implicitly defined in the Table itself by location
    class TableRow{
    public:
      TableRow() {
        for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
          {
          transitions[stateIndex] = nullptr;
          }
      }
      ~TableRow() {
        for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
          {
          Transition *t = transitions[stateIndex];
          delete t;
          }
       }
      Transition *transitions[cMaxStateID];

      //copy constructor for stl additions into the transition table below.
    };

class ULTransitionTable
{
    private:
      TableRow mTable[cMaxEventID];
    public:
      ULTransitionTable();

      void HandleEvent(Subject*s,ULEvent& inEvent, ULConnection& inConnection,
        bool& outWaitingForEvent, EEventID& outRaisedEvent) const;

      void PrintTable() const; //so that the table can be printed and verified against the DICOM standard
    };
  }
}
#endif // GDCMULTRANSITIONTABLE_H
```

11.599 gdcmULWritingCallback.h File Reference

`#include "gdcmULConnectionCallback.h"`
Include dependency graph for gdcmULWritingCallback.h:



Classes

- class gdcm::network::ULWritingCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

11.600 gdcmULWritingCallback.h

Go to the documentation of this file.

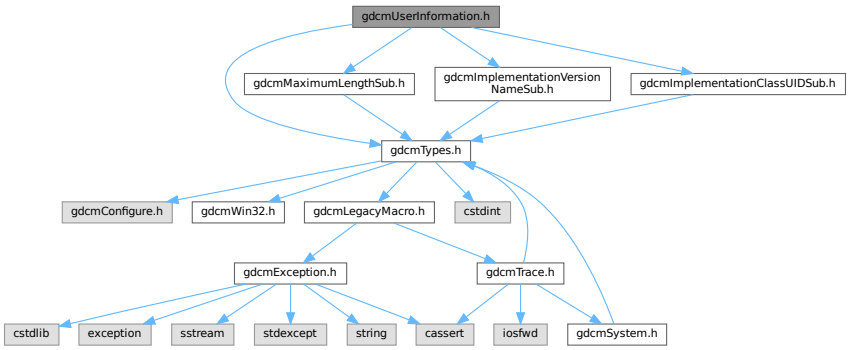
```
/*=========================================================================
 *
 *  Copyright NumFOCUS
 *
 *  Licensed under the Apache License, Version 2.0 (the "License");
 *  you may not use this file except in compliance with the License.
 *  You may obtain a copy of the License at
 *
 *         http://www.apache.org/licenses/LICENSE-2.0.txt
 *
 *  Unless required by applicable law or agreed to in writing, software
 *  distributed under the License is distributed on an "AS IS" BASIS,
 *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 *  See the License for the specific language governing permissions and
 *  limitations under the License.
 *
 *=========================================================================*/
#ifndef GDCMULCONNECTIONWRITINGCALLBACK_H
#define GDCMULCONNECTIONWRITINGCALLBACK_H

```

```
#include "gdcmULConnectionCallback.h"

namespace gdcm
{
class DataSet;
namespace network
{
/* \brief ULWritingCallback
 * \details This is the most basic of callbacks for how the ULConnectionManager handles
 * incoming datasets.  DataSets are immediately written to disk as soon as they
 * are received.  NOTE that if the incoming connection is faster than the disk
 * writing speed, this callback could cause some pileups!
 */
class GDCM_EXPORT ULWritingCallback : public ULConnectionCallback
{
  std::string mDirectoryName;
public:
  ULWritingCallback() = default;
  ~ULWritingCallback() override = default; //empty, for later inheritance

  void SetDirectory(const std::string& inDirectoryName) { mDirectoryName = inDirectoryName; }

  void HandleDataSet(const DataSet& inDataSet) override;
  void HandleResponse(const DataSet& inDataSet) override;
};
} // end namespace network
} // end namespace gdcm

#endif //GDCMULCONNECTIONWRITINGCALLBACK_H
```

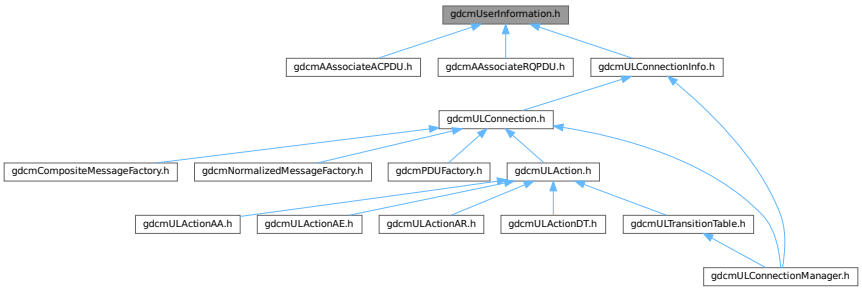
11.601 gdcmUserInformation.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMaximumLengthSub.h"
#include "gdcmImplementationVersionNameSub.h"
#include "gdcmImplementationClassUIDSub.h"
```

Include dependency graph for gdcmUserInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::UserInformation

  UserInformation.

Namespaces

- namespace gdcm
- namespace gdcm::network

11.602 gdcmUserInformation.h

Go to the documentation of this file.

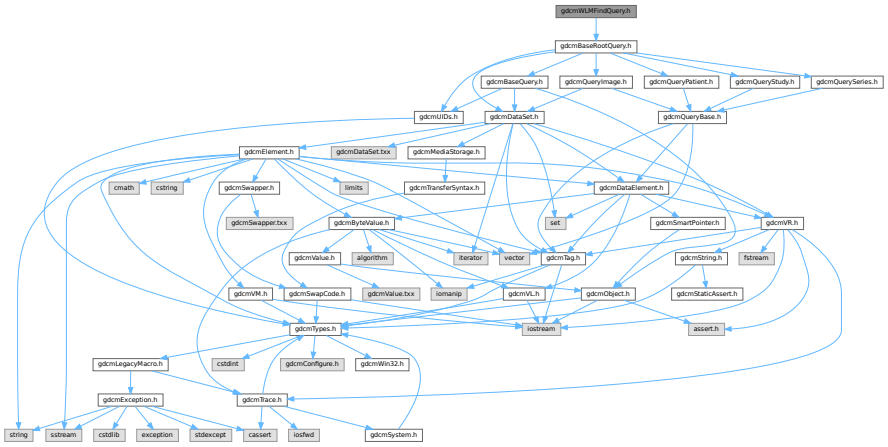
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMUSERINFORMATION_H
#define GDCMUSERINFORMATION_H

#include "gdcmTypes.h"
#include "gdcmMaximumLengthSub.h"
#include "gdcmImplementationVersionNameSub.h"
#include "gdcmImplementationClassUIDSub.h"

namespace gdcm
{

namespace network
{

class AsynchronousOperationsWindowSub;
class RoleSelectionSub;
struct RoleSelectionSubItems;
class SOPClassExtendedNegociationSub;
```

```
struct SOPClassExtendedNegociationSubItems;
class UserInformation
{
public:
  UserInformation();
  ~UserInformation();
  std::istream &Read(std::istream &is);
  const std::ostream &Write(std::ostream &os) const;
  size_t Size() const;

  void Print(std::ostream &os) const;

  const MaximumLengthSub &GetMaximumLengthSub() const { return MLS; }
  MaximumLengthSub &GetMaximumLengthSub() { return MLS; }

  void AddRoleSelectionSub( RoleSelectionSub const & r );
  void AddSOPClassExtendedNegociationSub( SOPClassExtendedNegociationSub const & s );

private:
  static const uint8_t ItemType;
  static const uint8_t Reserved2;
  uint16_t ItemLength; // len of
  MaximumLengthSub MLS;
  ImplementationClassUIDSub ICUID;
  AsynchronousOperationsWindowSub *AOWS;
  RoleSelectionSubItems *RSSI;
  SOPClassExtendedNegociationSubItems *SOPCENSI;
  ImplementationVersionNameSub IVNS;

public:
  UserInformation(const UserInformation&) = delete;
  UserInformation &operator=(const UserInformation&);
};

} // end namespace network

} // end namespace gdcm

#endif //GDCMUSERINFORMATION_H
```

11.603 gdcmWLMFindQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmWLMFindQuery.h:



Classes

- class gdcm::WLMFindQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

11.604 gdcmWLMFindQuery.h

Go to the documentation of this file.

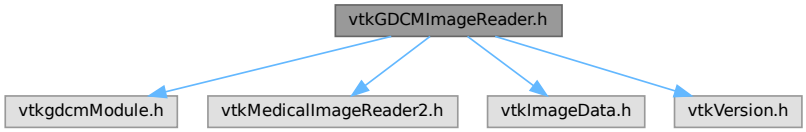
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMWLMFindQuery_H
#define GDCMWLMFindQuery_H

#include "gdcmBaseRootQuery.h"

namespace gdcm
{
class GDCM_EXPORT WLMFindQuery : public BaseRootQuery
{
  friend class QueryFactory;
public:
  WLMFindQuery();

  // no sense here
  void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
  std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
  // validate query has required tag
  bool ValidateQuery(bool inStrict = true) const override;

  UIDs::TSName GetAbstractSyntaxUID() const override;
protected :
  DataSet GetValidDataSet() const;
};

} // end namespace gdcm

#endif // GDCMWLMFindQuery_H
```

11.605 vtkGDCMImageReader.h File Reference

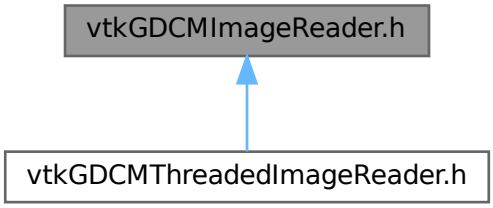
```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

```
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class vtkGDCMImageReader

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

11.605.1 Macro Definition Documentation

11.605.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

11.605.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

11.605.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

11.605.1.4 VTK_YBR

```
#define VTK_YBR 7
```

11.606 vtkGDCMImageReader.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMImageReader - read DICOM Image files (Pixel Data)
// .SECTION Description
// vtkGDCMImageReader is a source object that reads some DICOM files
// this reader is single threaded.
// .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
// upside down as VTK would expect, use this option only if you know what you are doing.
// .SECTION Implementation note: when reading a series of 2D slices, user is
// expected to provide an ordered list of filenames. No sorting will be applied afterward.
// .SECTION Implementation note: Although 99% of the time the Zspacing as read
// from a tag in a 2D DICOM file should be correct, there has been reports that this
// value can be missing, or incorrect, in which case users are advised to override this
// value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
// vtkImageChangeInformation on the reader itself.
// .SECTION TODO
// This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
// list of 2D files are supported for now.
// .SECTION TODO
// Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
// .SECTION BUG
// Overlay are assumed to have the same extent as image. Right now if overlay origin is not
// 0,0 the overlay will have an offset...
// Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the file)
// .SECTION DataOrigin
// When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
// identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the DataOrigin
// is then translated to the other side of the image.
// .SECTION Spacing
// When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect up-side-down)
// as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame object
// contains image which do not represent uniform volume.
// .SECTION Warning
// When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
```

```
// it is *required* that FileLowerLeft is set to ON as coordinate system
// would be inconsistent in between the two data structures.
// .SECTION Color Space mapping:
// * VTK_LUMINANCE         <-> MONOCHROME2
// * VTK_LUMINANCE_ALPHA   <-> Not supported
// * VTK_RGB               <-> RGB
// * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
// * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
// * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
// * VTK_YBR               <-> YBR_FULL
//
// For detailed information on color space transformation and true lossless transformation see:
// http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations

// .SECTION See Also
// vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
// vtkDICOMImageReader

#ifndef VTKGDCMIMAGEREADER_H
#define VTKGDCMIMAGEREADER_H

#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
#else
class vtkMedicalImageProperties;
#endif
#if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
#else
class vtkStringArray;
#endif
class vtkPolyData;

// vtkSystemIncludes.h defines:
// #define VTK_LUMINANCE       1
// #define VTK_LUMINANCE_ALPHA 2
// #define VTK_RGB             3
// #define VTK_RGBA            4
#ifndef VTK_INVERSE_LUMINANCE
#define VTK_INVERSE_LUMINANCE 5
#endif
#ifndef VTK_LOOKUP_TABLE
#define VTK_LOOKUP_TABLE 6
#endif
#ifndef VTK_YBR
#define VTK_YBR 7
#endif
#ifndef VTK_CMYK
#define VTK_CMYK 8
#endif

//BTX
namespace gdcm { class ImageReader; }
//ETX
class vtkMatrix4x4;
class VTKGDCM_EXPORT vtkGDCMImageReader : public vtkMedicalImageReader2
{
public:
  static vtkGDCMImageReader *New();
  vtkTypeMacro(vtkGDCMImageReader,vtkMedicalImageReader2);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  // Description: is the given file name a DICOM file containing an image ?
  virtual int CanReadFile(const char* fname);

  // Description:
  // Valid extensions
  virtual const char* GetFileExtensions()
    {
    // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
    return ".dcm .DCM";
    }

  // Description:
  // A descriptive name for this format
  virtual const char* GetDescriptiveName()
    {
    return "DICOM";
```

```
    }

  // Description:
  // Get the Image Position (Patient) as stored in the DICOM file
  // This is a read-only data member
  vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);

#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
#else
  // Description:
  // Get the medical image properties object
  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
#endif
  virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);

#if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
#else
  virtual void SetFileNames(vtkStringArray*);
  vtkGetObjectMacro(FileNames, vtkStringArray);
#endif

  // Description:
  // Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
  // If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
  vtkGetMacro(LoadOverlays,int);
  vtkSetMacro(LoadOverlays,int);
  vtkBooleanMacro(LoadOverlays,int);

  // Description:
  // Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
  vtkGetMacro(LoadIconImage,int);
  vtkSetMacro(LoadIconImage,int);
  vtkBooleanMacro(LoadIconImage,int);

  // Description:
  // Set/Get whether or not the image was compressed using a lossy compression algorithm
  vtkGetMacro(LossyFlag,int);
  vtkSetMacro(LossyFlag,int);
  vtkBooleanMacro(LossyFlag,int);

  // Description:
  // Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
  // Only valid when LoadOverlays is true
  vtkGetMacro(NumberOfOverlays,int);

  // Description:
  // Read only: number of icon image (there can only be zero or one icon per file)
  // Only valid when LoadIconImage is true
  vtkGetMacro(NumberOfIconImages,int);

  // Description:
  // Get Overlay/IconImage
  // Remember to ALWAYS use those methods in your code, as the internal number for the output port
  // is not guaranteed to remain the same, as features are added to the reader
#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
//FIXME: Need to get rid of BTX/ETX if only the Python Wrapper of VTK 4.2 would let me
//BTX
  vtkAlgorithmOutput* GetOverlayPort(int index);
  vtkAlgorithmOutput* GetIconImagePort();
//ETX
#endif
  vtkImageData* GetOverlay(int i);
  vtkImageData* GetIconImage();

  // Description:
  // Load image with its associated Lookup Table
  vtkGetMacro(ApplyLookupTable,int);
  vtkSetMacro(ApplyLookupTable,int);
  vtkBooleanMacro(ApplyLookupTable,int);

  // Description:
  // Load image as YBR
  vtkGetMacro(ApplyYBRToRGB,int)
  vtkSetMacro(ApplyYBRToRGB,int)
  vtkBooleanMacro(ApplyYBRToRGB,int);

  // Description:
  // Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
  // or 0 when ImageFormat is not handled.
  // Warning: For color image, PlanarConfiguration need to be taken into account.
  vtkGetMacro(ImageFormat,int);
```

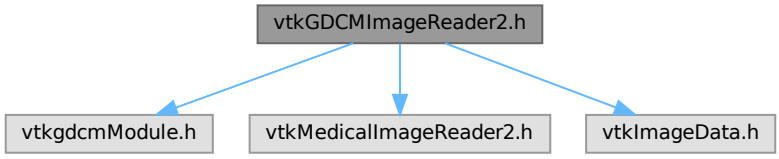
```
  // Description:
  // Return the Planar Configuration. This simply means that the internal DICOM image was stored
  // using a particular planar configuration (most of the time: 0)
  // For monochrome image, PlanarConfiguration is always 0
  vtkGetMacro(PlanarConfiguration,int);

  // Description:
  // Return the 'raw' information stored in the DICOM file:
  // In case of a series of multiple files, only the first file is considered. The Image Orientation (Patient)
  // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
  // using the ZSpacing (3rd dimension)
  // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
  // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6 ImageOrientationPatient
  vtkGetVector3Macro(ImagePositionPatient,double);
  vtkGetVector6Macro(ImageOrientationPatient,double);

  // Description:
  // Set/Get the first Curve Data:
  vtkGetObjectMacro(Curve,vtkPolyData);
  virtual void SetCurve(vtkPolyData *pd);

  // Description:
  // \DEPRECATED:
  // Modality LUT
  // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
  // varying along the Series read. Therefore user are advices not to use those functions
  // anymore
  vtkGetMacro(Shift,double);
  vtkGetMacro(Scale,double);

protected:
  vtkGDCMImageReader();
  ~vtkGDCMImageReader();

  vtkSetVector6Macro(ImageOrientationPatient,double);

//BTX
  void FillMedicalImageInformation(const gdcm::ImageReader &reader);
//ETX
  int RequestInformationCompat();
  int RequestDataCompat();

#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
  int ProcessRequest(vtkInformation* request,
                               vtkInformationVector** inputVector,
                               vtkInformationVector* outputVector);
  int RequestInformation(vtkInformation *request,
                         vtkInformationVector **inputVector,
                         vtkInformationVector *outputVector);
  int RequestData(vtkInformation *request,
                  vtkInformationVector **inputVector,
                  vtkInformationVector *outputVector);
#else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
  void ExecuteInformation();
  void ExecuteData(vtkDataObject *out);
#endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/

protected:
#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
#else
  // Description:
  // Medical Image properties
  vtkMedicalImageProperties *MedicalImageProperties;
#endif
#if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
#else
  vtkStringArray *FileNames;
#endif

  vtkMatrix4x4 *DirectionCosines;
  int LoadOverlays;
  int NumberOfOverlays;
  int LoadIconImage;
  int NumberOfIconImages;
  int IconImageDataExtent[6];
  double ImagePositionPatient[3];
  double ImageOrientationPatient[6];
  vtkPolyData *Curve;
```

```
  int ImageFormat;
  // the following 3, should remain optional
  int ApplyInverseVideo;
  int ApplyLookupTable;
  int ApplyYBRToRGB;
  // I think that planar configuration need to always be applied as far as VTK is concerned
  int ApplyPlanarConfiguration;
  int ApplyShiftScale;

  int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);

  double Shift;
  double Scale;
  int IconDataScalarType;
  int IconNumberOfScalarComponents;
  int PlanarConfiguration;
  int LossyFlag;
  int ForceRescale;

protected:
  // TODO / FIXME
  void SetFilePrefix(const char *) {}
  vtkGetStringMacro(FilePrefix);
  void SetFilePattern(const char *) {}
  vtkGetStringMacro(FilePattern);

private:
  vtkGDCMImageReader(const vtkGDCMImageReader&);  // Not implemented.
  void operator=(const vtkGDCMImageReader&);  // Not implemented.
};
#endif
```

11.607 vtkGDCMImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

Include dependency graph for vtkGDCMImageReader2.h:



Classes

- class vtkGDCMImageReader2

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

11.607.1 Macro Definition Documentation

11.607.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

11.607.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

11.607.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

11.607.1.4 VTK_YBR

```
#define VTK_YBR 7
```

11.608 vtkGDCMImageReader2.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMImageReader2 - read DICOM Image files (Pixel Data)
// .SECTION Description
// vtkGDCMImageReader2 is a source object that reads some DICOM files
// this reader is single threaded.
// .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
// upside down as VTK would expect, use this option only if you know what you are doing.
// .SECTION Implementation note: when reading a series of 2D slices, user is
// expected to provide an ordered list of filenames. No sorting will be applied afterward.
// .SECTION Implementation note: Although 99% of the time the Zspacing as read
// from a tag in a 2D DICOM file should be correct, there has been reports that this
// value can be missing, or incorrect, in which case users are advised to override this
```

```
// value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
// vtkImageChangeInformation on the reader itself.
// .SECTION TODO
// This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
// list of 2D files are supported for now.
// .SECTION TODO
// Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
// .SECTION BUG
// Overlay are assumed to have the same extent as image. Right now if overlay origin is not
// 0,0 the overlay will have an offset...
// Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the file)
// .SECTION DataOrigin
// When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
// identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the DataOrigin
// is then translated to the other side of the image.
// .SECTION Spacing
// When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect up-side-down)
// as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame object
// contains image which do not represent uniform volume.
// .SECTION Warning
// When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader2
// it is *required* that FileLowerLeft is set to ON as coordinate system
// would be inconsistent in between the two data structures.
// .SECTION Color Space mapping:
// * VTK_LUMINANCE         <-> MONOCHROME2
// * VTK_LUMINANCE_ALPHA   <-> Not supported
// * VTK_RGB               <-> RGB
// * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
// * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
// * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
// * VTK_YBR               <-> YBR_FULL
//
// For detailed information on color space transformation and true lossless transformation see:
// http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations

// .SECTION See Also
// vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
// vtkDICOMImageReader

#ifndef VTKGDCMIMAGEREADER2_H
#define VTKGDCMIMAGEREADER2_H

#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"

class vtkPolyData;

// vtkSystemIncludes.h defines:
// #define VTK_LUMINANCE       1
// #define VTK_LUMINANCE_ALPHA 2
// #define VTK_RGB             3
// #define VTK_RGBA            4
#ifndef VTK_INVERSE_LUMINANCE
#define VTK_INVERSE_LUMINANCE 5
#endif
#ifndef VTK_LOOKUP_TABLE
#define VTK_LOOKUP_TABLE 6
#endif
#ifndef VTK_YBR
#define VTK_YBR 7
#endif
#ifndef VTK_CMYK
#define VTK_CMYK 8
#endif

//BTX
namespace gdcm { class ImageReader; }
//ETX
class vtkMatrix4x4;
class VTKGDCM_EXPORT vtkGDCMImageReader2 : public vtkMedicalImageReader2
{
public:
  static vtkGDCMImageReader2 *New();
  vtkTypeMacro(vtkGDCMImageReader2,vtkMedicalImageReader2);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

```

```
// Description: is the given file name a DICOM file containing an image ?
virtual int CanReadFile(const char* fname);

// Description:
// Valid extensions
virtual const char* GetFileExtensions()
  {
  // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
  return ".dcm .DCM";
  }

// Description:
// A descriptive name for this format
virtual const char* GetDescriptiveName()
  {
  return "DICOM";
  }

// Description:
// Get the Image Position (Patient) as stored in the DICOM file
// This is a read-only data member
vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);

virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);

// Description:
// Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
// If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
vtkGetMacro(LoadOverlays,int);
vtkSetMacro(LoadOverlays,int);
vtkBooleanMacro(LoadOverlays,int);

// Description:
// Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
vtkGetMacro(LoadIconImage,int);
vtkSetMacro(LoadIconImage,int);
vtkBooleanMacro(LoadIconImage,int);

// Description:
// Set/Get whether or not the image was compressed using a lossy compression algorithm
vtkGetMacro(LossyFlag,int);
vtkSetMacro(LossyFlag,int);
vtkBooleanMacro(LossyFlag,int);

// Description:
// Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
// Only valid when LoadOverlays is true
vtkGetMacro(NumberOfOverlays,int);

// Description:
// Read only: number of icon image (there can only be zero or one icon per file)
// Only valid when LoadIconImage is true
vtkGetMacro(NumberOfIconImages,int);

// Description:
// Get Overlay/IconImage
// Remember to ALWAYS use those methods in your code, as the internal number for the output port
// is not guaranteed to remain the same, as features are added to the reader
vtkAlgorithmOutput* GetOverlayPort(int index);
vtkAlgorithmOutput* GetIconImagePort();
vtkImageData* GetOverlay(int i);
vtkImageData* GetIconImage();

// Description:
// Load image with its associated Lookup Table
vtkGetMacro(ApplyLookupTable,int);
vtkSetMacro(ApplyLookupTable,int);
vtkBooleanMacro(ApplyLookupTable,int);

// Description:
// Load image as YBR
vtkGetMacro(ApplyYBRToRGB,int)
vtkSetMacro(ApplyYBRToRGB,int)
vtkBooleanMacro(ApplyYBRToRGB,int);

// Description:
// Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
// or 0 when ImageFormat is not handled.
// Warning: For color image, PlanarConfiguration need to be taken into account.
vtkGetMacro(ImageFormat,int);

```

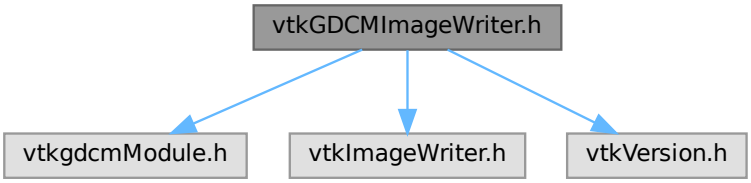
```
  // Description:
  // Return the Planar Configuration. This simply means that the internal DICOM image was stored
  // using a particular planar configuration (most of the time: 0)
  // For monochrome image, PlanarConfiguration is always 0
  vtkGetMacro(PlanarConfiguration,int);

  // Description:
  // Return the 'raw' information stored in the DICOM file:
  // In case of a series of multiple files, only the first file is considered. The Image Orientation (Patient)
  // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
  // using the ZSpacing (3rd dimension)
  // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
  // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6 ImageOrientationPatient
  vtkGetVector3Macro(ImagePositionPatient,double);
  vtkGetVector6Macro(ImageOrientationPatient,double);

  // Description:
  // Set/Get the first Curve Data:
  vtkGetObjectMacro(Curve,vtkPolyData);
  virtual void SetCurve(vtkPolyData *pd);

  // Description:
  // \DEPRECATED:
  // Modality LUT
  // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
  // varying along the Series read. Therefore user are advices not to use those functions
  // anymore
  vtkGetMacro(Shift,double);
  vtkGetMacro(Scale,double);

protected:
  vtkGDCMImageReader2();
  ~vtkGDCMImageReader2();

  vtkSetVector6Macro(ImageOrientationPatient,double);

//BTX
  void FillMedicalImageInformation(const gdcm::ImageReader &reader);
//ETX
  int RequestInformationCompat();
  int RequestDataCompat();

  int ProcessRequest(vtkInformation* request,
                              vtkInformationVector** inputVector,
                              vtkInformationVector* outputVector);
  int RequestInformation(vtkInformation *request,
                         vtkInformationVector **inputVector,
                         vtkInformationVector *outputVector);
  int RequestData(vtkInformation *request,
                  vtkInformationVector **inputVector,
                  vtkInformationVector *outputVector);

protected:
  vtkMatrix4x4 *DirectionCosines;
  int LoadOverlays;
  int NumberOfOverlays;
  int LoadIconImage;
  int NumberOfIconImages;
  int IconImageDataExtent[6];
  double ImagePositionPatient[3];
  double ImageOrientationPatient[6];
  vtkPolyData *Curve;

  int ImageFormat;
  // the following 3, should remain optional
  int ApplyInverseVideo;
  int ApplyLookupTable;
  int ApplyYBRToRGB;
  // I think that planar configuration need to always be applied as far as VTK is concerned
  int ApplyPlanarConfiguration;
  int ApplyShiftScale;

  int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);

  double Shift;
  double Scale;
  int IconDataScalarType;
  int IconNumberOfScalarComponents;
  int PlanarConfiguration;
```

```
  int LossyFlag;
  int ForceRescale;

protected:
  // TODO / FIXME
  void SetFilePrefix(const char *) {}
  vtkGetStringMacro(FilePrefix);
  void SetFilePattern(const char *) {}
  vtkGetStringMacro(FilePattern);

private:
  vtkGDCMImageReader2(const vtkGDCMImageReader2&);  // Not implemented.
  void operator=(const vtkGDCMImageReader2&);  // Not implemented.
};
#endif
```

11.609 vtkGDCMImageWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageWriter.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageWriter.h:



Classes

- class vtkGDCMImageWriter

11.610 vtkGDCMImageWriter.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMImageWriter - write DICOM files
```

```
// .SECTION Description
// vtkGDCMImageWriter is a sink object that write DICOM files
// this writer is single threaded (see vtkGDCMThreadedImageReader2 for multi-thread)
//
// .SECTION Warning: vtkLookupTable from the vtkImageData object taken into account
// only if ImageFormat is set to VTK_LOOKUP_TABLE
//
// .SECTION NOTE We are not using the usual API SetFilePrefix / SetFilePattern,
// but instead a list of filenames: see SetFileNames and class gdcm::FilenameGenerator
//
// .SECTION Warning
// You need to specify the correct ImageFormat (taken from the reader)
// You need to explicitly specify the DirectionCosines (taken from the reader)
// Since VTK 5.4 vtkMedicalImageProperties has its own DirectionCosine (no 's')
// user need to make sure the vtkMatrix4x4 is compatible with the 6-vector DirectionCosine.
//
// .SECTION NOTE Shift/Scale are global to all DICOM frames (=files) written
// as 2D slice, therefore the shift/scale operation might not be optimized for
// all slices. This is not recommended for image with a large dynamic range.
//
// .SECTION See Also
// vtkImageWriter vtkMedicalImageProperties vtkGDCMImageReader

#ifndef VTKGDCMIMAGEWRITER_H
#define VTKGDCMIMAGEWRITER_H

#include "vtkgdcmModule.h"
#include "vtkImageWriter.h"
#include "vtkVersion.h"

class vtkLookupTable;
class vtkMedicalImageProperties;
class vtkMatrix4x4;
class vtkStringArray;
class VTKGDCM_EXPORT vtkGDCMImageWriter : public vtkImageWriter
{
public:
  static vtkGDCMImageWriter *New();
  vtkTypeMacro(vtkGDCMImageWriter,vtkImageWriter);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Pass in the vtkmedicalimageproperties object for medical information
  // to be mapped to DICOM attributes.
  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
  virtual void SetMedicalImageProperties(vtkMedicalImageProperties*);

  // Description:
  // Pass in the list of filename to be used to write out the DICOM file(s)
  virtual void SetFileNames(vtkStringArray*);
  vtkGetObjectMacro(FileNames, vtkStringArray);

  // Description:
  // Set/Get whether or not the image was compressed using a lossy compression algorithm
  vtkGetMacro(LossyFlag,int);
  vtkSetMacro(LossyFlag,int);
  vtkBooleanMacro(LossyFlag,int);

  // I need that...
  virtual void Write();

  // Description:
  // Get the extension for this file format.
  virtual const char* GetFileExtensions() {
    return ".dcm .DCM"; }

  // Description:
  // Get the name of this file format.
  virtual const char* GetDescriptiveName() {
    return "DICOM"; }

  // Description:
  // You need to manually specify the direction the image is in to write a valid DICOM file
  // since vtkImageData do not contains one (eg. MR Image Storage, CT Image Storage...)
  virtual void SetDirectionCosines(vtkMatrix4x4 *matrix);
  vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
  virtual void SetDirectionCosinesFromImageOrientationPatient(const double dircos[6]);

  // Description:
  // Modality LUT
  vtkSetMacro(Shift, double);
```

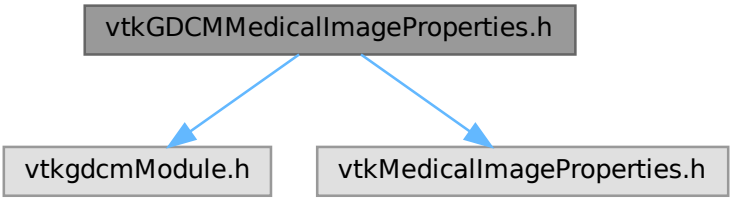
```
  vtkGetMacro(Shift, double);
  vtkSetMacro(Scale, double);
  vtkGetMacro(Scale, double);

  // Description:
  // See vtkGDCMImageReader for list of ImageFormat
  vtkGetMacro(ImageFormat,int);
  vtkSetMacro(ImageFormat,int);

  // Description:
  // Set/Get whether the data comes from the file starting in the lower left
  // corner or upper left corner.
  vtkBooleanMacro(FileLowerLeft, int);
  vtkGetMacro(FileLowerLeft, int);
  vtkSetMacro(FileLowerLeft, int);

  // Description:
  // For color image (more than a single comp) you can specify the planar configuration you prefer
  vtkSetMacro(PlanarConfiguration,int);
  vtkGetMacro(PlanarConfiguration,int);

  // Description:
  // Set/Get specific StudyUID / SeriesUID
  vtkSetStringMacro(StudyUID);
  vtkGetStringMacro(StudyUID);
  vtkSetStringMacro(SeriesUID);
  vtkGetStringMacro(SeriesUID);

//BTX
  enum CompressionTypes {
    NO_COMPRESSION = 0,   // raw (default)
    JPEG_COMPRESSION,     // JPEG
    JPEG2000_COMPRESSION, // J2K
    JPEGLS_COMPRESSION,   // JPEG-LS
    RLE_COMPRESSION       // RLE
  };
//ETX
  // Set/Get the compression type
  vtkSetMacro(CompressionType, int);
  vtkGetMacro(CompressionType, int);

  //void SetCompressionTypeFromString(const char *);
  //const char *GetCompressionTypeAsString();

protected:
  vtkGDCMImageWriter();
  ~vtkGDCMImageWriter();

#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
  int FillInputPortInformation(int port, vtkInformation *info);
  int RequestInformation(
    vtkInformation *request,
    vtkInformationVector **inputVector,
    vtkInformationVector *outputVector);
  int RequestUpdateExtent(
    vtkInformation *request,
    vtkInformationVector **inputVector,
    vtkInformationVector *outputVector);
  int RequestData(
    vtkInformation *request,
    vtkInformationVector **inputVector,
    vtkInformationVector *outputVector);
#else
  void WriteSlice(vtkImageData *data);
#endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
  int WriteGDCMData(vtkImageData *data, int timeStep);

protected:
  virtual /*const*/ char *GetFileName();

private:
  vtkGDCMImageWriter(const vtkGDCMImageWriter&);  // Not implemented.
  void operator=(const vtkGDCMImageWriter&);  // Not implemented.

  // VTK structs:
  //vtkLookupTable *LookupTable;
  vtkMedicalImageProperties *MedicalImageProperties;
  char *StudyUID;
  char *SeriesUID;

  int DataUpdateExtent[6];
```

```
  int ImageFormat;

  vtkStringArray *FileNames;
  vtkMatrix4x4 *DirectionCosines;

  double Shift;
  double Scale;
  int FileLowerLeft;
  int PlanarConfiguration;
  int LossyFlag;
  int CompressionType;
};

#endif
```

11.611 vtkGDCMMedicalImageProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageProperties.h"
```

Include dependency graph for vtkGDCMMedicalImageProperties.h:



Classes

- class vtkGDCMMedicalImageProperties

Namespaces

- namespace gdcm

11.612 vtkGDCMMedicalImageProperties.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMMedicalImageProperties - some medical image properties.
// .SECTION Description
// vtkGDCMMedicalImageProperties is a helper class that can be used by medical
// image readers and applications to encapsulate medical image/acquisition
// properties. Later on, this should probably be extended to add
// any user-defined property.
// .SECTION See Also
// vtkMedicalImageReader2

#ifndef VTKGDCMMEDICALIMAGEPROPERTIES_H
#define VTKGDCMMEDICALIMAGEPROPERTIES_H

#include "vtkgdcmModule.h"
#include "vtkMedicalImageProperties.h"

class vtkGDCMMedicalImagePropertiesInternals;
//BTX
namespace gdcm { class File; }
//ETX

class VTKGDCM_EXPORT vtkGDCMMedicalImageProperties : public vtkMedicalImageProperties
{
public:
  static vtkGDCMMedicalImageProperties *New();
  vtkTypeMacro(vtkGDCMMedicalImageProperties,vtkMedicalImageProperties);
  void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Convenience method to reset all fields to an empty string/value
  virtual void Clear();

/*
  // Description:
  // Patient name
  // For ex: DICOM (0010,0010) = DOE,JOHN
  vtkSetStringMacro(PatientName);
  vtkGetStringMacro(PatientName);

  // Description:
  // Patient ID
  // For ex: DICOM (0010,0020) = 1933197
  vtkSetStringMacro(PatientID);
  vtkGetStringMacro(PatientID);

  // Description:
  // Patient age
  // Format: nnnD, nnW, nnnM or nnnY (eventually nnD, nnW, nnY)
  //         with D (day), M (month), W (week), Y (year)
  // For ex: DICOM (0010,1010) = 031Y
  vtkSetStringMacro(PatientAge);
  vtkGetStringMacro(PatientAge);

  // Description:
  // Take as input a string in VR=AS (DICOM PS3.5) and extract either
  // different fields namely: year month week day
  // Return 0 on error, 1 on success
  // One can test fields if they are different from -1 upon success
  static int GetAgeAsFields(const char *age, int &year, int &month, int &week, int &day);

  // For Tcl:
  // From C++ use GetPatientAge + GetAgeAsField
  // Those function parse a DICOM string, and return the value of the number expressed
  // this is either expressed in year, month or days. Thus if a string is expressed in years
  // GetPatientAgeDay/GetPatientAgeWeek/GetPatientAgeMonth will return 0
  int GetPatientAgeYear();
  int GetPatientAgeMonth();
  int GetPatientAgeWeek();
  int GetPatientAgeDay();

  // Description:
  // Patient sex
  // For ex: DICOM (0010,0040) = M
  vtkSetStringMacro(PatientSex);
  vtkGetStringMacro(PatientSex);

```

```
// Description:
// Patient birth date
// Format: yyyymmdd
// For ex: DICOM (0010,0030) = 19680427
vtkSetStringMacro(PatientBirthDate);
vtkGetStringMacro(PatientBirthDate);

// For Tcl:
// From C++ use GetPatientBirthDate + GetDateAsFields
int GetPatientBirthDateYear();
int GetPatientBirthDateMonth();
int GetPatientBirthDateDay();

// Description:
// Study Date
// Format: yyyymmdd
// For ex: DICOM (0008,0020) = 20030617
vtkSetStringMacro(StudyDate);
vtkGetStringMacro(StudyDate);

// Description:
// Acquisition Date
// Format: yyyymmdd
// For ex: DICOM (0008,0022) = 20030617
vtkSetStringMacro(AcquisitionDate);
vtkGetStringMacro(AcquisitionDate);

// For Tcl:
// From C++ use GetAcquisitionDate + GetDateAsFields
int GetAcquisitionDateYear();
int GetAcquisitionDateMonth();
int GetAcquisitionDateDay();

// Description:
// Study Time
// Format: hhmmss.frac (any trailing component(s) can be omitted)
// For ex: DICOM (0008,0030) = 162552.0705 or 230012, or 0012
vtkSetStringMacro(StudyTime);
vtkGetStringMacro(StudyTime);

// Description:
// Acquisition time
// Format: hhmmss.frac (any trailing component(s) can be omitted)
// For ex: DICOM (0008,0032) = 162552.0705 or 230012, or 0012
vtkSetStringMacro(AcquisitionTime);
vtkGetStringMacro(AcquisitionTime);

// Description:
// Image Date aka Content Date
// Format: yyyymmdd
// For ex: DICOM (0008,0023) = 20030617
vtkSetStringMacro(ImageDate);
vtkGetStringMacro(ImageDate);

// For Tcl:
// From C++ use GetImageDate + GetDateAsFields
int GetImageDateYear();
int GetImageDateMonth();
int GetImageDateDay();

// Description:
// Take as input a string in ISO 8601 date (YYYY/MM/DD) and extract the
// different fields namely: year month day
// Return 0 on error, 1 on success
static int GetDateAsFields(const char *date, int &year, int &month, int &day);

// Description:
// Take as input a string in ISO 8601 date (YYYY/MM/DD) and construct a
// locale date based on the different fields (see GetDateAsFields to extract
// different fields)
// Return 0 on error, 1 on success
static int GetDateAsLocale(const char *date, char *locale);

// Description:
// Image Time
// Format: hhmmss.frac (any trailing component(s) can be omitted)
// For ex: DICOM (0008,0033) = 162552.0705 or 230012, or 0012
vtkSetStringMacro(ImageTime);
vtkGetStringMacro(ImageTime);

// Description:
```

```
// Image number
// For ex: DICOM (0020,0013) = 1
vtkSetStringMacro(ImageNumber);
vtkGetStringMacro(ImageNumber);

// Description:
// Series number
// For ex: DICOM (0020,0011) = 902
vtkSetStringMacro(SeriesNumber);
vtkGetStringMacro(SeriesNumber);

// Description:
// Series Description
// User provided description of the Series
// For ex: DICOM (0008,103e) = SCOUT
vtkSetStringMacro(SeriesDescription);
vtkGetStringMacro(SeriesDescription);

// Description:
// Study ID
// For ex: DICOM (0020,0010) = 37481
vtkSetStringMacro(StudyID);
vtkGetStringMacro(StudyID);

// Description:
// Study description
// For ex: DICOM (0008,1030) = BRAIN/C-SP/FACIAL
vtkSetStringMacro(StudyDescription);
vtkGetStringMacro(StudyDescription);

// Description:
// Modality
// For ex: DICOM (0008,0060)= CT
vtkSetStringMacro(Modality);
vtkGetStringMacro(Modality);

// Description:
// Manufacturer
// For ex: DICOM (0008,0070) = Siemens
vtkSetStringMacro(Manufacturer);
vtkGetStringMacro(Manufacturer);

// Description:
// Manufacturer's Model Name
// For ex: DICOM (0008,1090) = LightSpeed QX/i
vtkSetStringMacro(ManufacturerModelName);
vtkGetStringMacro(ManufacturerModelName);

// Description:
// Station Name
// For ex: DICOM (0008,1010) = LSPD_OC8
vtkSetStringMacro(StationName);
vtkGetStringMacro(StationName);

// Description:
// Institution Name
// For ex: DICOM (0008,0080) = FooCity Medical Center
vtkSetStringMacro(InstitutionName);
vtkGetStringMacro(InstitutionName);

// Description:
// Convolution Kernel (or algorithm used to reconstruct the data)
// For ex: DICOM (0018,1210) = Bone
vtkSetStringMacro(ConvolutionKernel);
vtkGetStringMacro(ConvolutionKernel);

// Description:
// Slice Thickness (Nominal reconstructed slice thickness, in mm)
// For ex: DICOM (0018,0050) = 0.273438
vtkSetStringMacro(SliceThickness);
vtkGetStringMacro(SliceThickness);
virtual double GetSliceThicknessAsDouble();

// Description:
// Peak kilo voltage output of the (x-ray) generator used
// For ex: DICOM (0018,0060) = 120
vtkSetStringMacro(KVP);
vtkGetStringMacro(KVP);

// Description:
// Gantry/Detector tilt (Nominal angle of tilt in degrees of the scanning
```

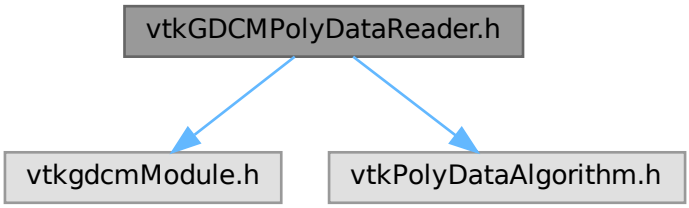
```
// gantry.)
// For ex: DICOM (0018,1120) = 15
vtkSetStringMacro(GantryTilt);
vtkGetStringMacro(GantryTilt);
virtual double GetGantryTiltAsDouble();

// Description:
// Echo Time
// (Time in ms between the middle of the excitation pulse and the peak of
// the echo produced)
// For ex: DICOM (0018,0081) = 105
vtkSetStringMacro(EchoTime);
vtkGetStringMacro(EchoTime);

// Description:
// Echo Train Length
// (Number of lines in k-space acquired per excitation per image)
// For ex: DICOM (0018,0091) = 35
vtkSetStringMacro(EchoTrainLength);
vtkGetStringMacro(EchoTrainLength);

// Description:
// Repetition Time
// The period of time in msec between the beginning of a pulse sequence and
// the beginning of the succeeding (essentially identical) pulse sequence.
// For ex: DICOM (0018,0080) = 2040
vtkSetStringMacro(RepetitionTime);
vtkGetStringMacro(RepetitionTime);

// Description:
// Exposure time (time of x-ray exposure in msec)
// For ex: DICOM (0018,1150) = 5
vtkSetStringMacro(ExposureTime);
vtkGetStringMacro(ExposureTime);

// Description:
// X-ray tube current (in mA)
// For ex: DICOM (0018,1151) = 400
vtkSetStringMacro(XRayTubeCurrent);
vtkGetStringMacro(XRayTubeCurrent);

// Description:
// Exposure (The exposure expressed in mAs, for example calculated
// from Exposure Time and X-ray Tube Current)
// For ex: DICOM (0018,1152) = 114
vtkSetStringMacro(Exposure);
vtkGetStringMacro(Exposure);

// Interface to allow insertion of user define values, for instance in DICOM one would want to
// store the Protocol Name (0018,1030), in this case one would do:
// AddUserDefinedValue( "Protocol Name", "T1W/SE/1024" );
void AddUserDefinedValue(const char *name, const char *value);
// Get a particular user value
const char *GetUserDefinedValue(const char *name);
// Get the number of user defined values
unsigned int GetNumberOfUserDefinedValues();
// Get a name/value by index
const char *GetUserDefinedNameByIndex(unsigned int idx);
const char *GetUserDefinedValueByIndex(unsigned int idx);

// Description:
// Copy the contents of p to this instance.
virtual void DeepCopy(vtkGDCMMedicalImageProperties *p);

// Description:
// Add/Remove/Query the window/level presets that may have been associated
// to a medical image. Window is also known as 'width', level is also known
// as 'center'. The same window/level pair can not be added twice.
// As a convenience, a comment (aka Explanation) can be associated to a preset.
// For ex: DICOM Window Center (0028,1050) = 00045\000470
//         DICOM Window Width  (0028,1051) = 0106\03412
//         DICOM Window Center Width Explanation (0028,1055) = WINDOW1\WINDOW2
virtual void AddWindowLevelPreset(double w, double l);
virtual void RemoveWindowLevelPreset(double w, double l);
virtual void RemoveAllWindowLevelPresets();
virtual int GetNumberOfWindowLevelPresets();
virtual int HasWindowLevelPreset(double w, double l);
virtual int GetNthWindowLevelPreset(int idx, double *w, double *l);
virtual double* GetNthWindowLevelPreset(int idx);
virtual void SetNthWindowLevelPresetComment(int idx, const char *comment);
virtual const char* GetNthWindowLevelPresetComment(int idx);
```

```
  // Description:
  // Mapping from a sliceidx within a volumeidx into a DICOM Instance UID
  // Some DICOM reader can populate this structure so that later on from a slice index
  // in a vtkImageData volume we can backtrack and find out which 2d slice it was coming from
  const char *GetInstanceUIDFromSliceID(int volumeidx, int sliceid);
  void SetInstanceUIDFromSliceID(int volumeidx, int sliceid, const char *uid);

  // Description:
  // Provides the inverse mapping. Returns -1 if a slice for this uid is
  // not found.
  int GetSliceIDFromInstanceUID(int &volumeidx, const char *uid);

//BTX
  typedef enum {
    AXIAL = 0,
    CORONAL,
    SAGITTAL
  } OrientationType;
//ETX
  int GetOrientationType(int volumeidx);
  void SetOrientationType(int volumeidx, int orientation);
  static const char *GetStringFromOrientationType(unsigned int type);
*/
protected:
  vtkGDCMMedicalImageProperties();
  ~vtkGDCMMedicalImageProperties();

//BTX
  friend class vtkGDCMImageReader;
  friend class vtkGDCMImageReader2;
  friend class vtkGDCMImageWriter;
  void PushBackFile(gdcm::File const &f);
  gdcm::File const & GetFile(unsigned int t);
//ETX

private:
  vtkGDCMMedicalImagePropertiesInternals *Internals;

  vtkGDCMMedicalImageProperties(const vtkGDCMMedicalImageProperties&); // Not implemented.
  void operator=(const vtkGDCMMedicalImageProperties&); // Not implemented.
};

#endif
```

11.613 vtkGDCMPolyDataReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataAlgorithm.h"
```

Include dependency graph for vtkGDCMPolyDataReader.h:



Classes

- class vtkGDCMPolyDataReader

Namespaces

- namespace gdcm

11.614 vtkGDCMPolyDataReader.h

Go to the documentation of this file.

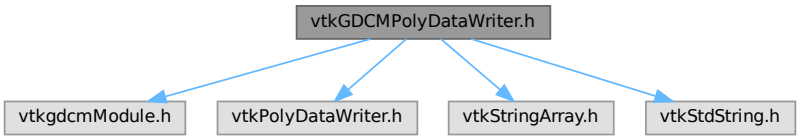
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMPolyDataReader - read DICOM PolyData files (Contour Data...)
// .SECTION Description
// For now only support RTSTRUCT (RT Structure Set Storage)
// .SECTION TODO
// Need to do the same job for DVH Sequence/DVH Data...
// .SECTION Warning
// When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
// it is *required* that FileLowerLeft is set to ON as coordinate system
// would be inconsistent in between the two data structures.
//
// .SECTION See Also
// vtkGDCMImageReader vtkGDCMPolyDataWriter vtkRTStructSetProperties


#ifndef VTKGDCMPOLYDATAREADER_H
#define VTKGDCMPOLYDATAREADER_H

#include "vtkgdcmModule.h"
#include "vtkPolyDataAlgorithm.h"

class vtkMedicalImageProperties;
class vtkRTStructSetProperties;
//BTX
namespace gdcm { class Reader; }
//ETX
class VTKGDCM_EXPORT vtkGDCMPolyDataReader : public vtkPolyDataAlgorithm
{
public:
  static vtkGDCMPolyDataReader *New();
  vtkTypeMacro(vtkGDCMPolyDataReader,vtkPolyDataAlgorithm);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Set/Get the filename of the file to be read
  vtkSetStringMacro(FileName);
  vtkGetStringMacro(FileName);

  // Description:
  // Get the medical image properties object
  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);

  vtkGetObjectMacro(RTStructSetProperties, vtkRTStructSetProperties);

protected:
  vtkGDCMPolyDataReader();
  ~vtkGDCMPolyDataReader();
```

```
  char *FileName;
  vtkMedicalImageProperties *MedicalImageProperties;
  vtkRTStructSetProperties *RTStructSetProperties;
//BTX
  void FillMedicalImageInformation(const gdcm::Reader &reader);
//ETX

  int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);
  int RequestInformation(
    vtkInformation *vtkNotUsed(request),
    vtkInformationVector **vtkNotUsed(inputVector),
    vtkInformationVector *outputVector);
//BTX
  int RequestInformation_RTStructureSetStorage(gdcm::Reader const & reader);
  int RequestData_RTStructureSetStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector);
  int RequestInformation_HemodynamicWaveformStorage(gdcm::Reader const & reader);
  int RequestData_HemodynamicWaveformStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector);
//ETX

private:
  vtkGDCMPolyDataReader(const vtkGDCMPolyDataReader&);  // Not implemented.
  void operator=(const vtkGDCMPolyDataReader&);  // Not implemented.
};

#endif
```

11.615 vtkGDCMPolyDataWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataWriter.h"
#include "vtkStringArray.h"
#include "vtkStdString.h"
```

Include dependency graph for vtkGDCMPolyDataWriter.h:



Classes

- class vtkGDCMPolyDataWriter

Namespaces

- namespace gdcm

11.616 vtkGDCMPolyDataWriter.h

Go to the documentation of this file.

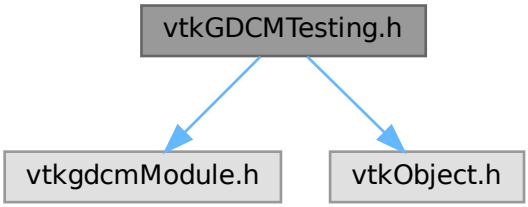
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMPolyDataWriter - writer DICOM PolyData files (Contour Data...)
// .SECTION Description
// For now only support RTSTRUCT (RT Structure Set Storage)
// .SECTION TODO
// Need to do the same job for DVH Sequence/DVH Data...
// .SECTION Warning
//
// .SECTION See Also
// vtkGDCMImageReader vtkGDCMPolyDataReader vtkRTStructSetProperties


#ifndef VTKGDCMPOLYDATAWRITER_H
#define VTKGDCMPOLYDATAWRITER_H

#include "vtkgdcmModule.h"
#include "vtkPolyDataWriter.h"
#include "vtkStringArray.h"
#include "vtkStdString.h"


class vtkMedicalImageProperties;
class vtkRTStructSetProperties;
//BTX
namespace gdcm { class File; }
//ETX
class VTKGDCM_EXPORT vtkGDCMPolyDataWriter : public vtkPolyDataWriter
{
public:
  static vtkGDCMPolyDataWriter *New();
  vtkTypeMacro(vtkGDCMPolyDataWriter,vtkPolyDataWriter);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Set/Get the filename of the file to be read
//  vtkSetStringMacro(FileName);
//  vtkGetStringMacro(FileName);

  // Description:
  // Get the medical image properties object
//  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
  virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);

  virtual void SetRTStructSetProperties(vtkRTStructSetProperties *pd);


  //this function will initialize the contained rtstructset with
  //the inputs of the writer and the various extra information
  //necessary for writing a complete rtstructset.
  //NOTE: inputs must be set BEFORE calling this function!
  //NOTE: the number of outputs for the appendpolydata MUST MATCH the ROI vectors!
  void InitializeRTStructSet(vtkStdString inDirectory,
     vtkStdString inStructLabel, vtkStdString inStructName,
     vtkStringArray* inROINames,
     vtkStringArray* inROIAlgorithmName,
     vtkStringArray* inROIType);

  // make parent class public...
  void SetNumberOfInputPorts(int n);

protected:
  vtkGDCMPolyDataWriter();
  ~vtkGDCMPolyDataWriter();

```

```
  vtkMedicalImageProperties *MedicalImageProperties;
  vtkRTStructSetProperties *RTStructSetProperties;

  void WriteData();
//BTX
  void WriteRTSTRUCTInfo(gdcm::File &file);
  void WriteRTSTRUCTData(gdcm::File &file, int num);
//ETX

private:
  vtkGDCMPolyDataWriter(const vtkGDCMPolyDataWriter&);  // Not implemented.
  void operator=(const vtkGDCMPolyDataWriter&);  // Not implemented.
};

#endif
```

11.617 vtkGDCMTesting.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkGDCMTesting.h:



Classes

- class vtkGDCMTesting

11.618 vtkGDCMTesting.h

Go to the documentation of this file.

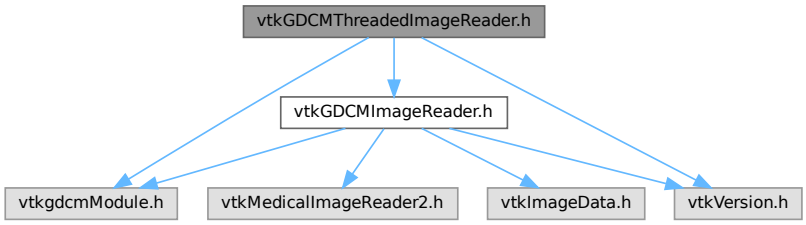
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

```
// .NAME vtkGDCMTesting - GDCM Testing
// .SECTION Description
// GDCM Testing

// .SECTION See Also
// vtkTesting

#ifndef VTKGDCMTESTING_H
#define VTKGDCMTESTING_H

#include "vtkgdcmModule.h"
#include "vtkObject.h"

class VTKGDCM_EXPORT vtkGDCMTesting : public vtkObject
{
public:
  static vtkGDCMTesting *New();
  vtkTypeMacro(vtkGDCMTesting,vtkObject);
  void PrintSelf(ostream& os, vtkIndent indent);

  static const char *GetVTKDataRoot();
  static const char *GetGDCMDataRoot();

//BTX
  typedef const char* const (*MD5MetaImagesType)[3];
  static const char * const * GetMD5MetaImage(unsigned int file);
//ETX
  static unsigned int GetNumberOfMD5MetaImages();

  static const char * GetMHDMD5FromFile(const char *filepath);
  static const char * GetRAWMD5FromFile(const char *filepath);

protected:
  vtkGDCMTesting();
  ~vtkGDCMTesting();

private:
  vtkGDCMTesting(const vtkGDCMTesting&);  // Not implemented.
  void operator=(const vtkGDCMTesting&);  // Not implemented.
};

#endif
```

11.619 vtkGDCMThreadedImageReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkGDCMImageReader.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMThreadedImageReader.h:



Classes

- class vtkGDCMThreadedImageReader

11.620 vtkGDCMThreadedImageReader.h

Go to the documentation of this file.

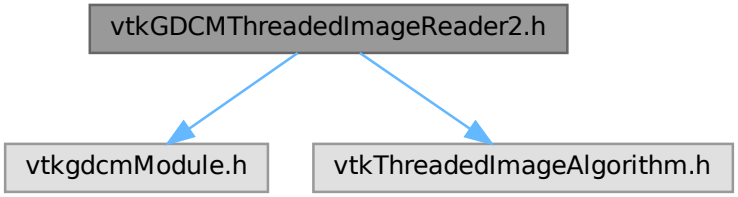
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMThreadedImageReader - read DICOM files with multiple threads
// .SECTION Description
// vtkGDCMThreadedImageReader is a source object that reads some DICOM files
// This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
// read approx N times faster than when reading in a single thread.
//
// .SECTION Warning: Advanced users only. Do not use this class in the general case,
// you have to understand how physically medium works first (sequential reading for
// instance) before playing with this class
//
// .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
// upside down as VTK would expect, use this option only if you know what you are doing
//
// .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
//
// .SECTION FIXME: you need to call SetFileName when reading a volume file (multiple slices DICOM)
// since SetFileNames expect each single file to be single slice (see parent class)
//
// .SECTION BUG: you should really consider using vtkGDCMThreadedImageReader2 instead !
//
// .SECTION See Also
// vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMThreadedImageReader2

#ifndef VTKGDCMTHREADEDIMAGEREADER_H
#define VTKGDCMTHREADEDIMAGEREADER_H

#include "vtkgdcmModule.h"
#include "vtkGDCMImageReader.h"
#include "vtkVersion.h"

class VTKGDCM_EXPORT vtkGDCMThreadedImageReader : public vtkGDCMImageReader
{
public:
  static vtkGDCMThreadedImageReader *New();
  vtkTypeMacro(vtkGDCMThreadedImageReader,vtkGDCMImageReader);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Explicitly set the Rescale Intercept (0028,1052)
  vtkSetMacro(Shift,double);

  // Description:
  // Explicitly get/set the Rescale Slope (0028,1053)
  vtkSetMacro(Scale,double);

  // Description:
  // Determine whether or not reader should use value from Shift/Scale
  // Default is 1
  vtkSetMacro(UseShiftScale,int);
  vtkGetMacro(UseShiftScale,int);
  vtkBooleanMacro(UseShiftScale,int);

  // Within this class this is allowed to set the Number of Overlays from outside
  //vtkSetMacro(NumberOfOverlays,int);

protected:
  vtkGDCMThreadedImageReader();
  ~vtkGDCMThreadedImageReader();

#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
  int RequestInformation(vtkInformation *request,
                         vtkInformationVector **inputVector,
                         vtkInformationVector *outputVector);
```

```
  int RequestData(vtkInformation *request,
                  vtkInformationVector **inputVector,
                  vtkInformationVector *outputVector);
#else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
  void ExecuteInformation();
  void ExecuteData(vtkDataObject *out);
#endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/

  void ReadFiles(unsigned int nfiles, const char *filenames[]);
  void RequestDataCompat();

private:
  vtkGDCMThreadedImageReader(const vtkGDCMThreadedImageReader&);  // Not implemented.
  void operator=(const vtkGDCMThreadedImageReader&);  // Not implemented.

  int UseShiftScale;
};

#endif
```

11.621 vtkGDCMThreadedImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkGDCMThreadedImageReader2.h:



Classes

- class vtkGDCMThreadedImageReader2

11.622 vtkGDCMThreadedImageReader2.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

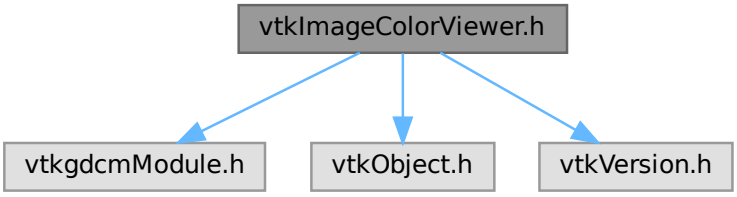
```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkGDCMThreadedImageReader2 - read DICOM files with multiple threads
// .SECTION Description
// vtkGDCMThreadedImageReader2 is a source object that reads some DICOM files
// This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
// read approx N times faster than when reading in a single thread assuming the IO is
// not a bottleneck operation.
// If looking for a single threaded class see: vtkGDCMImageReader
//
// .SECTION Warning: Advanced users only. Do not use this class in the general case,
// you have to understand how physically medium works first (sequential reading for
// instance) before playing with this class
//
// .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
// upside down as VTK would expect, use this option only if you know what you are doing
//
// .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
//
// .SECTION FIXME: need to implement reading of series of 3D files
//
// .SECTION Implementation note: this class is meant to supersede vtkGDCMThreadedImageReader
// because it had support for ProgressEvent support even from python layer. There is a
// subtle trick down in the threading mechanism in VTK were the main thread (talking to the
// python interpreter) is also part of the execution process (and the N-1 other thread
// are just there to execute the remaining of ThreadedRequestData), this separation into
// two types of thread is necessary to achieve a working implementation of UpdateProgress

// .SECTION See Also
// vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMImageReader

#ifndef VTKGDCMTHREADEDIMAGEREADER2_H
#define VTKGDCMTHREADEDIMAGEREADER2_H

#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"

class vtkStringArray;
class VTKGDCM_EXPORT vtkGDCMThreadedImageReader2 : public vtkThreadedImageAlgorithm
{
public:
  static vtkGDCMThreadedImageReader2 *New();
  vtkTypeMacro(vtkGDCMThreadedImageReader2,vtkThreadedImageAlgorithm);
  virtual void PrintSelf(ostream& os, vtkIndent indent);

  vtkGetMacro(FileLowerLeft,int);
  vtkSetMacro(FileLowerLeft,int);
  vtkBooleanMacro(FileLowerLeft,int);

  vtkGetMacro(NumberOfOverlays,int);

  vtkSetMacro(DataScalarType,int);
  vtkGetMacro(DataScalarType,int);

  vtkSetMacro(NumberOfScalarComponents,int);
  vtkGetMacro(NumberOfScalarComponents,int);

  vtkGetMacro(LoadOverlays,int);
  vtkSetMacro(LoadOverlays,int);
  vtkBooleanMacro(LoadOverlays,int);

  vtkSetVector6Macro(DataExtent,int);
  vtkGetVector6Macro(DataExtent,int);

  vtkSetVector3Macro(DataOrigin,double);
  vtkGetVector3Macro(DataOrigin,double);

  vtkSetVector3Macro(DataSpacing,double);
  vtkGetVector3Macro(DataSpacing,double);

  //vtkGetStringMacro(FileName);
  //vtkSetStringMacro(FileName);
  virtual const char *GetFileName(int i = 0);
  virtual void SetFileName(const char *filename);

  virtual void SetFileNames(vtkStringArray*);
  vtkGetObjectMacro(FileNames, vtkStringArray);

  int SplitExtent(int splitExt[6], int startExt[6],
                  int num, int total);
```

```
  // Description:
  // Explicitly set the Rescale Intercept (0028,1052)
  vtkSetMacro(Shift,double);
  vtkGetMacro(Shift,double);

  // Description:
  // Explicitly get/set the Rescale Slope (0028,1053)
  vtkSetMacro(Scale,double);
  vtkGetMacro(Scale,double);

  // Description:
  // Determine whether or not reader should use value from Shift/Scale
  // Default is 1
  vtkSetMacro(UseShiftScale,int);
  vtkGetMacro(UseShiftScale,int);
  vtkBooleanMacro(UseShiftScale,int);

protected:
  vtkGDCMThreadedImageReader2();
  ~vtkGDCMThreadedImageReader2();

  int RequestInformation(vtkInformation *request,
                         vtkInformationVector **inputVector,
                         vtkInformationVector *outputVector);

protected:
  void ThreadedRequestData (
    vtkInformation * request,
    vtkInformationVector** inputVector,
    vtkInformationVector * outputVector,
    vtkImageData ***inData,
    vtkImageData **outData,
    int outExt[6], int id);

private:
  int FileLowerLeft;
  char *FileName;
  vtkStringArray *FileNames;
  int LoadIconImage;
  int DataExtent[6];
  int LoadOverlays;
  int NumberOfOverlays;
  int DataScalarType;

  int NumberOfScalarComponents;
  double DataSpacing[3];
  double DataOrigin[3];
  int IconImageDataExtent[6];

  double Shift;
  double Scale;
  int UseShiftScale;

private:
  vtkGDCMThreadedImageReader2(const vtkGDCMThreadedImageReader2&);  // Not implemented.
  void operator=(const vtkGDCMThreadedImageReader2&);  // Not implemented.
};

#endif
```

11.623 vtkImageColorViewer.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkImageColorViewer.h:



Classes

- class vtkImageColorViewer

11.624 vtkImageColorViewer.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImageColorViewer - Display a 2D image.
// .SECTION Description
// vtkImageColorViewer is a convenience class for displaying a 2D image.  It
// packages up the functionality found in vtkRenderWindow, vtkRenderer,
// vtkImageActor and vtkImageMapToWindowLevelColors into a single easy to use
// class.  This class also creates an image interactor style
// (vtkInteractorStyleImage) that allows zooming and panning of images, and
// supports interactive window/level operations on the image. Note that
// vtkImageColorViewer is simply a wrapper around these classes.
//
// vtkImageColorViewer uses the 3D rendering and texture mapping engine
// to draw an image on a plane.  This allows for rapid rendering,
// zooming, and panning. The image is placed in the 3D scene at a
// depth based on the z-coordinate of the particular image slice. Each
// call to SetSlice() changes the image data (slice) displayed AND
// changes the depth of the displayed slice in the 3D scene. This can
// be controlled by the AutoAdjustCameraClippingRange ivar of the
// InteractorStyle member.
//
// It is possible to mix images and geometry, using the methods:
//
// viewer->SetInput( myImage );
// viewer->GetRenderer()->AddActor( myActor );
//
// This can be used to annotate an image with a PolyData of "edges" or
// or highlight sections of an image or display a 3D isosurface
// with a slice from the volume, etc. Any portions of your geometry
// that are in front of the displayed slice will be visible; any
```

```
// portions of your geometry that are behind the displayed slice will
// be obscured. A more general framework (with respect to viewing
// direction) for achieving this effect is provided by the
// vtkImagePlaneWidget .
//
// Note that pressing 'r' will reset the window/level and pressing
// shift+'r' or control+'r' will reset the camera.
//
// .SECTION See Also
// vtkRenderWindow vtkRenderer vtkImageActor vtkImageMapToWindowLevelColors

#ifndef VTKIMAGECOLORVIEWER_H
#define VTKIMAGECOLORVIEWER_H

#include "vtkgdcmModule.h"
#include "vtkObject.h"
#include "vtkVersion.h"

class vtkAlgorithm;
class vtkAlgorithmOutput;
class vtkImageActor;
class vtkImageData;
class vtkImageMapToWindowLevelColors2;
class vtkInformation;
class vtkInteractorStyleImage;
class vtkRenderWindow;
class vtkRenderer;
class vtkRenderWindowInteractor;
class vtkPolyData;

class VTKGDCM_EXPORT vtkImageColorViewer : public vtkObject
{
public:
  static vtkImageColorViewer *New();
  vtkTypeMacro(vtkImageColorViewer,vtkObject);
  void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Get the name of rendering window.
  virtual const char *GetWindowName();

  // Description:
  // Render the resulting image.
  virtual void Render(void);

  // Description:
  // Set/Get the input image to the viewer.
#if (VTK_MAJOR_VERSION >= 6)
  virtual void SetInputData(vtkImageData *in);
#else
  virtual void SetInput(vtkImageData *in);
#endif
  virtual vtkImageData *GetInput();
  virtual void SetInputConnection(vtkAlgorithmOutput* input);
  virtual void AddInputConnection(vtkAlgorithmOutput* input);
  virtual void AddInput(vtkImageData * input);
  //virtual void AddInput(vtkPolyData * input);

  double GetOverlayVisibility();
  void SetOverlayVisibility(double vis);

  // Description:
  // Set/get the slice orientation
  //BTX
  enum
  {
    SLICE_ORIENTATION_YZ = 0,
    SLICE_ORIENTATION_XZ = 1,
    SLICE_ORIENTATION_XY = 2
  };
  //ETX
  vtkGetMacro(SliceOrientation, int);
  virtual void SetSliceOrientation(int orientation);
  virtual void SetSliceOrientationToXY()
    { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XY); };
  virtual void SetSliceOrientationToYZ()
    { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_YZ); };
  virtual void SetSliceOrientationToXZ()
    { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XZ); };

  // Description:
```

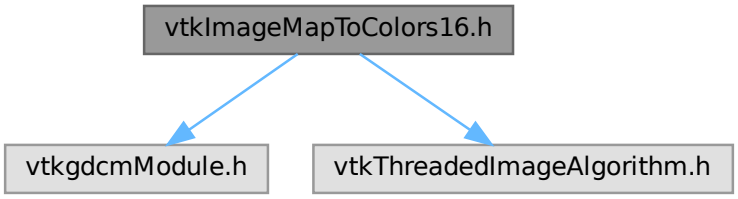
```
  // Set/Get the current slice to display (depending on the orientation
  // this can be in X, Y or Z).
  vtkGetMacro(Slice, int);
  virtual void SetSlice(int s);

  // Description:
  // Update the display extent manually so that the proper slice for the
  // given orientation is displayed. It will also try to set a
  // reasonable camera clipping range.
  // This method is called automatically when the Input is changed, but
  // most of the time the input of this class is likely to remain the same,
  // i.e. connected to the output of a filter, or an image reader. When the
  // input of this filter or reader itself is changed, an error message might
  // be displayed since the current display extent is probably outside
  // the new whole extent. Calling this method will ensure that the display
  // extent is reset properly.
  virtual void UpdateDisplayExtent();

  // Description:
  // Return the minimum and maximum slice values (depending on the orientation
  // this can be in X, Y or Z).
  virtual int GetSliceMin();
  virtual int GetSliceMax();
  virtual void GetSliceRange(int range[2])
    { this->GetSliceRange(range[0], range[1]); }
  virtual void GetSliceRange(int &min, int &max);
  virtual int* GetSliceRange();

  // Description:
  // Set window and level for mapping pixels to colors.
  virtual double GetColorWindow();
  virtual double GetColorLevel();
  virtual void SetColorWindow(double s);
  virtual void SetColorLevel(double s);

  // Description:
  // These are here when using a Tk window.
  virtual void SetDisplayId(void *a);
  virtual void SetWindowId(void *a);
  virtual void SetParentId(void *a);

  // Description:
  // Set/Get the position in screen coordinates of the rendering window.
  virtual int* GetPosition();
  virtual void SetPosition(int a,int b);
  virtual void SetPosition(int a[2]) { this->SetPosition(a[0],a[1]); }

  // Description:
  // Set/Get the size of the window in screen coordinates in pixels.
  virtual int* GetSize();
  virtual void SetSize(int a, int b);
  virtual void SetSize(int a[2]) { this->SetSize(a[0],a[1]); }

  // Description:
  // Get the internal render window, renderer, image actor, and
  // image map instances.
  vtkGetObjectMacro(RenderWindow,vtkRenderWindow);
  vtkGetObjectMacro(Renderer, vtkRenderer);
  vtkGetObjectMacro(ImageActor,vtkImageActor);
  vtkGetObjectMacro(WindowLevel,vtkImageMapToWindowLevelColors2);
  vtkGetObjectMacro(InteractorStyle,vtkInteractorStyleImage);

  // Description:
  // Set your own renderwindow and renderer
  virtual void SetRenderWindow(vtkRenderWindow *arg);
  virtual void SetRenderer(vtkRenderer *arg);

  // Description:
  // Attach an interactor for the internal render window.
  virtual void SetupInteractor(vtkRenderWindowInteractor*);

  // Description:
  // Create a window in memory instead of on the screen. This may not
  // be supported for every type of window and on some windows you may
  // need to invoke this prior to the first render.
  virtual void SetOffScreenRendering(int);
  virtual int GetOffScreenRendering();
  vtkBooleanMacro(OffScreenRendering,int);

protected:
  vtkImageColorViewer();
```

```
  ~vtkImageColorViewer();

  virtual void InstallPipeline();
  virtual void UnInstallPipeline();

  vtkImageMapToWindowLevelColors2  *WindowLevel;
  vtkRenderWindow                 *RenderWindow;
  vtkRenderer                     *Renderer;
  vtkImageActor                   *ImageActor;
  vtkImageActor                   *OverlayImageActor;
  vtkRenderWindowInteractor       *Interactor;
  vtkInteractorStyleImage         *InteractorStyle;

  int SliceOrientation;
  int FirstRender;
  int Slice;

  virtual void UpdateOrientation();

#if (VTK_MAJOR_VERSION >= 6)
  vtkAlgorithm* GetInputAlgorithm();
  vtkInformation* GetInputInformation();
#endif

  friend class vtkImageColorViewerCallback;

private:
  vtkImageColorViewer(const vtkImageColorViewer&);  // Not implemented.
  void operator=(const vtkImageColorViewer&);  // Not implemented.
};

#endif
```

11.625 vtkImageMapToColors16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageMapToColors16.h:



Classes

- class vtkImageMapToColors16

11.626 vtkImageMapToColors16.h

Go to the documentation of this file.

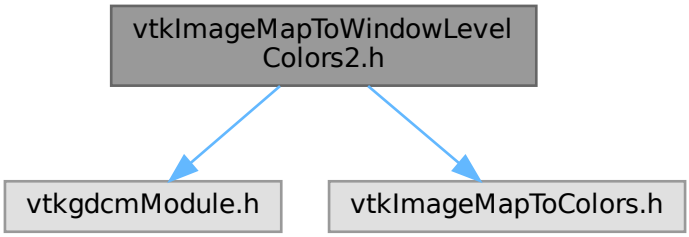
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkImageMapToColors16.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImageMapToColors16 - map the input image through a lookup table
// .SECTION Description
// The vtkImageMapToColors16 filter will take an input image of any valid
// scalar type, and map the first component of the image through a
// lookup table.  The result is an image of type VTK_UNSIGNED_CHAR.
// If the lookup table is not set, or is set to NULL, then the input
// data will be passed through if it is already of type VTK_UNSIGNED_CHAR.

// .SECTION See Also
// vtkLookupTable vtkScalarsToColors

#ifndef VTKIMAGEMAPTOCOLORS16_H
#define VTKIMAGEMAPTOCOLORS16_H


#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"

class vtkScalarsToColors;

class VTKGDCM_EXPORT vtkImageMapToColors16 : public vtkThreadedImageAlgorithm
{
public:
  static vtkImageMapToColors16 *New();
  vtkTypeMacro(vtkImageMapToColors16,vtkThreadedImageAlgorithm);
  void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Set the lookup table.
  virtual void SetLookupTable(vtkScalarsToColors*);
  vtkGetObjectMacro(LookupTable,vtkScalarsToColors);

  // Description:
  // Set the output format, the default is RGBA.
  vtkSetMacro(OutputFormat,int);
  vtkGetMacro(OutputFormat,int);
  void SetOutputFormatToRGBA() { this->OutputFormat = VTK_RGBA; };
  void SetOutputFormatToRGB() { this->OutputFormat = VTK_RGB; };
  void SetOutputFormatToLuminanceAlpha() { this->OutputFormat = VTK_LUMINANCE_ALPHA; };
  void SetOutputFormatToLuminance() { this->OutputFormat = VTK_LUMINANCE; };

  // Description:
  // Set the component to map for multi-component images (default: 0)
  vtkSetMacro(ActiveComponent,int);
  vtkGetMacro(ActiveComponent,int);

  // Description:
```

```
  // Use the alpha component of the input when computing the alpha component
  // of the output (useful when converting monochrome+alpha data to RGBA)
  vtkSetMacro(PassAlphaToOutput,int);
  vtkBooleanMacro(PassAlphaToOutput,int);
  vtkGetMacro(PassAlphaToOutput,int);

  // Description:
  // We need to check the modified time of the lookup table too.
#ifdef VTK_HAS_MTIME_TYPE
  virtual vtkMTimeType GetMTime();
#else
  virtual unsigned long GetMTime();
#endif

protected:
  vtkImageMapToColors16();
  ~vtkImageMapToColors16();

  virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);

  void ThreadedRequestData(vtkInformation *request,
                           vtkInformationVector **inputVector,
                           vtkInformationVector *outputVector,
                           vtkImageData ***inData, vtkImageData **outData,
                           int extent[6], int id);

  virtual int RequestData(vtkInformation *request,
                          vtkInformationVector **inputVector,
                          vtkInformationVector *outputVector);

  vtkScalarsToColors *LookupTable;
  int OutputFormat;

  int ActiveComponent;
  int PassAlphaToOutput;

  int DataWasPassed;
private:
  vtkImageMapToColors16(const vtkImageMapToColors16&);  // Not implemented.
  void operator=(const vtkImageMapToColors16&);  // Not implemented.
};

#endif
```

11.627 vtkImageMapToWindowLevelColors2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageMapToColors.h"
```

Include dependency graph for vtkImageMapToWindowLevelColors2.h:



Classes

- class vtkImageMapToWindowLevelColors2

11.628 vtkImageMapToWindowLevelColors2.h

Go to the documentation of this file.

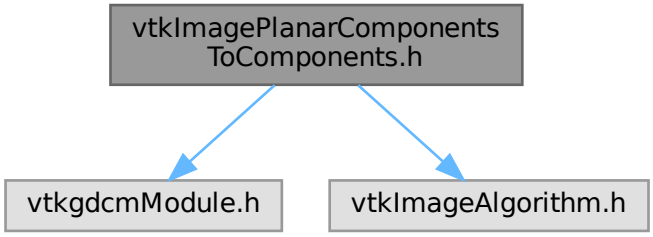
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkImageMapToWindowLevelColors2.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImageMapToWindowLevelColors2 - map the input image through a lookup table and window / level it
// .SECTION Description
// The vtkImageMapToWindowLevelColors2 filter will take an input image of any
// valid scalar type, and map the first component of the image through a
// lookup table.  This resulting color will be modulated with value obtained
// by a window / level operation. The result is an image of type
// VTK_UNSIGNED_CHAR. If the lookup table is not set, or is set to NULL, then
// the input data will be passed through if it is already of type
// UNSIGNED_CHAR.
//
// .SECTION See Also
// vtkLookupTable vtkScalarsToColors

#ifndef VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H
#define VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H

#include "vtkgdcmModule.h"
#include "vtkImageMapToColors.h"

class VTKGDCM_EXPORT vtkImageMapToWindowLevelColors2 : public vtkImageMapToColors
{
public:
  static vtkImageMapToWindowLevelColors2 *New();
  vtkTypeMacro(vtkImageMapToWindowLevelColors2,vtkImageMapToColors);
  void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Set / Get the Window to use -> modulation will be performed on the
  // color based on (S - (L - W/2))/W where S is the scalar value, L is
  // the level and W is the window.
  vtkSetMacro( Window, double );
  vtkGetMacro( Window, double );

  // Description:
  // Set / Get the Level to use -> modulation will be performed on the
  // color based on (S - (L - W/2))/W where S is the scalar value, L is
  // the level and W is the window.
```

```
  vtkSetMacro( Level, double );
  vtkGetMacro( Level, double );

protected:
  vtkImageMapToWindowLevelColors2();
  ~vtkImageMapToWindowLevelColors2();

  virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);
  void ThreadedRequestData(vtkInformation *request,
                           vtkInformationVector **inputVector,
                           vtkInformationVector *outputVector,
                           vtkImageData ***inData, vtkImageData **outData,
                           int extent[6], int id);
  virtual int RequestData(vtkInformation *request,
                          vtkInformationVector **inputVector,
                          vtkInformationVector *outputVector);

  double Window;
  double Level;

private:
  vtkImageMapToWindowLevelColors2(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
  void operator=(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
};

#endif
```

11.629 vtkImagePlanarComponentsToComponents.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageAlgorithm.h"
```

Include dependency graph for vtkImagePlanarComponentsToComponents.h:



Classes

- class vtkImagePlanarComponentsToComponents

11.630 vtkImagePlanarComponentsToComponents.h

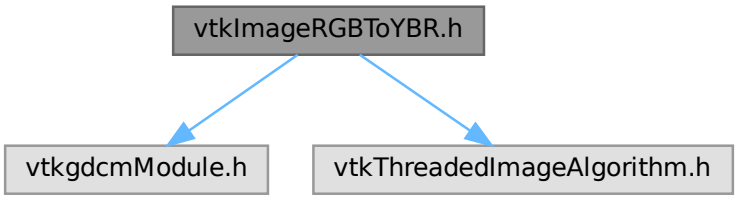
Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkImagePlanarComponentsToComponents.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImagePlanarComponentsToComponents - Converts planar comp to pixel comp
// .SECTION Description

// .SECTION See Also
// TODO: Can I make this filter threaded ?
// TODO: How do I handle the VTK-flipping (FileLowerLeft)?

#ifndef VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H
#define VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H

#include "vtkgdcmModule.h"
#include "vtkImageAlgorithm.h"

// everything is now handled within the vtkGDCMImageReader as Planar Configuration can not
// be externalized (conflict with file lower left)

#error do not use this class

//class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkThreadedImageAlgorithm
class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkImageAlgorithm
{
public:
  static vtkImagePlanarComponentsToComponents *New();
  //vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkThreadedImageAlgorithm);
  vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkImageAlgorithm);

  void PrintSelf(ostream& os, vtkIndent indent);

protected:
  vtkImagePlanarComponentsToComponents();
  ~vtkImagePlanarComponentsToComponents() {};

//  void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
//                        int ext[6], int id);
//  virtual int RequestInformation (vtkInformation *, vtkInformationVector**, vtkInformationVector *);
  virtual int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);

private:
  vtkImagePlanarComponentsToComponents(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
  void operator=(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
};

#endif
```

11.631 vtkImageRGBToYBR.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageRGBToYBR.h:



Classes

- class vtkImageRGBToYBR

11.632 vtkImageRGBToYBR.h

Go to the documentation of this file.

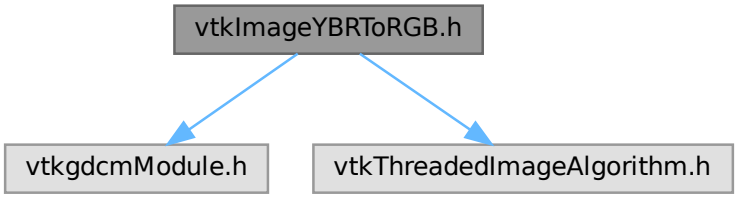
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkImageRGBToYBR.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImageRGBToYBR - Converts YBR components to RGB.
// .SECTION Description
// For each pixel with hue, saturation and value components this filter
// outputs the color coded as red, green, blue.  Output type must be the same
```

```
// as input type.

// .SECTION See Also
// vtkImageRGBToHSV

#ifndef VTKIMAGERGBTOYBR_H
#define VTKIMAGERGBTOYBR_H

#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"

class VTKGDCM_EXPORT vtkImageRGBToYBR : public vtkThreadedImageAlgorithm
{
public:
  static vtkImageRGBToYBR *New();
  vtkTypeMacro(vtkImageRGBToYBR,vtkThreadedImageAlgorithm);

  void PrintSelf(ostream& os, vtkIndent indent);

protected:
  vtkImageRGBToYBR();
  ~vtkImageRGBToYBR() {};

  void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
                        int ext[6], int id);
private:
  vtkImageRGBToYBR(const vtkImageRGBToYBR&);  // Not implemented.
  void operator=(const vtkImageRGBToYBR&);  // Not implemented.
};

#endif
```

11.633 vtkImageYBRToRGB.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageYBRToRGB.h:



Classes

- class vtkImageYBRToRGB

11.634 vtkImageYBRToRGB.h

Go to the documentation of this file.

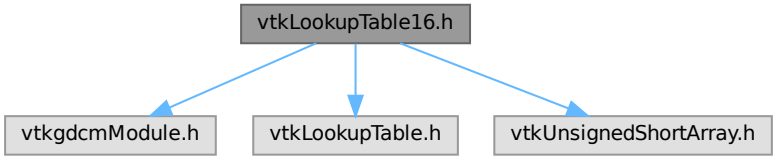
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkImageYBRToRGB.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkImageYBRToRGB - Converts YBR components to RGB.
// .SECTION Description
// For each pixel with hue, saturation and value components this filter
// outputs the color coded as red, green, blue.  Output type must be the same
// as input type.

// .SECTION See Also
// vtkImageRGBToHSV

#ifndef VTKIMAGEYBRTORGB_H
#define VTKIMAGEYBRTORGB_H

#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"

class VTKGDCM_EXPORT vtkImageYBRToRGB : public vtkThreadedImageAlgorithm
{
public:
  static vtkImageYBRToRGB *New();
  vtkTypeMacro(vtkImageYBRToRGB,vtkThreadedImageAlgorithm);

  void PrintSelf(ostream& os, vtkIndent indent);

protected:
  vtkImageYBRToRGB();
  ~vtkImageYBRToRGB() {};

  void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
                        int ext[6], int id);
private:
  vtkImageYBRToRGB(const vtkImageYBRToRGB&);  // Not implemented.
  void operator=(const vtkImageYBRToRGB&);  // Not implemented.
};

#endif
```

11.635 vtkLookupTable16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkLookupTable.h"
```

```
#include "vtkUnsignedShortArray.h"
```

Include dependency graph for vtkLookupTable16.h:



Classes

- class vtkLookupTable16

11.636 vtkLookupTable16.h

Go to the documentation of this file.

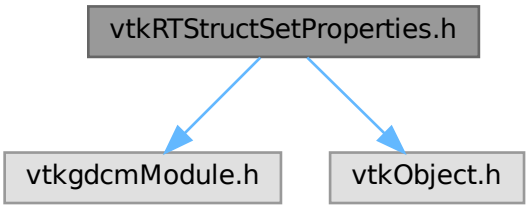
```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*=========================================================================

  Portions of this file are subject to the VTK Toolkit Version 3 copyright.

  Program:   Visualization Toolkit
  Module:    $RCSfile: vtkLookupTable16.h,v $

  Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
  All rights reserved.
  See Copyright.txt or http://www.kitware.com/Copyright.htm for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkLookupTable16 -
// .SECTION Description
//
// .SECTION Caveats
//
// .SECTION See Also
// vtkLookupTable

#ifndef VTKLOOKUPTABLE16_H
#define VTKLOOKUPTABLE16_H

#include "vtkgdcmModule.h"
#include "vtkLookupTable.h"
#include "vtkUnsignedShortArray.h"
```

```
00044
00045 class VTKGDCM_EXPORT vtkLookupTable16 : public vtkLookupTable
00046 {
00047 public:
00048   static vtkLookupTable16 *New();
00049
00050   vtkTypeMacro(vtkLookupTable16,vtkLookupTable);
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053   void Build();
00054
00055   void SetNumberOfTableValues(vtkIdType number);
00056
00057   unsigned char *WritePointer(const vtkIdType id, const int number);
00058
00059   unsigned short *GetPointer(const vtkIdType id) {
00060     return this->Table16->GetPointer(4*id); };
00061
00062 protected:
00063   vtkLookupTable16(int sze=256, int ext=256);
00064   ~vtkLookupTable16();
00065
00066   vtkUnsignedShortArray *Table16;
00067
00068 void MapScalarsThroughTable2(void *input,
00069                                             unsigned char *output,
00070                                             int inputDataType,
00071                                             int numberOfValues,
00072                                             int inputIncrement,
00073                                             int outputFormat);
00074
00075 private:
00076   vtkLookupTable16(const vtkLookupTable16&);  // Not implemented.
00077   void operator=(const vtkLookupTable16&);  // Not implemented.
00078 };
00079
00080 //-----------------------------------------------------------------------------
00081 inline unsigned char *vtkLookupTable16::WritePointer(const vtkIdType id,
00082                                                      const int number)
00083 {
00084   //this->InsertTime.Modified();
00085   return (unsigned char*)this->Table16->WritePointer(4*id,4*number);
00086 }
00087
00088 #endif
```

11.637 vtkRTStructSetProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkRTStructSetProperties.h:



Classes

- class vtkRTStructSetProperties

11.638 vtkRTStructSetProperties.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// .NAME vtkRTStructSetProperties - some rtstruct properties.
// .SECTION Description
//
// .SECTION See Also
// vtkGDCMPolyDataReader vtkGDCMPolyDataWriter

#ifndef VTKRTSTRUCTSETPROPERTIES_H
#define VTKRTSTRUCTSETPROPERTIES_H

#include "vtkgdcmModule.h"
#include "vtkObject.h"

class vtkRTStructSetPropertiesInternals;

class VTKGDCM_EXPORT vtkRTStructSetProperties : public vtkObject
{
public:
  static vtkRTStructSetProperties *New();
  vtkTypeMacro(vtkRTStructSetProperties,vtkObject);
  void PrintSelf(ostream& os, vtkIndent indent);

  // Description:
  // Convenience method to reset all fields to an empty string/value
  virtual void Clear();

  // Description:
  //
  vtkSetStringMacro(StructureSetLabel);
  vtkGetStringMacro(StructureSetLabel);

  vtkSetStringMacro(StructureSetName);
  vtkGetStringMacro(StructureSetName);

  vtkSetStringMacro(StructureSetDate);
  vtkGetStringMacro(StructureSetDate);

  vtkSetStringMacro(StructureSetTime);
  vtkGetStringMacro(StructureSetTime);

  vtkSetStringMacro(SOPInstanceUID);
  vtkGetStringMacro(SOPInstanceUID);

  vtkSetStringMacro(StudyInstanceUID);
  vtkGetStringMacro(StudyInstanceUID);

  vtkSetStringMacro(SeriesInstanceUID);
  vtkGetStringMacro(SeriesInstanceUID);

  vtkSetStringMacro(ReferenceSeriesInstanceUID);
  vtkGetStringMacro(ReferenceSeriesInstanceUID);

  vtkSetStringMacro(ReferenceFrameOfReferenceUID);
  vtkGetStringMacro(ReferenceFrameOfReferenceUID);

```

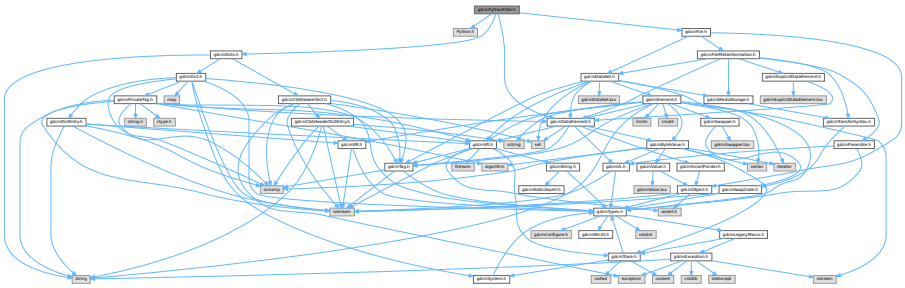
```
  // Description:
  // Copy the contents of p to this instance.
  virtual void DeepCopy(vtkRTStructSetProperties *p);

  void AddContourReferencedFrameOfReference( vtkIdType pdnum, const char *classuid , const char *
instanceuid );
  const char *GetContourReferencedFrameOfReferenceClassUID( vtkIdType pdnum, vtkIdType id );
  const char *GetContourReferencedFrameOfReferenceInstanceUID( vtkIdType pdnum, vtkIdType id );
  vtkIdType GetNumberOfContourReferencedFrameOfReferences();
  vtkIdType GetNumberOfContourReferencedFrameOfReferences(vtkIdType pdnum);

  void AddReferencedFrameOfReference( const char *classuid , const char * instanceuid );
  const char *GetReferencedFrameOfReferenceClassUID( vtkIdType id );
  const char *GetReferencedFrameOfReferenceInstanceUID( vtkIdType id );
  vtkIdType GetNumberOfReferencedFrameOfReferences();

  void AddStructureSetROI( int roinumber,
    const char* reframerefuid,
    const char* roiname,
    const char* ROIGenerationAlgorithm,
    const char* ROIDescription = 0
  );
  void AddStructureSetROIObservation( int refnumber,
    int observationnumber,
    const char *rtroiinterpretedtype,
    const char *roiinterpreter,
    const char *roiobservationlabel = 0
  );

  vtkIdType GetNumberOfStructureSetROIs();
  int GetStructureSetObservationNumber(vtkIdType id);
  int GetStructureSetROINumber(vtkIdType id);
  const char *GetStructureSetROIRefFrameRefUID(vtkIdType);
  const char *GetStructureSetROIName(vtkIdType);
  const char *GetStructureSetROIGenerationAlgorithm(vtkIdType);
  const char *GetStructureSetROIDescription(vtkIdType id);
  const char *GetStructureSetRTROIInterpretedType(vtkIdType id);
  const char *GetStructureSetROIObservationLabel(vtkIdType id);

protected:
  vtkRTStructSetProperties();
  ~vtkRTStructSetProperties();

  char *StructureSetLabel;
  char *StructureSetName;
  char *StructureSetDate;
  char *StructureSetTime;

  char *SOPInstanceUID;
  char *StudyInstanceUID;
  char *SeriesInstanceUID;

  char *ReferenceSeriesInstanceUID;
  char *ReferenceFrameOfReferenceUID;

  // Description:
  // PIMPL Encapsulation for STL containers
  //BTX
  vtkRTStructSetPropertiesInternals *Internals;
  //ETX

private:
  vtkRTStructSetProperties(const vtkRTStructSetProperties&); // Not implemented.
  void operator=(const vtkRTStructSetProperties&); // Not implemented.
};

#endif
```

11.639 gdcmPythonFilter.h File Reference

```
#include <Python.h>
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
```

`#include "gdcmFile.h"`

Include dependency graph for gdcmPythonFilter.h:



Classes

- class gdcm::PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

Namespaces

- namespace gdcm

11.640 gdcmPythonFilter.h

Go to the documentation of this file.

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#ifndef GDCMPYTHONFILTER_H
#define GDCMPYTHONFILTER_H

#include <Python.h>

#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"

namespace gdcm
{

class GDCM_EXPORT PythonFilter
{
public:
  PythonFilter();
  ~PythonFilter();

  void UseDictAlways(bool ) {}
```

```

  // Allow user to pass in there own dicts
  void SetDicts(const Dicts &dicts);

  // Convert to string the ByteValue contained in a DataElement
  PyObject *ToPyObject(const Tag& t) const;

  void SetFile(const File& f);
  File &GetFile();
  const File &GetFile() const;

private:
  SmartPointer<File> F;
};

} // end namespace gdcm

#endif //GDCMPYTHONFILTER_H
```

Chapter 12

Examples

12.1 TestByteSwap.cxx

This is a C++ example on how to use gdcm::ByteSwap

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
#include "gdcmByteSwap.h"

#include <cstring> // memcpy

int myfunc()
{
  char vl_str[4];
  const char raw[] = "\000\000\000\004";
  memcpy(vl_str, raw, 4);
  uint32_t vl;
  memcpy(&vl, vl_str, 4);
  gdcm::ByteSwap<uint32_t>::SwapRangeFromSwapCodeIntoSystem(&vl, gdcm::SwapCode::BigEndian, 1);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::LittleEndian);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::BigEndian);
  if( vl != 0x4000000 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  return 0;
```

```
}

int TestByteSwap(int , char *[])
{
  gdcm::SwapCode sc = gdcm::SwapCode::Unknown;
  if ( gdcm::ByteSwap<uint16_t>::SystemIsBigEndian() )
    {
    sc = gdcm::SwapCode::BigEndian;
    }
  else if ( gdcm::ByteSwap<uint16_t>::SystemIsLittleEndian() )
    {
    sc = gdcm::SwapCode::LittleEndian;
    }
  if( sc == gdcm::SwapCode::Unknown )
    {
    std::cerr « "unk" « std::endl;
    return 1;
    }

  //std::cout « "sc: " « sc « std::endl;

  uint16_t t = 0x1234;
  gdcm::ByteSwap<uint16_t>::SwapFromSwapCodeIntoSystem(t, sc);
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( t != 0x3412 )
      {
      std::cerr « std::hex « "t: " « t « std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( t != 0x1234 )
      {
      std::cerr « std::hex « "t: " « t « std::endl;
      return 1;
      }
    }

  union { char n[2]; uint16_t tn; } u16;
  memcpy(u16.n, &t, 2 );
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, sc, 1);
  uint16_t tn = u16.tn;
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr « std::hex « "tn: " « tn « std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr « std::hex « "tn: " « tn « std::endl;
      return 1;
      }
    }
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, gdcm::SwapCode::BigEndian, 1);
  tn = u16.tn;
  if( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr « std::hex « "tn: " « tn « std::endl;
      return 1;
      }
    }
  else if ( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr « std::hex « "tn: " « tn « std::endl;
      return 1;
      }
```

```
    }

  if( myfunc() )
    {
    return 1;
    }

  uint16_t array[] = { 0x1234 };
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(array,
    gdcm::SwapCode::BigEndian,1);
   if ( array[0] != 0x3412 )
     {
     std::cerr « std::hex « "array: " « array[0] « std::endl;
     return 1;
     }

  return 0;
}
```

12.2 PatchFile.cxx

This is a C++ example on how to use gdcm::Attribute

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * The image was a broken file where the Pixel Data element was 8 times too big
 * Apparently multiplying the BitsAllocated to 4 and multiplying the number of
 * frames by 2 would solve the problem
 *
 * This C++ code can be used to patch the header.
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *f = argv[1];
  const char *out = argv[2];
  gdcm::Reader r;
  r.SetFileName( f );
  if( !r.Read() )
    {
    return 1;
    }

  gdcm::File &file = r.GetFile();
  gdcm::DataSet& ds = file.GetDataSet();
  // (0028,0100) US 16                                       #   2, 1 BitsAllocated
  // (0028,0101) US 16                                       #   2, 1 BitsStored
  // (0028,0102) US 15                                       #   2, 1 HighBit
  //
    {
    gdcm::Attribute<0x28,0x100> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
      {
```

```
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x101> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
      {
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x102> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 7 )
      {
      return 1;
      }
    at.SetValue( 31 );
    ds.Replace( at.GetAsDataElement() );
    }
  // (0028,0008) IS [56]                                    #   2, 1 NumberOfFrames

    {
    gdcm::Attribute<0x28,0x8> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    at.SetValue( at.GetValue() * 2 );
    ds.Replace( at.GetAsDataElement() );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetCheckFileMetaInformation( false );
  w.SetFileName( out );
  if( !w.Write() )
    {
    return 1;
    }

  // Now let's see if we can read it as an image:
  gdcm::ImageReader ir;
  ir.SetFileName( out );
  if(!ir.Read())
    {
    return 1;
    }
  gdcm::Image &image = ir.GetImage();
  unsigned long len = image.GetBufferLength();
  const gdcm::ByteValue *bv = ir.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010)
      ).GetByteValue();
  if( !bv || len != bv->GetLength() )
    {
    return 1;
    }
  std::cout « bv->GetLength() « " " « len « std::endl;

  std::cout « "Success to rewrite image !" « std::endl;
  image.Print( std::cout );
  return 0;
}
```

12.3 SimplePrint.cs

This is a C# example on how to use gdcm::SWIGDataSet

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
  Convertor convertor = new Convertor();
  int a = convertor.Convert<int>( some_int_blob );
  double b = convertor.Convert<double>( some_double_blob );
*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrint.exe gdcmData/012345.002.050.dcm
 */
using System;
using gdcm;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, string indent)
    {
    CSharpDataSet cds = new CSharpDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        uint uvl = (uint)de.GetVL(); // Test cast is ok
        System.Console.WriteLine( indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        uint n = sq.GetNumberOfItems();
        for( uint i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
      else
        {
        System.Console.WriteLine( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static int Main(string[] args)
    {
    string filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );

    return 0;
    }
}
```

12.4 TestReader.cxx

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmFile.h"
#include "gdcmTesting.h"
#include "gdcmMediaStorage.h"

int TestRead(const char* filename, bool verbose = false)
{
  if( verbose )
    std::cout « "TestRead: " « filename « std::endl;

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if ( !reader.Read() )
    {
    std::cerr « "TestReadError: Failed to read: " « filename « std::endl;
    return 1;
    }

//commenting out the fmi and ds to avoid warnings
  //const gdcm::FileMetaInformation &h = reader.GetFile().GetHeader();
  //std::cout « h « std::endl;

  //const gdcm::DataSet &ds = reader.GetFile().GetDataSet();
  //std::cout « ds « std::endl;

  const char *ref = gdcm::Testing::GetMediaStorageFromFile(filename);
  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( !ref )
    {
    std::cerr « "TestReadError: Missing MediaStorage: " « filename « std::endl;
    std::cerr « "It should be: " « ms « std::endl;
    return 1;
    }

  if( ms.IsUndefined() && ref && *ref != 0 )
    {
    std::cerr « "TestReadError: MediaStorage: " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  // Make sure it is the right one:

  if( ref && *ref != 0 && ms != gdcm::MediaStorage::GetMSType(ref) )
    {
    std::cerr « "Error: Found MediaStorage: " « ms « " for " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  return 0;
}

int TestReader(int argc, char *argv[])
{
  if( argc == 2 )
    {
    const char *filename = argv[1];
    return TestRead(filename, true);
    }

  // else
  gdcm::Trace::DebugOff();
  gdcm::Trace::WarningOff();
  int r = 0, i = 0;
  const char *filename;
  const char * const *filenames = gdcm::Testing::GetFileNames();
  while( (filename = filenames[i]) )
```

```
    {
    r += TestRead( filename );
    ++i;
    }

  return r;
}
```

12.5 TestReader.py

This is a C++ example on how to use gdcm::Reader

```
00001
00014
00015 import os,sys
00016 import gdcm
00017
00018 def TestRead(filename, verbose = False):
00019   r = gdcm.Reader()
00020   r.SetFileName( filename )
00021   success = r.Read()
00022   #if verbose: print r.GetFile()
00023   if verbose: print(r.GetFile().GetDataSet())
00024   return success
00025
00026 if __name__ == "__main__":
00027   success = 0
00028   try:
00029     filename = os.sys.argv[1]
00030     success += TestRead( filename, True )
00031   except:
00032     # loop over all files:
00033     gdcm.Trace.DebugOff()
00034     gdcm.Trace.WarningOff()
00035     t = gdcm.Testing()
00036     nfiles = t.GetNumberOfFileNames()
00037     for i in range(0,nfiles):
00038       filename = t.GetFileName(i)
00039       success += TestRead( filename )
00040
00041
00042   # Test succeed ?
00043   sys.exit(success == 0)
```

12.6 DecompressJPEGFile.cs

This is a C# example on how to use gdcm::SequenceOfFragments

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressJPEGFile.exe somejpegfile.jpg
 */
using System;
using gdcm;

public class DecompressJPEGFile
```

```
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    Trace.DebugOn();
    Image image = new Image();
    image.SetNumberOfDimensions( 2 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // DO NOT set a ByteValue here, JPEG is a particular kind of encapsulated syntax
    // in which can one cannot use a simple byte array for storage. Instead, see
    // gdcm.SequenceOfFragments
    //pixeldata.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length ) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    // Single file => single fragment
    sq.AddFragment( frag );
    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.YBR_FULL );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 692);
    image.SetDimension(1, 721);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

12.7 ManipulateFile.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ManipulateFile.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class ManipulateFile
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Anonymizer ano = new Anonymizer();
    ano.SetFile( reader.GetFile() );
    ano.RemovePrivateTags();
    ano.RemoveGroupLength();
    Tag t = new Tag(0x10,0x10);
    ano.Replace( t, "GDCM^Csharp^Test^Hello^World" );

    UIDGenerator g = new UIDGenerator();
    ano.Replace( new Tag(0x0008,0x0018), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000d), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000e), g.Generate() );
    ano.Replace( new Tag(0x0020,0x0052), g.Generate() );

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

12.8 ClinicalTrialIdentificationWorkflow.cs

This is a C# example on how to use Anonymizer

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Typical usage on UNIX:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ClinicalTrialIdentificationWorkflow.exe input_dir output_dir
 */
using System;
```

```
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class ClinicalTrialIdentificationWorkflow
{
  public static bool ProcessOneFile( gdcm.Anonymizer ano , string filename, string outfilename )
    {
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return false;
      }
    // Pass in the file:
    ano.SetFile( reader.GetFile() );

    // First step, let's protect all Patient information as per
    // PS 3.15 / E.1 / Basic Application Level Confidentiality Profile
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return false;
      }

    // Now let's pass in all Clinical Trial fields
    // PS 3.3 - 2008 / C.7.1.3 Clinical Trial Subject Module
    /*
    Clinical Trial Sponsor Name (0012,0010) 1 The name of the clinical trial sponsor. See C.7.1.3.1.1.
    Clinical Trial Protocol ID (0012,0020) 1 Identifier for the noted protocol. See C.7.1.3.1.2.
    Clinical Trial Protocol Name (0012,0021) 2 The name of the clinical trial protocol. See C.7.1.3.1.3.
    Clinical Trial Site ID (0012,0030) 2 The identifier of the site responsible for submitting clinical trial
      data. See C.7.1.3.1.4.
    Clinical Trial Site Name (0012,0031) 2 Name of the site responsible for submitting clinical trial data. See
      C.7.1.3.1.5
    Clinical Trial Subject ID (0012,0040) 1C The assigned identifier for the clinical trial subject. See
      C.7.1.3.1.6. Shall be present if Clinical Trial Subject Reading ID (0012,0042) is absent. May be present
      otherwise.
    Clinical Trial Subject Reading ID (0012,0042) 1C Identifies the subject for blinded evaluations. Shall be
      present if Clinical Trial Subject ID (0012,0040) is absent.  May be present otherwise. See C.7.1.3.1.7.
```

```
     */
    ano.Replace( new gdcm.Tag(0x0012,0x0010), "MySponsorName");
    ano.Replace( new gdcm.Tag(0x0012,0x0020), "MyProtocolID");
    ano.Replace( new gdcm.Tag(0x0012,0x0021), "MyProtocolName");
    ano.Replace( new gdcm.Tag(0x0012,0x0030), "MySiteId");
    ano.Replace( new gdcm.Tag(0x0012,0x0031), "MySiteName");
    ano.Replace( new gdcm.Tag(0x0012,0x0040), "MySponsorId");
    ano.Replace( new gdcm.Tag(0x0012,0x0050), "MyTPId");
    ano.Replace( new gdcm.Tag(0x0012,0x0051), "MyTPDescription");

    // The following two are not required as they are guaranteed to be filled in by the
    // Basic Application Level Confidentiality Profile. Only override if you understand what
    // you are doing
    //ano.Replace( new gdcm.Tag(0x0012,0x0062), "YES");
    //ano.Replace( new gdcm.Tag(0x0012,0x0063), "My Super Duper Anonymization Overload");

    // We might be generating a subdirectory. Let's make sure the subdir exist:
    gdcm.Filename fn = new gdcm.Filename( outfilename );
    string subdir = fn.GetPath();
    if( !gdcm.PosixEmulation.MakeDirectory( subdir ) )
      {
      return false;
      }

    gdcm.FileMetaInformation fmi = ano.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    Writer writer = new Writer();
    writer.SetFileName( outfilename );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return false;
      }

    return true;
    }

  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My ClinicalTrial App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    if( args.Length != 2 )
      {
      System.Console.WriteLine( "Usage:" );
      System.Console.WriteLine( "ClinicalTrialIdentificationWorkflow input_dir output_dir" );
      return 1;
      }
    string dir1 = args[0];
    string dir2 = args[1];

    // Check input is valid:
    if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
      {
      System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
      return 1;
      }
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
      {
      System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
      return 1;
      }

    // Recursively search all file within this toplevel directory:
    Directory d = new Directory();
```

```
    uint nfiles = d.Load( dir1, true );
    if(nfiles == 0) return 1;

    // Let's use the pre-shipped certificate of GDCM.
    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      System.Console.WriteLine( "PEM Certificate : " + certpath + " could not be read. Sorry" );
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    // A reference to an actual C++ instance is required here:
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    // Explicitly specify the Cryptographic Message Syntax to use:
    ano.SetCryptographicMessageSyntax( cms );

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
      {
      string filename = filenames[ (int)i ];
      string outfilename = filename.Replace( dir1, dir2 );
      System.Console.WriteLine( "Filename: " + filename );
      System.Console.WriteLine( "Out Filename: " + outfilename );
      if( !ProcessOneFile( ano , filename, outfilename ) )
        {
        System.Console.WriteLine( "Could not process filename: " + filename );
        return 1;
        }
      }

    return 0;
    }
}
```

12.9 GenerateDICOMDIR.cs

This is a C# example on how to use DICOMDIRGenerator

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example to show how to use DICOMDIRGenerator
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GenerateDICOMDIR.exe path output_filename
 */
using System;
using gdcm;

public class GenerateDICOMDIR
{
  public static int Main(string[] args)
    {
```

```
    string directory = args[0];
    string outfilename = args[1];

    Directory d = new Directory();
    uint nfiles = d.Load( directory, true );
    if(nfiles == 0) return 1;
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Implement fast path ?
    // Scanner s = new Scanner();

    string descriptor = "My_Descriptor";
    FilenamesType filenames = d.GetFilenames();

    gdcm.DICOMDIRGenerator gen = new DICOMDIRGenerator();
    gen.SetFilenames( filenames );
    gen.SetDescriptor( descriptor );
    if( !gen.Generate() )
      {
      return 1;
      }

    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "GenerateDICOMDIR" );
    gdcm.Writer writer = new Writer();
    writer.SetFile( gen.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      return 1;
      }

    return 0;
    }
}
```

12.10 GenFakeImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"
//#include "gdcmImageChangePhotometricInterpretation.h"

/*
 * This example shows two things:
 * 1. How to create an image ex-nihilo
 * 2. How to use the gdcm.FileDerivation filter. This filter is meant to create "DERIVED" image
 * object. FileDerivation has a simple API where you can reference *all* the input image that have been
 * used to generate the image. The API also allows user to specify the purpose of reference (see CID 7202,
 * PS 3.16 - 2008), and the image derivation type (CID 7203, PS 3.16 - 2008).
 */
int main(int, char *[])
{
  // Step 1: Fake Image
  gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;

  char * buffer = new char[ 256 * 256 * 3];
  char * p = buffer;
  int b = 128;
  //int ybr[3];
  int ybr2[3];
  //int rgb[3];

  for(int r = 0; r < 256; ++r)
```

```
  for(int g = 0; g < 256; ++g)
    //for(int b = 0; b < 256; ++b)
    {
    //rgb[0] = r;
    //rgb[1] = g;
    //rgb[1] = 128;
    //rgb[2] = b;
    //ybr[0] = r;
    //ybr[1] = g;
    //ybr[1] = 128;
    //ybr[2] = b;

    ybr2[0] = r;
    ybr2[1] = g;
    ybr2[1] = 128;
    ybr2[2] = b;
    //gdcm::ImageChangePhotometricInterpretation::YBR2RGB(rgb, ybr);
    //gdcm::ImageChangePhotometricInterpretation::RGB2YBR(ybr2, rgb);
    *p++ = (char)ybr2[0];
    *p++ = (char)ybr2[1];
    *p++ = (char)ybr2[2];
    }

im->SetNumberOfDimensions( 2 );
im->SetDimension(0, 256 );
im->SetDimension(1, 256 );

im->GetPixelFormat().SetSamplesPerPixel(3);
//im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::RGB );
im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::YBR_FULL );

unsigned long l = im->GetBufferLength();
if( l != 256 * 256 * 3 )
  {
  return 1;
  }
gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
pixeldata.SetByteValue( buffer, (uint32_t)l );
delete[] buffer;
im->SetDataElement( pixeldata );

gdcm::UIDGenerator uid; // helper for uid generation

gdcm::SmartPointer<gdcm::File> file = new gdcm::File; // empty file

// Step 2: DERIVED object
gdcm::FileDerivation fd;
// For the purpose of this exercise we will pretend that this image is referencing
// two source image (we need to generate fake UID for that).
const char ReferencedSOPClassUID[] = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

// Again for the purpose of the exercise we will pretend that the image is a
// multiplanar reformat (MPR):
// CID 7202 Source Image Purposes of Reference
// {"DCM",121322,"Source image for image processing operation"},
fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
// CID 7203 Image Derivation
// { "DCM",113072,"Multiplanar reformatting" },
fd.SetDerivationCodeSequenceCodeValue( 113072 );
fd.SetFile( *file );
// If all Code Value are ok the filter will execute properly
if( !fd.Derive() )
  {
  std::cerr « "Sorry could not derive using input info" « std::endl;
  return 1;
  }

// We pass both :
// 1. the fake generated image
// 2. the 'DERIVED' dataset object
// to the writer.
gdcm::ImageWriter w;
w.SetImage( *im );
w.SetFile( fd.GetFile() );

// Set the filename:
w.SetFileName( "ybr2.dcm" );
if( !w.Write() )
  {
```

```
    return 1;
    }

  return 0;
}
```

12.11 ReformatFile.cs

This is a C++ example on how to use FileDerivation

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ReformatFile.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class ReformatFile
{
  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Reformat App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    string filename = args[0];
    string outfilename = args[1];

    Reader reader = new Reader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    UIDGenerator uid = new UIDGenerator(); // helper for uid generation
    FileDerivation fd = new FileDerivation();
    // For the purpose of this exercise we will pretend that this image is referencing
    // two source image (we need to generate fake UID for that).
    string ReferencedSOPClassUID = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

    // Again for the purpose of the exercise we will pretend that the image is a
    // multiplanar reformat (MPR):
    // CID 7202 Source Image Purposes of Reference
    // {"DCM",121322,"Source image for image processing operation"},
    fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
    // CID 7203 Image Derivation
    // { "DCM",113072,"Multiplanar reformatting" },
    fd.SetDerivationCodeSequenceCodeValue( 113072 );
    fd.SetFile( reader.GetFile() );
    // If all Code Value are ok the filter will execute properly
    if( !fd.Derive() )
      {
```

```
      return 1;
      }

    gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    Writer writer = new Writer();
    writer.SetFileName( outfilename );
    writer.SetFile( fd.GetFile() );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }


    return 0;
    }
}
```

12.12 DecompressImage.cs

This is a C# example on how to use Image

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm decompress.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    // check that one can access a Fragment from C#:
    var de = reader.GetFile().GetDataSet().GetDataElement(new Tag(0x7fe0, 0x0010));
    var sq = de.GetSequenceOfFragments();
    sq.GetFragment(0);

    Image image = new Image();
    Image ir = reader.GetImage();

    image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );

    //Just for fun:
    //int dircos =  ir.GetDirectionCosines();
    //t = gdcm.Orientation.GetType(dircos);
```

```
    //int l = gdcm.Orientation.GetLabel(t);
    //System.Console.WriteLine( "Orientation label:" + l );

    // Set the dimensions,
    // 1. either one at a time
    //image.SetDimension(0, ir.GetDimension(0) );
    //image.SetDimension(1, ir.GetDimension(1) );

    // 2. the array at once
    uint[] dims = {0, 0};
    // Just for fun let's invert the dimensions:
    dims[0] = ir.GetDimension(1);
    dims[1] = ir.GetDimension(0);
    ir.SetDimensions( dims );

    PixelFormat pixeltype = ir.GetPixelFormat();
    image.SetPixelFormat( pixeltype );

    PhotometricInterpretation pi = ir.GetPhotometricInterpretation();
    image.SetPhotometricInterpretation( pi );

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    byte[] str1 = new byte[ ir.GetBufferLength()];
    ir.GetBuffer( str1 );
    //System.Console.WriteLine( ir.GetBufferLength() );
    pixeldata.SetByteValue( str1, new VL( (uint)str1.Length ) );
    //image.SetDataElement( pixeldata );
    ir.SetDataElement( pixeldata );


    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( ir );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

12.13 StandardizeFiles.cs

This is a C++ example on how to use ImageChangeTransferSyntax

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example to show how one would 'Standardize' a DICOM File-Set
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/StandardizeFiles.exe input_path output_path
 */
using System;
using gdcm;

public class StandardizeFiles
{
  public static bool ProcessOneFile( string filename, string outfilename )
    {
```

```
  PixmapReader reader = new PixmapReader();
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    System.Console.WriteLine( "Could not read: " + filename );
    return false;
    }

  ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
  change.SetForce( false ); // do we really want to recompress when input is already compressed in same alg ?
  change.SetCompressIconImage( false ); // Keep it simple
  change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEG2000Lossless ) );
  change.SetInput( reader.GetPixmap() );
  if( !change.Change() )
    {
    System.Console.WriteLine( "Could not change: " + filename );
    return false;
    }

  gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
  // The following three lines make sure to regenerate any value:
  fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

  PixmapWriter writer = new PixmapWriter();
  writer.SetFileName( outfilename );
  writer.SetFile( reader.GetFile() );
  gdcm.Pixmap pixout = ((PixmapToPixmapFilter)change).GetOutput();

  writer.SetPixmap( pixout );
  if( !writer.Write() )
    {
    System.Console.WriteLine( "Could not write: " + outfilename );
    return false;
    }

  return true;
  }

public static int Main(string[] args)
  {
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Standardize App" );

  // http://www.oid-info.com/get/1.3.6.1.4.17434
  string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
  System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

  string dir1 = args[0];
  string dir2 = args[1];

  // Check input is valid:
  if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
    System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
    return 1;
    }
  if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
    {
    System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
    return 1;
    }

  Directory d = new Directory();
  uint nfiles = d.Load( dir1, true );
  if(nfiles == 0) return 1;

  // Process all filenames:
  FilenamesType filenames = d.GetFilenames();
  for( uint i = 0; i < nfiles; ++i )
    {
    string filename = filenames[ (int)i ];
    string outfilename = filename.Replace( dir1, dir2 );
    System.Console.WriteLine( "Filename: " + filename );
    System.Console.WriteLine( "Out Filename: " + outfilename );
    if( !ProcessOneFile( filename, outfilename ) )
      {
      System.Console.WriteLine( "Could not process filename: " + filename );
      //return 1;
      }
```

```
      }

    return 0;
    }
}
```

12.14 ScanDirectory.cs

This is a C# example on how to use Scanner

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ bin/ScanDirectory.exe /path/to/gdcmData/
 */
using System;
using gdcm;

// We will print each filename being processed
public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void ShowFileName(Subject caller, Event evt){
    FileNameEvent fne = FileNameEvent.Cast(evt);
    if( fne != null )
      {
      string fn = fne.GetFileName();
      System.Console.WriteLine( "This is my Scanner. Processing FileName: " + fn );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
}

public class ScanDirectory
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    Tag t = new Tag(0x8,0x80);

    Directory d = new Directory();
    uint nfiles = d.Load( directory );
    if(nfiles == 0) return 1;
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Use a StrictScanner, need to use a reference to pass the C++ pointer to
    // MyWatcher implementation
    SmartPtrStrictScan sscan = StrictScanner.New();
    StrictScanner s = sscan.__ref__();
    MyWatcher watcher = new MyWatcher(s);

    s.AddTag( t );
    bool b = s.Scan( d.GetFilenames() );
    if(!b) return 1;

    for(int i = 0; i < (int)nfiles; ++i)
      {
      if( !s.IsKey( d.GetFilenames()[i] ) )
        {
```

```
        System.Console.WriteLine( "File is not DICOM or could not be read: " + d.GetFilenames()[i] );
        }
      }

    System.Console.WriteLine( "Scan:\n" + s.toString() );

    System.Console.WriteLine( "success" );
    return 0;
    }
}
```

12.15 BasicAnonymizer.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/BasicAnonymizer.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
```

```
}

public class BasicAnonymizer
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    ano.SetFile( reader.GetFile() );
    ano.SetCryptographicMessageSyntax( cms );
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

12.16 BasicImageAnonymizer.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 */
```

```
using System;
using gdcm;

public class BasicImageAnonymizer
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageReader reader = new gdcm.ImageReader();
    reader.SetFileName( filename );

    if (!reader.Read()) return 1;

    Image ir = reader.GetImage();

    uint[] dims = {0, 0, 0};
    dims[0] = ir.GetDimension(0);
    dims[1] = ir.GetDimension(1);
    dims[2] = ir.GetDimension(2);
    System.Console.WriteLine( "Dim:" + dims[0] );
    System.Console.WriteLine( "Dim:" + dims[1] );
    System.Console.WriteLine( "Dim:" + dims[2] );

    // buffer to get the pixels
    byte[] buffer = new byte[ ir.GetBufferLength()];
    System.Console.WriteLine( "Dim:" + ir.GetBufferLength() );
    ir.GetBuffer( buffer );

    for (uint z = 0; z < dims[2]; z++)
      {
      for (uint y = 0; y < dims[1] / 2; y++) // only half Y
        {
        for (uint x = 0; x < dims[0] / 2; x++) // only half X
          {
          buffer[ (z * dims[1] + y) * dims[0] + x ] = 0; // works when pixel type == UINT8
          }
        }
      }

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    pixeldata.SetByteValue( buffer, new VL( (uint)buffer.Length ) );
    ir.SetDataElement( pixeldata );
    ir.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.ExplicitVRLittleEndian ) );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLSLossless ) );
    change.SetInput( ir );
    if( !change.Change() )
      {
      System.Console.WriteLine( "Could not change: " + filename );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( "out.dcm" );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( change.GetOutput() );
    bool ret = writer.Write();
    if( !ret )
      {
      return 1;
      }


    return 0;
    }
}
```

12.17 Cleaner.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/Cleaner.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class Cleaner
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
```

```
      }

    SmartPtrCleaner scleaner = gdcm.Cleaner.New();
    gdcm.Cleaner cleaner = scleaner.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(cleaner, "Anonymizer");
    MyWatcher watcher = new MyWatcher(cleaner);

    cleaner.SetFile( reader.GetFile() );
    cleaner.Empty( new gdcm.VR(gdcm.VR.VRType.PN) );
    gdcm.DPath dpath = new gdcm.DPath();
    dpath.ConstructFromString( "/0010,0010" );
    cleaner.Preserve( dpath );
    gdcm.Tag t1 = new gdcm.Tag(0x10, 0x30);
    cleaner.Empty( t1 );
    gdcm.PrivateTag pt0 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x60), "SIEMENS MEDCOM HEADER2" );
    cleaner.Remove( pt0 );
    gdcm.PrivateTag pt1 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x10), "SIEMENS CSA HEADER" );
    gdcm.PrivateTag pt2 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x20), "SIEMENS CSA HEADER" );
    cleaner.Scrub( pt1 );
    cleaner.Scrub( pt2 );
    if( !cleaner.Clean() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( cleaner.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

12.18 CompressLossyJPEG.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/CompressLossyJPEG.exe input.dcm output.dcm
 */

using System;
using gdcm;

public class CompressLossyJPEG
{
  public static int Main(string[] args)
    {
    if( args.Length < 2 )
      {
      System.Console.WriteLine( " input.dcm output.dcm" );
      return 1;
      }
    string filename = args[0];
    string outfilename = args[1];

    ImageReader reader = new ImageReader();
    reader.SetFileName( filename );
```

```
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    // The output of gdcm::Reader is a gdcm::File
    File file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    DataSet ds = file.GetDataSet();

    Image image = reader.GetImage();
    //image.Print( cout );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    TransferSyntax targetts =  new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
    change.SetTransferSyntax( targetts );

    // Setup our JPEGCodec, warning it should be compatible with JPEGBaselineProcess1
    JPEGCodec jpegcodec = new JPEGCodec();
    if( !jpegcodec.CanCode( targetts ) )
      {
      System.Console.WriteLine( "Something went really wrong, JPEGCodec cannot handle JPEGBaselineProcess1" );
      return 1;
      }
    jpegcodec.SetLossless( false );
    jpegcodec.SetQuality( 50 ); // poor quality !
    change.SetUserCodec( jpegcodec ); // specify the codec to use to the ImageChangeTransferSyntax

    change.SetInput( image );
    bool b = change.Change();
    if( !b )
      {
      System.Console.WriteLine( "Could not change the Transfer Syntax" );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetImage( (gdcm.Image)change.GetOutput() );
    writer.SetFile( reader.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }

    return 0;
    }

}
```

12.19 DecompressImageMultiframe.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
$ gdcminfo ~/Desktop/angiogram-06.dcm
MediaStorage is 1.2.840.10008.5.1.4.1.1.12.1 [X-Ray Angiographic Image Storage]
TransferSyntax is 1.2.840.10008.1.2.4.50 [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8
      Bit Image Compression]
NumberOfDimensions: 3
Dimensions: (512,512,355)
Origin: (0,0,0)
```

```
Spacing: (1,1,40)
DirectionCosines: (1,0,0,0,1,0)
Rescale Intercept/Slope: (0,1)
SamplesPerPixel    :1
BitsAllocated      :8
BitsStored         :8
HighBit            :7
PixelRepresentation:0
ScalarType found   :UINT8
PhotometricInterpretation: MONOCHROME2
PlanarConfiguration: 0
TransferSyntax: 1.2.840.10008.1.2.4.50
Orientation Label: AXIAL
*/

/*
 * Description:
 *
 * Assume we have a file angiogram-06.dcm as described above.
 * the following program will decompress directly from the extracted jpeg stream.
 *
 * First step extract the jpeg stream (but not the Basic Offset Table):
 *
 * $ gdcmraw -i angiogram-06.dcm -o /tmp/output/chris --split-frags --pattern %d.jpg
 *
 * Check that indeed there are 355 files, while there are 356 fragments in the original DICOM file, since
 * gdcmraw always skip the first fragment (Basic Offset Table).
 *
 * Now from those individual jpeg stream, recreate a fake gdcm.DataElement...
 *
 * Usage:
 *
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono ./bin/DecompressImageMultiframe.exe /tmp/output
 */
using System;
using gdcm;

public class DecompressImageMultiframe
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    gdcm.Directory dir = new gdcm.Directory();
    uint nfiles = dir.Load(directory);
    //System.Console.WriteLine(dir.toString());
    gdcm.FilenamesType filenames = dir.GetFilenames();

    Image image = new Image();
    image.SetNumberOfDimensions( 3 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();

    // Yeah, the files are not guaranteed to be in order, please adapt...
    for(uint i = 0; i < nfiles; ++i)
      {
      System.Console.WriteLine( filenames[(int)i] );
      string file = filenames[(int)i];
      System.IO.FileStream infile =
        new System.IO.FileStream(file, System.IO.FileMode.Open, System.IO.FileAccess.Read);
      uint fsize = gdcm.PosixEmulation.FileSize(file);

      byte[] jstream  = new byte[fsize];
      infile.Read(jstream, 0 , jstream.Length);

      Fragment frag = new Fragment();
      frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
      sq.AddFragment( frag );
      }

    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
```

```
      );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(1,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 512);
    image.SetDimension(1, 512);
    image.SetDimension(2, 355);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

12.20 DumpCSA.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ bin/DumpCSA.exe input.dcm
 */
using System;
using gdcm;

public class DumpCSA
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.Reader reader = new gdcm.Reader();
    reader.SetFileName( filename );
    if (!reader.Read()) return 1;

    gdcm.File f = reader.GetFile();
    gdcm.DataSet ds = f.GetDataSet();

    string[] expectedSiemensTags = new string[] { "B_value" , "AcquisitionMatrixText" };
    using (PrivateTag gtag = CSAHeader.GetCSAImageHeaderInfoTag())
    {
        if (ds.FindDataElement(gtag))
        {
            using (DataElement de = ds.GetDataElement(gtag))
            {
                if (de != null && !de.IsEmpty())
                {
                    using (CSAHeader csa = new CSAHeader())
```

```
                    {
                        if (csa.LoadFromDataElement(de))
                        {
                            foreach (string str in expectedSiemensTags)
                            {
                                if (csa.FindCSAElementByName(str))
                                {
                                    using (CSAElement elem = csa.GetCSAElementByName(str))
                                    {
                                        if (elem != null)
                                        {
                                            System.Console.WriteLine( elem.toString() );
                                        }
                                    }
                                }
                            }
                        }
                    }
                }
            }
        }


    return 0;
    }
}
```

12.21 ExtractEncapsulatedFile.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example shows how one from C# context can extract a binary blob
 * and write out as a file.
 * This example is meant for pdf encapsulated file, but can be adapted for other type
 * of binary blob.
 *
 * DICOM file is:
 * ...
 * (0042,0010) ST (no value available)                     #   0, 0 DocumentTitle
 * (0042,0011) OB 25\50\44\46\2d\31\2e\32\20\0d\25\e2\e3\cf\d3\20\0d\31\30\20\30\20... # 40718, 1
      EncapsulatedDocument
 * (0042,0012) LO [application/pdf]                        #  16, 1 MIMETypeOfEncapsulatedDocument
 * ...
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ExtractEncapsulatedFile.exe some_pdf_encapsulated.dcm
 */
using System;
using gdcm;

public class ExtractEncapsulatedFile
{
  public static int Main(string[] args)
    {
    string file = args[0];
    Reader reader = new Reader();
    reader.SetFileName( file );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
```

```
      }

    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();
    Tag tencapsulated_stream = new Tag(0x0042,0x0011); // Encapsulated Document
    if( !ds.FindDataElement( tencapsulated_stream ) )
      {
      return 1;
      }
    // else
    DataElement de = ds.GetDataElement( tencapsulated_stream );
    ByteValue bv = de.GetByteValue();
    uint len = bv.GetLength();
    byte[] encapsulated_stream = new byte[len];
    bv.GetBuffer( encapsulated_stream, len );

    // Write out the decompressed bytes
    //System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.pdf",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write( encapsulated_stream );
      }


    return 0;
    }
}
```

12.22 ExtractImageRegion.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ bin/ExtractImageRegion.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegion.exe gdcmData/012345.002.050.dcm
 * $ md5sum /tmp/frame.raw
 * d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
 * $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 * [...]
 * md5sum: d594a5e2fde12f32b6633ca859b4d4a6
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    uint file_size = gdcm.PosixEmulation.FileSize(filename);

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
```

```
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;

    // store current offset:
    uint cur_pos = reader.GetStreamCurrentPosition();

    uint remaining = file_size - cur_pos;

    Console.WriteLine("Remaining bytes to read (Pixel Data): " + remaining.ToString() );

    // Get file infos
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
    PhotometricInterpretation pi = ImageHelper.GetPhotometricInterpretationValue(f);
    Console.WriteLine( pi.toString() );

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

12.23 ExtractImageRegionWithLUT.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
```

```
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 * Furthermore we are applying the LUT on this image.
 * Special care should be taken in case the image is not PALETTE COLOR
 *
 * Usage:
 * $ bin/ExtractImageRegionWithLUT.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegionWithLUT.exe gdcmData/rle16loo.dcm
 * $ md5sum /tmp/frame_rgb.raw
 * 73bf61325fdb6e2830244a2b7b0c4ae2  /tmp/frame_rgb.raw
 * $ gdcmimg --depth 16 --spp 3 --size 600,430 /tmp/frame_rgb.raw rgb.dcm
 * $ gdcmviewer rgb.dcm
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    gdcm.LookupTable lut = reader.GetImage().GetLUT();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // output buffer for the RGB decoded image:
    byte[] buffer2 = new byte[ dims[0] * dims[1] * pixelsize * 3 ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
        {
        if( !lut.Decode( buffer2, (uint)buffer2.Length, buffer, (uint)buffer.Length ) )
          {
          throw new Exception("can't decode");
          }

        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame_rgb.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer2);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
```

```
      }

    return 0;
    }
}
```

12.24 ExtractOneFrame.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.StreamImageReader API
 * to read a single (whole) frame at a time
 * The API allow extracting a smaller extent of the frame of course.
 * It will write out the extracted frame in /tmp/frame.raw
 *
 * Usage:
 * $ bin/ExtractOneFrame.exe input.dcm
 */
using System;
using gdcm;

public class ExtractOneFrame
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.StreamImageReader reader = new gdcm.StreamImageReader();

    reader.SetFileName( filename );

    if (!reader.ReadImageInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType extent = ImageHelper.GetDimensionsValue(f);
    //System.Console.WriteLine( extent[0] );
    uint dimx = extent[0];
    //System.Console.WriteLine( extent[1] );
    uint dimy = extent[1];
    //System.Console.WriteLine( extent[2] );
    uint dimz = extent[2];
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
    //System.Console.WriteLine( pixelsize );

    // buffer to get the pixels
    byte[] buffer = new byte[ dimx * dimy * pixelsize ];

    for (int i = 0; i < dimz; i++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      reader.DefinePixelExtent(0, (ushort)dimx, 0, (ushort)dimy, (ushort)i, (ushort)(i+1));
      uint buf_len = reader.DefineProperBufferLength(); // take into account pixel size
      //System.Console.WriteLine( buf_len );
      if( buf_len > buffer.Length )
        {
        throw new Exception("buffer is too small for target");
        }

      if (reader.Read(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
```

```
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

12.25 FileAnonymize.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileAnonymize.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class FileAnonymize
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.FileAnonymizer fa = new gdcm.FileAnonymizer();
    fa.SetInputFileName( filename );
    fa.SetOutputFileName( outfilename );

    // Empty Operations
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

12.26 FileChangeTS.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Lossless, Non-Hierarchical,
 * First-Order Prediction (Process 14 [Selection Value 1])]
 *
 * Usage:
 * $ mono bin/FileChangeTS.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }
  // Create a 256 x 256 Secondary Capture Image Storage
  static private void CreateSmallDICOM(string fileName)
    {
    using( var writer = new gdcm.PixmapWriter() )
      {
      gdcm.Pixmap img = writer.GetImage();
      img.SetNumberOfDimensions( 3 );
      img.SetDimension(0, 512 );
      img.SetDimension(1, 512 );
      img.SetDimension(2, 2 ); // fake a 3d volume
      PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
      img.SetPhotometricInterpretation( pi );
      gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
      byte[] buffer = new byte[ 512 * 512 * 2 ];
      pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
      img.SetDataElement( pixeldata );

      gdcm.File file = writer.GetFile();
      gdcm.DataSet ds = file.GetDataSet();
      gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
      string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
```

```
      Storage
      byte[] val = StrToByteArray(mediastorage);
      ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
      ds.Insert( ms );

      writer.SetFileName( fileName );
      writer.Write();
      }
    }
  static private void CreateBigDICOM(string fileName, string outfilename)
    {
    using( var ano = new gdcm.FileAnonymizer() )
      {
      // The following is somewhat dangerous, do not try at home:
      string nframes = "1000";
      ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
      ano.SetInputFileName(fileName);
      ano.SetOutputFileName(outfilename);
      ano.Write(); // at this point the DICOM is invalid !
      }
    }
  static private void CreateDummyFile(string fileName, long length)
    {
    using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
      {
      // Looks like C# always init to 0 (fallocate ?)
      // For the purpose of the test we could add some random noise
      fileStream.SetLength(length);
      }
    }
  static private void ReadBytesIntoArray( byte[] array, FileStream source )
    {
    int numBytesToRead = array.Length;
    int numBytesRead = 0;
    while (numBytesToRead > 0)
      {
      // According to spec: Read() may return anything from 0 to numBytesToRead.
      int n = source.Read(array, numBytesRead, numBytesToRead);

      // Break when the end of the file is reached.
      if (n == 0)
        break;

      numBytesRead += n;
      numBytesToRead -= n;
      }
    }
  static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
    {
    using ( var fs = new gdcm.FileStreamer() )
      {
      fs.SetTemplateFileName(dicomfn);
      fs.SetOutputFileName(outfn);
      gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
      // FileStreamer support automatic checking of pixel data length
      // based on DICOM attributes, only if we say so:
      fs.CheckDataElement( pixeldata );
      // Declare we are working on Pixel Data attribute:
      fs.StartDataElement( pixeldata );
      using (FileStream rawSource = new FileStream(rawdata,
          FileMode.Open, FileAccess.Read))
        {
        byte[] bytes = new byte[512];
        // Only read one scanline at a time
        // We could have been reading more at once, if this is more efficient,
        // AppendToDataElement will do the logic in all cases.
        for( int i = 0; i < 512 * 1000; ++i )
          {
          // Read the source file into a byte array.
          ReadBytesIntoArray( bytes, rawSource );
          fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
          }
        }
      if( !fs.StopDataElement( pixeldata ) )
        {
        // Most likely an issue with Pixel Data Length computation:
        throw new Exception("StopDataElement failed");
        }
      }
    }
  static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
```

```
    {
    using( var sfcts = FileChangeTransferSyntax.New() )
      {
      // Need to retrieve the actual C++ reference, to pass to
      // SimpleSubjectWatcher:
      FileChangeTransferSyntax fcts = sfcts.__ref__();
      SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
      gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 );
      fcts.SetTransferSyntax( ts );
      fcts.SetInputFileName( rawdicom );
      fcts.SetOutputFileName( jpegdicom );
      fcts.Change();
      }
    }
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

12.27 FileChangeTSLossy.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit
     Image Compression]
 *
 * Usage:
```

```
 * $ bin/FileChangeTSLossy.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }
  // Create a 256 x 256 Secondary Capture Image Storage
  static private void CreateSmallDICOM(string fileName)
    {
    using( var writer = new gdcm.PixmapWriter() )
      {
      gdcm.Pixmap img = writer.GetImage();
      img.SetNumberOfDimensions( 3 );
      img.SetDimension(0, 512 );
      img.SetDimension(1, 512 );
      img.SetDimension(2, 2 ); // fake a 3d volume
      PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
      img.SetPhotometricInterpretation( pi );
      gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
      byte[] buffer = new byte[ 512 * 512 * 2 ];
      pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
      img.SetDataElement( pixeldata );

      gdcm.File file = writer.GetFile();
      gdcm.DataSet ds = file.GetDataSet();
      gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
      string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
      Storage
      byte[] val = StrToByteArray(mediastorage);
      ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
      ds.Insert( ms );

      writer.SetFileName( fileName );
      writer.Write();
      }
    }
  static private void CreateBigDICOM(string fileName, string outfilename)
    {
    using( var ano = new gdcm.FileAnonymizer() )
      {
      // The following is somewhat dangerous, do not try at home:
      string nframes = "1000";
      ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
      ano.SetInputFileName(fileName);
      ano.SetOutputFileName(outfilename);
      ano.Write(); // at this point the DICOM is invalid !
      }
    }
  static private void CreateDummyFile(string fileName, long length)
    {
    using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
      {
      // Looks like C# always init to 0 (fallocate ?)
      // For the purpose of the test we could add some random noise
      fileStream.SetLength(length);
      }
    }
  static private void ReadBytesIntoArray( byte[] array, FileStream source )
    {
    int numBytesToRead = array.Length;
    int numBytesRead = 0;
    while (numBytesToRead > 0)
      {
      // According to spec: Read() may return anything from 0 to numBytesToRead.
      int n = source.Read(array, numBytesRead, numBytesToRead);

      // Break when the end of the file is reached.
      if (n == 0)
        break;

      numBytesRead += n;
      numBytesToRead -= n;
      }
```

```
    }
  static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
    {
    using ( var fs = new gdcm.FileStreamer() )
      {
      fs.SetTemplateFileName(dicomfn);
      fs.SetOutputFileName(outfn);
      gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
      // FileStreamer support automatic checking of pixel data length
      // based on DICOM attributes, only if we say so:
      fs.CheckDataElement( pixeldata );
      // Declare we are working on Pixel Data attribute:
      fs.StartDataElement( pixeldata );
      using (FileStream rawSource = new FileStream(rawdata,
          FileMode.Open, FileAccess.Read))
        {
        byte[] bytes = new byte[512];
        // Only read one scanline at a time
        // We could have been reading more at once, if this is more efficient,
        // AppendToDataElement will do the logic in all cases.
        for( int i = 0; i < 512 * 1000; ++i )
          {
          // Read the source file into a byte array.
          ReadBytesIntoArray( bytes, rawSource );
          fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
          }
        }
      if( !fs.StopDataElement( pixeldata ) )
        {
        // Most likely an issue with Pixel Data Length computation:
        throw new Exception("StopDataElement failed");
        }
      }
    }
  static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
    {
    using( var sfcts = FileChangeTransferSyntax.New() )
      {
      // Need to retrieve the actual C++ reference, to pass to
      // SimpleSubjectWatcher:
      FileChangeTransferSyntax fcts = sfcts.__ref__();
      SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
      gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
      fcts.SetTransferSyntax( ts );
      ImageCodec ic = fcts.GetCodec();
      JPEGCodec jpeg = JPEGCodec.Cast( ic );
      jpeg.SetLossless( false );
      jpeg.SetQuality( 50 ); // poor quality !

      fcts.SetInputFileName( rawdicom );
      fcts.SetOutputFileName( jpegdicom );
      fcts.Change();
      }
    }
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

12.28 FileStreaming.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileStreaming.exe gdcmData/CT_16b_signed-UsedBits13.dcm output.dcm
 *
 * The class will take care of group handling and will use the first available group:
 * (0009,0012) ?? (LO) [MYTEST]                          # 6,1 Private Creator
 */
using System;
using gdcm;

public class FileStreaming
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.PrivateTag pt = new gdcm.PrivateTag( new gdcm.Tag(0x9,0x10), "MYTEST" );

    gdcm.FileStreamer fs = new gdcm.FileStreamer();
    fs.SetTemplateFileName( filename );
    fs.SetOutputFileName( outfilename );

    byte[] buffer = new byte[ 8192 ];
    uint len = (uint)buffer.Length;

    // In this example, we want that each newly created Private Attribute
    // contains at most 1000 bytes of incoming dataset.
    // We are also calling the function twice to check that appending mode is
    // working from one call to the other. The last element will have a length
    // of (2 * 8192) % 1000 = 384
    if( !fs.StartGroupDataElement( pt, 1000, 1 )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.StopGroupDataElement( pt ) )
      {
      System.Console.WriteLine( "Could not change private group" );
      return 1;
      }

    return 0;
    }
}
```

12.29 GetArray.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GetArray.exe gdcmData/012345.002.050.dcm
```

```
 */
using System;
using gdcm;

public class GetArray
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();

    PixelFormat pixeltype = image.GetPixelFormat();

    if( image.GetNumberOfDimensions() != 2 )
      {
      // For the purpose of the test, exit early on
      return 1;
      }
    uint dimx = image.GetDimension(0);
    uint dimy = image.GetDimension(1);
    uint npixels = dimx * dimy;
    //LookupTable lut = image.GetLUT();
    //uint rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
    //byte[] rbuf = new byte[ rl ];
    //uint rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
    //assert rl == rl2;

    //byte[] str1 = new byte[ image.GetBufferLength()];
    //image.GetBuffer( str1 );
    if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT8 )
      {
      System.Console.WriteLine( "Processing UINT8 image type" );
      byte[] str1 = new byte[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.INT16 )
      {
      System.Console.WriteLine( "Processing INT16 image type" );
      short[] str1 = new short[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT16 )
      {
      System.Console.WriteLine( "Processing UINT16 image type" );
      ushort[] str1 = new ushort[ npixels ];
      image.GetArray( str1 );
      }
    else
      {
      //System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.toString() );
      System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.GetScalarTypeAsString() );
      // Get bytes
      byte[] str1 = new byte[ image.GetBufferLength()];
      image.GetBuffer( str1 );
      }

    return 0;
    }
}
```

12.30 MpegVideoInfo.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This examples takes in a MPEG2 and write out a Video Endoscopic Imagae Storage
 * encoded using MPEG2 @ Main Profile
 * ref: http://chrisa.wordpress.com/2007/11/21/decoding-mpeg2-information/
 * See also:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 * http://cvs.linux.hr/cgi-bin/viewcvs.cgi/mpeg_mod/README.infompeg?view=markup
 * http://www.guru-group.fi/~too/sw/m2vmp2cut/mpeg2info.c
 */

/*
 * Provides information about an MPEG2 file, including the duration, frame rate, aspect
 * ratio, and resolution.  Good information about the MPEG2 file structure that helps
 * explain parts of the code can be found here:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 *
 * Copyright (c) 2007 Chris Anderson (chrisa@wordpress.com)
 *
 * This library is free software; you can redistribute it and/or
 * modify it under the terms of the GNU Lesser General Public
 * License as published by the Free Software Foundation; either
 * version 2 of the License, or (at your option) any later version.
 *
 * This library is distributed in the hope that it will be useful,
 * but WITHOUT ANY WARRANTY; without even the implied warranty of
 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
 * Lesser General Public License for more details.
 */
using System;
using System.IO;
using gdcm;

public class Mpeg2VideoInfo
{
    #region Member Variables
    private TimeSpan        m_startTime     = TimeSpan.Zero;
    private TimeSpan        m_endTime       = TimeSpan.Zero;
    private TimeSpan        m_duration      = TimeSpan.Zero;
    private eAspectRatios   m_aspectRatio   = eAspectRatios.Invalid;
    private eFrameRates     m_frameRate     = 0;
    private int             m_pictureWidth  = 0;
    private int             m_pictureHeight = 0;
    #endregion

    #region Constants
    private const byte PADDING_PACKET = 0xBE;
    private const byte VIDEO_PACKET = 0xE0;
    private const byte AUDIO_PACKET = 0xC0;
    private const byte SYSTEM_PACKET = 0xBB;
    private const byte TIMESTAMP_PACKET = 0xB8;
    private const byte HEADER_PACKET = 0xB3;

    private const int BUFFER_SIZE = 8162; // 8K buffer

    private readonly static TimeSpan EMPTY_TIMESPAN = new TimeSpan(0, 0, -1);
    #endregion

    #region Enumerations
    public enum eFrameRates
    {
        Invalid,
        PulldownNTSC,           // 24000d/1001d = 23.976 Hz
        Film,                   // 24 Hz
        PAL,                    // 25 Hz
        NTSC,                   // 30000d/1001d = 29.97 Hz
        DropFrameNTSC,          // 30 Hz
        DoubleRatePAL,          // 50 Hz
        DoubleRateNTSC,         // 59.97 Hz
        DoubleRateDropFrameNTSC // 60 Hz
    }

    public enum eAspectRatios
    {
        Invalid,
        VGA,        // 1/1
```

```
        StandardTV, // 4/3
        LargeTV,    // 16/9
        Cinema      // 2.21/1
    }
    #endregion

    #region Constructor
    public Mpeg2VideoInfo(string file)
    {
        ParseMpeg(file);
    }
    #endregion

    #region Public Properties
    public TimeSpan StartTime
    {
        get { return m_startTime; }
    }

    public TimeSpan EndTime
    {
        get { return m_endTime; }
    }

    public TimeSpan Duration
    {
        get { return m_duration; }
    }

    public eAspectRatios AspectRatio
    {
        get { return m_aspectRatio; }
    }

    public eFrameRates FrameRate
    {
        get { return m_frameRate; }
    }

    public int PictureWidth
    {
        get { return m_pictureWidth; }
    }

    public int PictureHeight
    {
        get { return m_pictureHeight; }
    }
    #endregion

    #region Private Functions
    private void ParseMpeg(string file)
    {
        FileStream fs = new FileStream(file, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);
        BinaryReader br = new BinaryReader(fs);

        m_startTime = GetStartTimeStampInfo(br);
        m_endTime = GetEndTimeStampInfo(br);

        m_duration = m_endTime.Subtract(m_startTime);

        GetHeaderInfo(br);

        br.Close();
        fs.Close();
    }

    private TimeSpan GetStartTimeStampInfo(BinaryReader br)
    {
        TimeSpan startTime = EMPTY_TIMESPAN;
        byte[] buffer = new byte[BUFFER_SIZE];

        br.BaseStream.Seek(0, SeekOrigin.Begin);

        while (startTime == EMPTY_TIMESPAN && br.BaseStream.Position < br.BaseStream.Length)
        {
            int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

            for (int offset = 0; offset < readBytes - 8; offset++)
            {
                if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
```

```
            {
                offset += 4; // Move to the data position which follows the stream header
                uint timeStampEncoded = GetData(ref buffer, offset);
                startTime = DecodeTimeStamp(timeStampEncoded);

                if (startTime != EMPTY_TIMESPAN)
                    break;
            }
        }
    }

    return startTime;
}

private TimeSpan GetEndTimeStampInfo(BinaryReader br)
{
    TimeSpan endTime = EMPTY_TIMESPAN;
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(-BUFFER_SIZE, SeekOrigin.End);

    while (endTime == EMPTY_TIMESPAN && br.BaseStream.Position > BUFFER_SIZE)
    {
        int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

        for (int offset = readBytes - 8; offset >= 0; offset--)
        {
            if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
            {
                offset += 4; // Move to the data position which follows the stream header
                uint timeStampEncoded = GetData(ref buffer, offset);
                endTime = DecodeTimeStamp(timeStampEncoded);

                if (endTime != EMPTY_TIMESPAN)
                    break;
            }
        }

        br.BaseStream.Seek(-BUFFER_SIZE * 2, SeekOrigin.Current);
    }

    return endTime;
}

private TimeSpan DecodeTimeStamp(uint timeStampEncoded)
{
    TimeSpan timeStamp = EMPTY_TIMESPAN;

    // Mask out the bits containing the property we are after, then
    // shift the data to the right to get its value
    int hour = (int)(timeStampEncoded & 0x7C000000) » 26;   // Bits 31 -> 27
    int minute = (int)(timeStampEncoded & 0x03F00000) » 20; // Bits 26 -> 21
    int second = (int)(timeStampEncoded & 0x0007E000) » 13; // Bits 19 -> 14
    int frame = (int)(timeStampEncoded & 0x00001F80) » 7;   // Bits 13 -> 8 - not used, but included for
  completeness

    timeStamp = new TimeSpan(hour, minute, second);
    return timeStamp;
}

private void GetHeaderInfo(BinaryReader br)
{
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(0, SeekOrigin.Begin);
    br.Read(buffer, 0, BUFFER_SIZE);

    for (int offset = 0; offset < buffer.Length - 4; offset++)
    {
        if (IsStreamMarker(ref buffer, offset, HEADER_PACKET))
        {
            offset += 4; // Move to the data position which follows the stream header
            uint headerData = GetData(ref buffer, offset);

            // Mask out the bits containing the property we are after, then
            // shift the data to the right to get its value
            m_pictureWidth = (int)(headerData & 0xFFF00000) » 20;
            m_pictureHeight = (int)(headerData & 0x000FFF00) » 8;

            uint aspectRatioIndex = (headerData & 0x000000F0) » 4;
```

```
                uint fpsIndex = headerData & 0x0000000F;

                m_aspectRatio = (eAspectRatios)fpsIndex;
                m_frameRate = (eFrameRates)fpsIndex;

                break;
            }
        }
    }

    private uint GetData(ref byte[] buffer, int offset)
    {
        return (uint)  ((buffer[offset] « 24) |
                        (buffer[offset + 1] « 16) |
                        (buffer[offset + 2] « 8) |
                        (buffer[offset + 3]));
    }

    private bool IsStreamMarker(ref byte[] buffer, int offset, byte markerType)
    {
        return (buffer[offset] == 0x00 &&
                buffer[offset + 1] == 0x00 &&
                buffer[offset + 2] == 0x01 &&
                buffer[offset + 3] == markerType);
    }
    #endregion
  public static int Main(string[] args)
    {
    string file1 = args[0];
    Mpeg2VideoInfo info = new Mpeg2VideoInfo(file1);
    System.Console.WriteLine( info.StartTime );
    System.Console.WriteLine( info.EndTime );
    System.Console.WriteLine( info.Duration );
    System.Console.WriteLine( info.AspectRatio );
    System.Console.WriteLine( info.FrameRate );
    System.Console.WriteLine( info.PictureWidth );
    System.Console.WriteLine( info.PictureHeight );

    ImageReader r = new ImageReader();
    //Image image = new Image();
    Image image = r.GetImage();
    image.SetNumberOfDimensions( 3 );
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    sq.AddFragment( frag );
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    PhotometricInterpretation pi = new PhotometricInterpretation(
      PhotometricInterpretation.PIType.YBR_PARTIAL_420 );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.MPEG2MainProfile);
    image.SetTransferSyntax( ts );

    image.SetDimension(0, (uint)info.PictureWidth);
    image.SetDimension(1, (uint)info.PictureHeight);
    image.SetDimension(2, 721);

    ImageWriter writer = new ImageWriter();
    gdcm.File file = writer.GetFile();
    file.GetHeader().SetDataSetTransferSyntax( ts );
    Anonymizer anon = new Anonymizer();
```

```
    anon.SetFile( file );

    MediaStorage ms = new MediaStorage( MediaStorage.MSType.VideoEndoscopicImageStorage);

    UIDGenerator gen = new UIDGenerator();
    anon.Replace( new Tag(0x0008,0x16), ms.GetString() );
    anon.Replace( new Tag(0x0018,0x40), "25" );
    anon.Replace( new Tag(0x0018,0x1063), "40.000000" );
    anon.Replace( new Tag(0x0028,0x34), "4\\3" );
    anon.Replace( new Tag(0x0028,0x2110), "01" );

    writer.SetImage( image );
    writer.SetFileName( "dummy.dcm" );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

12.31 NewSequence.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/NewSequence.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
//using gdcm;

public class NewSequence
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }

  public static int Main(string[] argv)
    {
    string file1 = argv[0];
    string file2 = argv[1];

    gdcm.Reader r = new gdcm.Reader();
    r.SetFileName( file1 );
    if ( ! r.Read() )
      {
      return 1;
      }

    gdcm.File f = r.GetFile();
    gdcm.DataSet ds = f.GetDataSet();
    // tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

    // Create a dataelement
    gdcm.DataElement de = new gdcm.DataElement(new gdcm.Tag(0x0010, 0x2180));
    string occ = "Occupation";
    de.SetByteValue( StrToByteArray(occ), new gdcm.VL((uint)occ.Length));
    de.SetVR(new gdcm.VR(gdcm.VR.VRType.SH));

    // Create an item
```

```
    gdcm.Item it = new gdcm.Item();
    it.SetVLToUndefined();      // Needed to not popup error message
    //it.InsertDataElement(de)
    gdcm.DataSet nds = it.GetNestedDataSet();
    nds.Insert(de);

    // Create a Sequence
    gdcm.SmartPtrSQ sq = gdcm.SequenceOfItems.New();
    sq.SetLengthToUndefined();
    sq.AddItem(it);

    // Insert sequence into data set
    gdcm.DataElement des = new gdcm.DataElement(new gdcm.Tag(0x0400,0x0550));
    des.SetVR(new gdcm.VR(gdcm.VR.VRType.SQ));
    des.SetValue(sq.__ref__());
    des.SetVLToUndefined();

    ds.Insert(des);

    gdcm.Writer w = new gdcm.Writer();
    w.SetFile( f );
    w.SetFileName( file2 );
    if ( !w.Write() )
      return 1;

    return 0;
    }
}
```

12.32 RescaleImage.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm rescaled.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();
    PixelFormat pixeltype = image.GetPixelFormat();

    Rescaler r = new Rescaler();
    r.SetIntercept( 0 );
    r.SetSlope( 1.2 );
    r.SetPixelFormat( pixeltype );
    PixelFormat outputpt = new PixelFormat( r.ComputeInterceptSlopePixelType() );

    System.Console.WriteLine( "pixeltype" );
    System.Console.WriteLine( pixeltype.toString() );
```

```
    System.Console.WriteLine( "outputpt" );
    System.Console.WriteLine( outputpt.toString() );

    uint len = image.GetBufferLength();
    short[] input = new short[ len / 2 ]; // sizeof(short) == 2
    image.GetArray( input );

    double[] output = new double[ len / 2 ];
    r.Rescale( output, input, len );

    // First Pixel is:
    System.Console.WriteLine( "Input:" );
    System.Console.WriteLine( input[0] );

    System.Console.WriteLine( "Output:" );
    System.Console.WriteLine( output[0] );

    return 0;
    }
}
```

12.33 SendFileSCU.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm-gcc/bin
 * $ mono bin/SendFileSCU.exe server port input.dcm
 */
using System;
using gdcm;

public class SendFileSCU
{
  public static int Main(string[] args)
    {
    string server = args[0];
    ushort port = ushort.Parse(args[1]);
    string filename = args[2];

    bool b = CompositeNetworkFunctions.CEcho( server, port );
    if( !b ) return 1;

    FilenamesType files = new FilenamesType();
    files.Add( filename );
    b = CompositeNetworkFunctions.CStore( server, port, files );
    if( !b ) return 1;

    return 0;
    }
}
```

12.34 SimplePrintPatientName.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrintPatientName.exe gdcmData/012345.002.050.dcm
 */
/*
 This example was provided by Jonathan Morra /jonmorra gmail com/
 on the gdcm mailing list (Fri, 28 May 2010)
*/
using System;
using gdcm;

namespace GDCMTest
{
  class SimplePrintPatientName
    {
    static int Main(string[] args)
      {
      if (args.Length != 1)
        {
        Console.WriteLine("This program prints the patient name of a dicom file with gdcm");
        Console.WriteLine("Usage: [input.dcm]");
        return 1;
        }

      gdcm.Reader reader = new gdcm.Reader();
      reader.SetFileName(args[0]);
      bool ret = reader.Read();
      //TagSetType tst = new TagSetType();
      //tst.Add( new Tag(0x7fe0,0x10) );
      //bool ret = reader.ReadUpToTag( new Tag(0x88,0x200), tst );
      if( !ret )
        {
        return 1;
        }

      gdcm.File file = reader.GetFile();

      gdcm.StringFilter filter = new gdcm.StringFilter();
      filter.SetFile(file);
      string value = filter.ToString(new gdcm.Tag(0x0010, 0x0010));

      Console.WriteLine("Patient Name: " + value);
      return 0;
      }
    }
}
```

12.35 SortImage2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SortImage.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
```

```
using gdcm;

public class SortImage2
{
  bool mysort(DataSet ds1, DataSet ds2)
    {
    return false;
    }

  public static int Main(string[] args)
    {
    Sorter sorter = new Sorter();
    sorter.SetSortFunction( mysort );

    return 0;
    }
}
```

12.36 CStoreQtProgress.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This small example show how one can use the virtual function
 * mechanism of the SimpleSubjectWatcher class to redirect progress
 * report to a custom Qt classes
 *
 * http://doc.qt.nokia.com/latest/qprogressdialog.html
 *
 * Usage:
 * CStoreQtProgress dicom.example.com 11112 gdcmData/MR_Spectroscopy_SIEMENS_OF.dcm
 *
 */

#include "gdcmServiceClassUser.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmProgressEvent.h"
#include "gdcmDirectory.h"
#include "gdcmPresentationContextGenerator.h"

#include <QApplication>
#include <QProgressDialog>
#include <QVBoxLayout>

namespace gdcm {
/*
 * This class is a little more complicated than what this example demonstrate
 * This watcher is capable of handling nested progress. Since the Progress
 * grows from [0 to 1] on a per file basis and we only have one instance of a
 * watcher per association, we need some calculation to compute the global
 * (total) progress
 * In fact we simply divide the per-file progress by the number of files.
 *
 * This QtWatcher class will then update the progress bar according to the
 * progress.
 */
class MyQtWatcher : public SimpleSubjectWatcher
{
  size_t nfiles;
  double progress;
  size_t index;
  double refprogress;
  QWidget* win;
  QProgressDialog* qtprogress;
public:
```

```
  MyQtWatcher(Subject * s, const char *comment = "", QWidget *w = NULL, QProgressDialog* p = NULL, size_t n =
      1):
    SimpleSubjectWatcher(s,comment),nfiles(n),progress(0),index(0),refprogress(0),win(w),qtprogress(p){}
  void ShowIteration()
    {
    index++;
    assert( index <= nfiles );
    // update refprogess (we are moving to the next file)
    refprogress = progress;
    }
  void ShowProgress(Subject *, const Event &evt)
    {
    // Retrieve the ProgressEvent:
    const ProgressEvent &pe = dynamic_cast<const ProgressEvent&>(evt);
    // compute global progress:
    progress = refprogress + (1. / (double)nfiles ) * pe.GetProgress();
    // Print Global and local progress to stdout:
    std::cout « "Global Progress: " « progress « " per file progress " « pe.GetProgress() « std::endl;
    //set progress value in the QtProgress bar
    int i = (int)(progress * 100 + 0.5); // round to next int
    qtprogress->setValue(i);
    win->show();
    }
  virtual void ShowDataSet(Subject *caller, const Event &evt)
    {
    (void)caller;
    (void)evt;
    }
};
} // end namespace gdcm

int main(int argc, char *argv[])
{
  if( argc < 4 )
    {
    std::cerr « argv[0] « " remote_server port filename" « std::endl;
    return 1;
    }
  QApplication a(argc, argv);

  std::ostringstream error_log;
  gdcm::Trace::SetErrorStream( error_log );

  const char *remote = argv[1];
  int portno = atoi(argv[2]);
  const char *filename = argv[3];

  QVBoxLayout* layout = new QVBoxLayout;
  QWidget*  win = new QWidget;

  QProgressDialog* progress = new QProgressDialog("Sending data...", "Cancel", 0, 100);
  progress->setWindowModality(Qt::WindowModal);

  layout->addWidget(progress,Qt::AlignCenter);
  win->setLayout(layout);

  gdcm::SmartPointer<gdcm::ServiceClassUser> scup = new gdcm::ServiceClassUser;
  gdcm::ServiceClassUser &scu = *scup;
  //gdcm::SimpleSubjectWatcher w( &scu, "TestServiceClassUser" );
  // let's use a more complicated progress reported in this example
  gdcm::MyQtWatcher w( &scu, "QtWatcher", win, progress );

  scu.SetHostname( remote );
  scu.SetPort( (uint16_t)portno );
  scu.SetTimeout( 1000 );
  scu.SetCalledAETitle( "GDCM_STORE" );

  if( !scu.InitializeConnection() )
    {
    std::cerr « "Could not InitializeConnection" « std::endl;
    return 1;
    }

  gdcm::Directory::FilenamesType filenames;
  filenames.push_back( filename );

  // setup the PC(s) based on the filenames:
  gdcm::PresentationContextGenerator generator;
  if( !generator.GenerateFromFilenames(filenames) )
    {
    std::cerr « "Could not GenerateFromFilenames" « std::endl;
```

```
    return 1;
    }

  // Setup PresentationContext(s)
  scu.SetPresentationContexts( generator.GetPresentationContexts() );

  // Start ASSOCIATION
  if( !scu.StartAssociation() )
    {
    std::cerr « "Could not Start" « std::endl;
    return 1;
    }

  // Send C-STORE
  if( !scu.SendStore( filename ) )
    {
    std::cerr « "Could not Store" « std::endl;
    std::cerr « "Error log is:" « std::endl;
    std::cerr « error_log.str() « std::endl;
    return 1;
    }

  // Stop ASSOCIATION
  if( !scu.StopAssociation() )
    {
    std::cerr « "Could not Stop" « std::endl;
    return 1;
    }

  win->show();

  return a.exec();
}
```

12.37 ChangePrivateTags.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmPrivateTag.h"

int main(int argc, char* argv[] )
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " path/to/05148044-mr-siemens-avanto-syngo.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  // (0029,0010) LO [SIEMENS CSA HEADER]                              # 18,1 Private Creator
  // (0029,0011) LO [SIEMENS MEDCOM HEADER ]                          # 22,1 Private Creator
  // (0029,0012) LO [SIEMENS MEDCOM HEADER2]                          # 22,1 Private Creator
  // [...]
  // (0029,1018) CS [MR]                                              # 2,1 CSA Series Header Type
  // (0029,1134) CS [DB TO DICOM ]                                    # 12,1 PMTF Information 4
```

```
  // (0029,1260) LO [com ]                                          # 4,1 Series Workflow Status

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Declare private tag we need to find:
  gdcm::PrivateTag pt1( 0x29,0x18, "SIEMENS CSA HEADER" );
  gdcm::PrivateTag pt2( 0x29,0x34, "SIEMENS MEDCOM HEADER" );
  gdcm::PrivateTag pt3( 0x29,0x60, "SIEMENS MEDCOM HEADER2" );

  const char str1[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt1 ) ) return 1;
  gdcm::DataElement de1 = ds.GetDataElement( pt1 ); // Convert Private tag, into actual DataElement
  std::cout « de1 « std::endl;
  de1.SetByteValue( str1, (uint32_t)strlen(str1) );
  ds.Replace( de1 );

  const char str2[] = "GDCM was here 2!";
  if( !ds.FindDataElement( pt2 ) ) return 1;
  gdcm::DataElement de2 = ds.GetDataElement( pt2 );
  std::cout « de2 « std::endl;
  de2.SetByteValue( str2, (uint32_t)strlen(str2) );
  ds.Replace( de2 );

  const char str3[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt3 ) ) return 1;
  gdcm::DataElement de3 = ds.GetDataElement( pt3 );
  std::cout « de3 « std::endl;
  de3.SetByteValue( str3, (uint32_t)strlen(str3) );
  ds.Replace( de3 );

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.38 ChangeSequenceUltrasound.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmSmartPointer.h"
#include "gdcmDataSetHelper.h"

/*
 ./ChangeSequenceUltrasound gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

 This is the exact C++ translation of the original python example: ManipulateSequence.py
 */

int main(int argc, char* argv[] )
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
```

```
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::Tag tsis(0x0008,0x2112); // SourceImageSequence
  if ( ds.FindDataElement( tsis ) )
    {
    const gdcm::DataElement &sis = ds.GetDataElement( tsis );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqsis = sis.GetValueAsSQ();
    if ( sqsis && sqsis->GetNumberOfItems() )
      {
      gdcm::Item &item1 = sqsis->GetItem(1);
      gdcm::DataSet &nestedds = item1.GetNestedDataSet();
      gdcm::Tag tprcs(0x0040,0xa170); // PurposeOfReferenceCodeSequence
      if( nestedds.FindDataElement( tprcs ) )
        {
        const gdcm::DataElement &prcs = nestedds.GetDataElement( tprcs );
        gdcm::SmartPointer<gdcm::SequenceOfItems> sqprcs = prcs.GetValueAsSQ();
        if ( sqprcs && sqprcs->GetNumberOfItems() )
          {
          gdcm::Item &item2 = sqprcs->GetItem(1);
          gdcm::DataSet &nestedds2 = item2.GetNestedDataSet();
          // (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
          gdcm::Tag tcm(0x0008,0x0104);
          if( nestedds2.FindDataElement( tcm ) )
            {
            gdcm::DataElement cm = nestedds2.GetDataElement( tcm );
            std::string mystr = "GDCM was here";
            cm.SetByteValue( mystr.c_str(), (uint32_t)mystr.size() );
            nestedds2.Replace( cm );
            }
          }
        }
      }
    }

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.39 CheckBigEndianBug.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * WARNING: This is a dev tool, do not use !
 *
 * Usage: after a gdcmconv, you would like to know if the conversion process is acceptable
 * sometime a vbindiff is acceptable, sometime it is not. In the case of the famous Philips
 * Little/Big Endian Explicit Transfer Syntax it is not easy to compare two files. However
 * this only impact byte ordering, thus we can compute byte-indenpendant information to still
 * compare the files.
```

```
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmSystem.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input1.dcm input2.dcm" « std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::ImageReader reader1;
  reader1.SetFileName( filename1 );
  if( !reader1.Read() )
    {
    std::cerr « "Could not read: " « filename1 « std::endl;
    return 1;
    }

  gdcm::ImageReader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    std::cerr « "Could not read: " « filename2 « std::endl;
    return 1;
    }

  // TODO: need a DataSet== operator implementation

  std::cout « "Both files can be read and looks like DICOM" « std::endl;

  size_t s1 = gdcm::System::FileSize(filename1);
  size_t s2 = gdcm::System::FileSize(filename2);

  if( s1 != s2 )
    {
    std::cout « "Size mismatch: " « s1 « " != " « s2 « std::endl;
    return 1;
    }
  else
    {
    std::cout « "Size match: " « s1 « " = " « s2 « std::endl;
    }

  std::ifstream is1( filename1, std::ios::binary );
  char *buffer1 = new char[s1];
  is1.read(buffer1, s1);

  std::ifstream is2( filename2, std::ios::binary );
  char *buffer2 = new char[s2];
  is2.read(buffer2, s2);

  assert( s1 == s2 );
  if( memcmp(buffer1, buffer2, s1 ) == 0 )
    {
    std::cout « "memcmp succeed ! File are bit identical" « std::endl;
    }
  else
    {
    std::cout « "memcmp failed!" « std::endl;
    }

  // Hum...memcmp failed, for big endian/ little endian inversion the histogram of bytes
  // should still be the same. So let's compute it
  // buffer2[0] = 1; // let's make the test fail
  std::multiset<char> set1( buffer1, buffer1 + s1 );
  std::multiset<char> set2( buffer2, buffer2 + s2 );


  if( set1 == set2 )
    {
```

```
    std::cout « "set1 == set2. Byte histogram seems valid" « std::endl;
    }
  else
    {
    std::cout « "set1 != set2" « std::endl;
    }
  delete[] buffer1;
  delete[] buffer2;


  return 0;
}
```

12.40 ClinicalTrialAnnotate.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dummy implementation of C.7.1.3 Clinical Trial Subject Module
 *
 * Usage:
 *  ClinicalTrialAnnotate gdcmData/012345.002.050.dcm out.dcm
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAnonymizer.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Anonymizer ano;
  ano.SetFile( reader.GetFile() );
  ano.RemoveGroupLength();
  ano.RemovePrivateTags();

  // PS 3.3 - 2008
  // C.7.1.3 Clinical Trial Subject Module
  // <entry group="0012" element="0010" vr="LO" vm="1" name="Clinical Trial Sponsor Name"/>
  ano.Replace( gdcm::Tag(0x12,0x10), "BigCompany name" );
  // <entry group="0012" element="0020" vr="LO" vm="1" name="Clinical Trial Protocol ID"/>
  ano.Replace( gdcm::Tag(0x12,0x20), "My Clinical Trial Protocol ID" );
  // <entry group="0012" element="0021" vr="LO" vm="1" name="Clinical Trial Protocol Name"/>
  ano.Replace( gdcm::Tag(0x12,0x21), "My Clinical Trial Protocol Name" );
  // <entry group="0012" element="0030" vr="LO" vm="1" name="Clinical Trial Site ID"/>
```

```
  ano.Replace( gdcm::Tag(0x12,0x30), "My Clinical Trial Site ID" );
  // <entry group="0012" element="0031" vr="LO" vm="1" name="Clinical Trial Site Name"/>
  ano.Replace( gdcm::Tag(0x12,0x31), "My Clinical Trial Site Name" );
  // <entry group="0012" element="0040" vr="LO" vm="1" name="Clinical Trial Subject ID"/>
  ano.Replace( gdcm::Tag(0x12,0x40), "My Clinical Trial Subject ID" );
  // <entry group="0012" element="0042" vr="LO" vm="1" name="Clinical Trial Subject Reading ID"/>
  ano.Replace( gdcm::Tag(0x12,0x42), "My Clinical Trial Subject Reading ID" );


  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.41 CompressImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"
#include "gdcmImageChangeTransferSyntax.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Image &image = reader.GetImage();
  // image.SetSpacing(0, 0.1);
  // image.SetSpacing(1, 0.2);
```

```
  image.Print( std::cout );

  gdcm::ImageChangeTransferSyntax change;
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEG2000Lossless );
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEGLosslessProcess14_1 );
  //change.SetTransferSyntax( gdcm::TransferSyntax::JPEGBaselineProcess1 );
  //change.SetTransferSyntax( image.GetTransferSyntax() );
  change.SetInput( image );
  bool b = change.Change();
  if( !b )
    {
    std::cerr « "Could not change the Transfer Syntax" « std::endl;
    return 1;
    }

  //std::ofstream out( outfilename, std::ios::binary );
  //image.GetBuffer2(out);
  //out.close();
  gdcm::ImageWriter writer;
  writer.SetImage( change.GetOutput() );
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.42 ConvertToQImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to setup the pipeline from a gdcm::ImageReader into a
 * Qt QImage data structure.
 * It only handles 2D image.
 *
 * Ref:
 * http://doc.trolltech.com/4.5/qimage.html
 *
 * Usage:
 *  ConvertToQImage gdcmData/012345.002.050.dcm output.png

 * Thanks:
 *   Sylvain ADAM (sylvain51 hotmail com) for contributing this example
 */

#include "gdcmImageReader.h"
#include <QImage>
#include <QImageWriter>

bool ConvertToFormat_RGB888(gdcm::Image const & gimage, char *buffer, QImage* &imageQt)
{
  const unsigned int* dimension = gimage.GetDimensions();

  unsigned int dimX = dimension[0];
  unsigned int dimY = dimension[1];

  gimage.GetBuffer(buffer);

  // Let's start with the easy case:
  if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::RGB )
    {
    if( gimage.GetPixelFormat() != gdcm::PixelFormat::UINT8 )
```

```
      {
      return false;
      }
    unsigned char *ubuffer = (unsigned char*)buffer;
    // QImage::Format_RGB888  13  The image is stored using a 24-bit RGB format (8-8-8).
    imageQt = new QImage((unsigned char *)ubuffer, dimX, dimY, 3*dimX, QImage::Format_RGB888);
    }
  else if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::MONOCHROME2 )
    {
    if( gimage.GetPixelFormat() == gdcm::PixelFormat::UINT8 )
      {
      // We need to copy each individual 8bits into R / G and B:
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else if( gimage.GetPixelFormat() == gdcm::PixelFormat::INT16 )
      {
      // We need to copy each individual 16bits into R / G and B (truncate value)
      short *buffer16 = (short*)buffer;
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        // Scalar Range of gdcmData/012345.002.050.dcm is [0,192], we could simply do:
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // instead do it right:
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        buffer16++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else
      {
      std::cerr « "Pixel Format is: " « gimage.GetPixelFormat() « std::endl;
      return false;
      }
    }
  else
    {
    std::cerr « "Unhandled PhotometricInterpretation: " « gimage.GetPhotometricInterpretation() « std::endl;
    return false;
    }

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader ir;
  ir.SetFileName( filename );
  if(!ir.Read())
    {
    //Read failed
    return 1;
    }

  std::cout«"Getting image from ImageReader..."«std::endl;

  const gdcm::Image &gimage = ir.GetImage();
  std::vector<char> vbuffer;
  vbuffer.resize( gimage.GetBufferLength() );
```

```
  char *buffer = &vbuffer[0];

  QImage *imageQt = NULL;
  if( !ConvertToFormat_RGB888( gimage, buffer, imageQt ) )
    {
    return 1;
    }

  QImageWriter writer;
  writer.setFormat("png");
  writer.setFileName( outfilename );
  if( !writer.write( *imageQt ) )
    {
    return 1;
    }

  return 0;
}
```

12.43 CreateARGBImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.rgba
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.rgba output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
  unsigned int dims[3] = {};
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::ARGB;
  image.SetPhotometricInterpretation( pi );
```

```
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;


  return 0;
}
```

12.44 CreateCMYKImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.cmyk
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.cmyk output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
  unsigned int dims[3] = {};
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::CMYK;
  image.SetPhotometricInterpretation( pi );
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
```

```
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;

  return 0;
}
```

12.45 CreateJPIPDataSet.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example was created during the GSOC 2011 project for
 * JPIP
 */
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::JPIPReferenced );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::SecondaryCaptureImageStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout « ms.GetString() « std::endl;
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );
  //
  anon.Replace( gdcm::Tag(0x0010,0x10), "JPIP^EXAMPLE" );
  anon.Replace( gdcm::Tag(0x0010,0x20), "012345" );
  anon.Empty( gdcm::Tag(0x0010,0x30) );
  anon.Empty( gdcm::Tag(0x0010,0x40) );
  anon.Empty( gdcm::Tag(0x0008,0x20) );
  anon.Empty( gdcm::Tag(0x0008,0x30) );
  anon.Empty( gdcm::Tag(0x0008,0x90) );
  anon.Empty( gdcm::Tag(0x0020,0x10) );
  anon.Empty( gdcm::Tag(0x0020,0x11) );
  anon.Empty( gdcm::Tag(0x0008,0x50) );
```

```
  anon.Empty( gdcm::Tag(0x0020,0x0013) );
  anon.Replace( gdcm::Tag(0x0020,0xd), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0020,0xe), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0008,0x64), "WSD " );
  anon.Replace( gdcm::Tag(0x0008,0x60), "OT" );

  gdcm::Attribute<0x0028,0x7FE0> at;
  at.SetValue( "http://dicom.example.com/jpipserver.cgi?target=img.jp2" );
  ds.Insert( at.GetAsDataElement() );

  // Need to retrieve the PixelFormat information from the given file

  if (!w.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

12.46 DeriveSeries.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
  {
    return 1;
  }
  const char * ref = argv[1];
  const char * in  = argv[2];

  gdcm::Reader r1;
  r1.SetFileName( ref );
  if( !r1.Read() ) return 1;

  gdcm::Reader r2;
  r2.SetFileName( in );
  if( !r2.Read() ) return 1;


  // Fix Spatial info:
  gdcm::DataSet & ds1 = r1.GetFile().GetDataSet();
  gdcm::File & file2 = r2.GetFile();
  gdcm::DataSet & ds2 = file2.GetDataSet();
  //gdcm::Attribute<0x8,0x8> img_type = { "ORIGINAL", "PRIMARY" };
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0008) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0032) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0037) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0088) )); // Spacing between slices
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0013) )); // Instance Number
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x5100) )); // Patient Position
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0050) )); // Slice Thickness
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0070) )); // Manufacturer
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0081) )); // Echo Time
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x1041) )); // Slice Location

  gdcm::Attribute<0x8,0x16> sopclassuid;
```

```
  sopclassuid.SetFromDataSet( ds1 );
  gdcm::Attribute<0x8,0x18> sopinstanceuid;
  sopinstanceuid.SetFromDataSet( ds1 );

  // Step 2: DERIVED object
  gdcm::FileDerivation fd;
  fd.AddReference( sopclassuid.GetValue(), sopinstanceuid.GetValue() );

  // http://dicom.nema.org/MEDICAL/dicom/current/output/chtml/part16/chapter_D.html#DCM_121321
  // CID 7202 "Source Image Purposes of Reference"
  // DCM 121321 "Mask image for image processing operation"
  fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121321 );
  // CID 7203 "Image Derivation"
  // DCM 113047 "Pixel by pixel mask"
  fd.SetDerivationCodeSequenceCodeValue( 113047 );
  fd.SetFile( file2 );
  // If all Code Value are ok the filter will execute properly
  if( !fd.Derive() )
    {
    std::cerr « "Sorry could not derive using input info" « std::endl;
    return 1;
    }

  gdcm::Writer w;
  w.SetFile( r2.GetFile() );
  w.SetFileName( "derived.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.47 DiffFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input1.dcm input2.dcm" « std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::Reader reader1;
  reader1.SetFileName( filename1 );
  if( !reader1.Read() )
    {
    return 1;
    }

  gdcm::Reader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  const gdcm::File &file1 = reader1.GetFile();
```

```
  const gdcm::File &file2 = reader2.GetFile();

  const gdcm::DataSet &ds1 = file1.GetDataSet();
  const gdcm::DataSet &ds2 = file2.GetDataSet();

  gdcm::DataSet::ConstIterator it1 = ds1.Begin();
  gdcm::DataSet::ConstIterator it2 = ds2.Begin();

  const gdcm::DataElement &de1 = *it1;
  const gdcm::DataElement &de2 = *it2;
  if( de1 == de2 )
    {
    }
  while( it1 != ds1.End() && it2 != ds2.End() && *it1 == *it2 )
    {
    ++it1;
    ++it2;
    }

  if( it1 != ds1.End() || it2 != ds2.End() )
    {
    std::cerr « "Problem with:" « std::endl;
    if( it1 != ds1.End() )
      {
      std::cerr « "ds1: " « *it1 « std::endl;
      }
    if( it2 != ds2.End() )
      {
      std::cerr « "ds2: " « *it2 « std::endl;
      }
    return 1;
    }

  return 0;
}
```

12.48 DiscriminateVolume.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmScanner.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"
#include "gdcmDirectionCosines.h"
#include <cmath>

/*
 * The following example is a basic sorted which should work in generic cases.
 * It sort files based on:
 * Study Instance UID
 *   Series Instance UID
 *     Frame of Reference UID
 *       Image Orientation (Patient)
 *         Image Position (Patient) (Sorting based on IPP + IOP)
 */

namespace gdcm {
  const Tag t1(0x0020,0x000d); // Study Instance UID
  const Tag t2(0x0020,0x000e); // Series Instance UID
  const Tag t3(0x0020,0x0052); // Frame of Reference UID
  const Tag t4(0x0020,0x0037); // Image Orientation (Patient)

class DiscriminateVolume
{
private:
  std::vector< Directory::FilenamesType > SortedFiles;
```

```
  std::vector< Directory::FilenamesType > UnsortedFiles;

  Directory::FilenamesType GetAllFilenamesFromTagToValue(
    Scanner const & s, Directory::FilenamesType const &filesubset, Tag const &t, const char *valueref)
{
  Directory::FilenamesType theReturn;
  if( valueref )
    {
    size_t len = strlen( valueref );
    Directory::FilenamesType::const_iterator file = filesubset.begin();
    for(; file != filesubset.end(); ++file)
      {
      const char *filename = file->c_str();
      const char * value = s.GetValue(filename, t);
      if( value && strncmp(value, valueref, len ) == 0 )
        {
        theReturn.push_back( filename );
        }
      }
    }
  return theReturn;
}

void ProcessAIOP(Scanner const & , Directory::FilenamesType const & subset, const char *iopval)
{
  std::cout « "IOP: " « iopval « std::endl;
  IPPSorter ipp;
  ipp.SetComputeZSpacing( true );
  ipp.SetZSpacingTolerance( 1e-3 ); // ??
  bool b = ipp.Sort( subset );
  if( !b )
    {
    // If you reach here this means you need one more parameter to discriminiat this
    // series. Eg. T1 / T2 intertwinted. Multiple Echo (0018,0081)
    std::cerr « "Failed to sort: " « subset.begin()->c_str() « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = subset.begin();
      file != subset.end(); ++file)
      {
      std::cerr « *file « std::endl;
      }
    UnsortedFiles.push_back( subset );
    return ;
    }
  ipp.Print( std::cout );
  SortedFiles.push_back( ipp.GetFilenames() );
}

void ProcessAFrameOfRef(Scanner const & s, Directory::FilenamesType const & subset, const char * frameuid)
{
  // In this subset of files (belonging to same series), let's find those
  // belonging to the same Frame ref UID:
  Directory::FilenamesType files = GetAllFilenamesFromTagToValue(
    s, subset, t3, frameuid);

  std::set< std::string > iopset;

  for(
    Directory::FilenamesType::const_iterator file = files.begin();
    file != files.end(); ++file)
    {
    //std::cout « *file « std::endl;
    const char * value = s.GetValue(file->c_str(), gdcm::t4 );
    assert( value );
    iopset.insert( value );
    }
  size_t n = iopset.size();
  if ( n == 0 )
    {
    assert( files.empty() );
    return;
    }

  std::cout « "Frame of Ref: " « frameuid « std::endl;
  if ( n == 1 )
    {
    ProcessAIOP(s, files, iopset.begin()->c_str() );
    }
  else
    {
    const char *f = files.begin()->c_str();
```

```
    std::cerr « "More than one IOP: " « f « std::endl;
    // Make sure that there is actually 'n' different IOP
    gdcm::DirectionCosines ref;
    gdcm::DirectionCosines dc;
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      ref.SetFromString( it->c_str() );
      for(
        Directory::FilenamesType::const_iterator file = files.begin();
        file != files.end(); ++file)
        {
        std::string value = s.GetValue(file->c_str(), gdcm::t4 );
        if( value != it->c_str() )
          {
          dc.SetFromString( value.c_str() );
          const double crossdot = ref.CrossDot(dc);
          const double eps = std::fabs( 1. - crossdot );
          if( eps < 1e-6 )
            {
            std::cerr « "Problem with IOP discrimination: " « file->c_str()
              « " " « it->c_str() « std::endl;
            return;
            }
          }
        }
      }
      // If we reach here this means there is actually 'n' different IOP
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      const char *iopvalue = it->c_str();
      Directory::FilenamesType iopfiles = GetAllFilenamesFromTagToValue(
        s, files, t4, iopvalue );
      ProcessAIOP(s, iopfiles, iopvalue );
      }
    }
}

void ProcessASeries(Scanner const & s, const char * seriesuid)
{
  std::cout « "Series: " « seriesuid « std::endl;
  // let's find all files belonging to this series:
  Directory::FilenamesType seriesfiles = GetAllFilenamesFromTagToValue(
    s, s.GetFilenames(), t2, seriesuid);

  gdcm::Scanner::ValuesType vt3 = s.GetValues(t3);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt3.begin()
    ; it != vt3.end(); ++it )
    {
    ProcessAFrameOfRef(s, seriesfiles, it->c_str());
    }
}

void ProcessAStudy(Scanner const & s, const char * studyuid)
{
  std::cout « "Study: " « studyuid « std::endl;
  gdcm::Scanner::ValuesType vt2 = s.GetValues(t2);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt2.begin()
    ; it != vt2.end(); ++it )
    {
    ProcessASeries(s, it->c_str());
    }
}
public:

void Print( std::ostream & os )
{
  os « "Sorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = SortedFiles.begin();
    it != SortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
```

```
      {
      os « *file « std::endl;
      }
    }
  os « "Unsorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = UnsortedFiles.begin();
    it != UnsortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
      {
      os « *file « std::endl;
      }
    }

}

  std::vector< Directory::FilenamesType > const & GetSortedFiles() const { return SortedFiles; }
  std::vector< Directory::FilenamesType > const & GetUnsortedFiles() const { return UnsortedFiles; }

void ProcessIntoVolume( Scanner const & s )
{
  gdcm::Scanner::ValuesType vt1 = s.GetValues( gdcm::t1 );
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt1.begin()
    ; it != vt1.end(); ++it )
    {
    ProcessAStudy( s, it->c_str() );
    }

}

};

} // namespace gdcm

int main(int argc, char *argv[])
{
  std::string dir1;
  if( argc < 2 )
    {
    const char *extradataroot = nullptr;
#ifdef GDCM_BUILD_TESTING
    extradataroot = gdcm::Testing::GetDataExtraRoot();
#endif
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !

  gdcm::Scanner s;
  s.AddTag( gdcm::t1 );
  s.AddTag( gdcm::t2 );
  s.AddTag( gdcm::t3 );
  s.AddTag( gdcm::t4 );
  bool b = s.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr « "Scanner failed" « std::endl;
    return 1;
    }

  gdcm::DiscriminateVolume dv;
  dv.ProcessIntoVolume( s );
  dv.Print( std::cout );

  return 0;
}
```

12.49 DumpADAC.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * the goal of this example is to mimic the behavior of disp_img_header
 * see http://www.gmecorp-usa.com/IM/NM/GC/ADAC/SV/adactechtips/Released_01Q3.pdf
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct dict
{
  uint16_t key;
  const char *name;
};

dict Array[] = {
  { 0x01, "Patient name" },
  { 0x02, "Patient ID" },
  { 0x03, "Patient sex" },
  { 0x04, "Patient age" },
  { 0x05, "Patient height" },
  { 0x06, "Patient weight" },
  { 0x07, "Exam date" },
  { 0x08, "Dose admin. time" },
  { 0x09, "Unique exam key" },
  { 0x0a, "Exam procedure" },
  { 0x0b, "Referring physician" },
  { 0x0c, "Attending physician" },
  { 0x0d, "Imaging modality" },
  { 0x0e, "Hospital ID" },
  { 0x0f, "Histogram crv file" },
  { 0x10, "Acq. start time" },
  { 0x11, "Object data type" },
  { 0x12, "Image viewid" },
  { 0x13, "Imaging device name" },
  { 0x14, "Device serial number" },
  { 0x15, "Collimator" },
  { 0x16, "Software version" },
  { 0x17, "Radiopharmaceutical #1" },
  { 0x18, "Energy window #1 center" },
  { 0x19, "Radiopharmaceutical #2" },
  { 0x1a, "Energy window #1 width" },
  { 0x1b, "Isotope imaging mode" },
  { 0x1c, "Energy window #2 center" },
  { 0x1d, "Energy window #2 width" },
  { 0x1e, "Energy window #3 center" },
  { 0x1f, "Energy window #3 width" },
  { 0x20, "Energy window #4 center" },
  { 0x21, "Energy window #4 width" },
  { 0x22, "??Energy window #5 center" },
  { 0x23, "??Energy window #5 width" },
  { 0x24, "Patient orientation" },
  { 0x25, "Spatial resolution" },
  { 0x26, "Slice thickness" },
  { 0x27, "Image X dimension" },
  { 0x28, "Image Y dimension" },
  { 0x29, "Image Z dimension" },
```

```
  { 0x2a, "Image pixel width" },
  { 0x2b, "Uniformity corr. file" },
  { 0x2c, "Acquisition zoom factor" },
  { 0x2d, "Total counts in set" },
  { 0x2e, "Time / frame" },
  { 0x2f, "Total acq. time" },
  { 0x30, "Maximum pixel value" },
  { 0x31, "Minimum pixel value" },
  { 0x32, "R-R interval time" },
  { 0x33, "Percent of cycle imaged" },
  { 0x34, "# of cycles accepted" },
  { 0x35, "# of cycles rejected" },
  { 0x36, "Approximate ED frame" },
  { 0x37, "Approximate ES frame" },
  { 0x38, "Approximate EF" },
  { 0x39, "Starting angle" },
  { 0x3a, "Degrees of rotation" },
  { 0x3b, "Direction of rotation" },
  { 0x3c, "Cont. or step/shoot" },
  { 0x3d, "Lim recon start frame" },
  { 0x3e, "Upper window grey shade" },
  { 0x3f, "Lower lvl grey shade" },
  { 0x40, "Associated color map" },
  { 0x41, "Custom color map file" },
  { 0x42, "Manipulated image" },
  { 0x43, "Axis of rotation corr." },
  { 0x44, "Reorientation azimuth" },
  { 0x45, "Reorientation elevation" },
  { 0x46, "Filter type" },
  { 0x47, "Filter order" },
  { 0x48, "Filter cutoff frequency" },
  { 0x49, "Reconstruction type" },
  { 0x4a, "Attenuation coefficient" },
  { 0x4b, "Associated parent file" },
  { 0x4c, "Unique patient key" },
  { 0x52, "Normalization crv file" },
  { 0x53, "Unique object key" },
  { 0x54, "This phase of VFR is" },
  { 0x55, "True color value" },
  { 0x56, "# of sets of x,y,z grps" },
  { 0x57, "Scale factor of set" },
  { 0x6d, "Date of birth" },
  { 0x6e, "Directional orientation" },
  { 0x6f, "Number of VFR studies" },
  { 0x70, "R-R low tolerance" },
  { 0x71, "R-R high tolerance" },
  { 0x72, "Prog specific results:" },

  { 0x99, nullptr }
};

void printname( int , int , uint16_t v )
{
  if( v == 0x1 )
    {
    std::cout « "DATABASE PARAMETERS" « std::endl;
    std::cout « "___________________" « std::endl;
    }
  else if( v == 0x27 )
    {
    std::cout « "IMAGE PARAMETERS" « std::endl;
    std::cout « "_________________" « std::endl;
    }
  else if( v == 0x13 )
    {
    std::cout « "EXTRA PARAMETERS" « std::endl;
    std::cout « "_________________" « std::endl;
    }
  else if( v == 0x2e )
    {
    std::cout « "*** NOT CURRENTLY USED :" « std::endl;
    }
  static const unsigned int n = sizeof( Array ) / sizeof( *Array ) - 1;
  for( unsigned int i = 0; i < n; ++i )
    {
    if( v == Array[i].key )
      {
      std::cout « /*"" « std::dec « len « "," « mult « " " « */ Array[i].name;
      std::cout « " : ";
      return;
      }
```

```
    }
  std::cout « /*"\t# " « std::dec « len « "," « mult « */ std::hex « v « "\t: ";
}

uint16_t readint16(std::istream &is )
{
  uint16_t val;
  is.read( (char*)&val, sizeof( val ));
  return (uint16_t)((val»8) | (val«8));
}

uint32_t readint32(std::istream &is )
{
  uint32_t val;
  is.read( (char*)&val, sizeof( val ));
  val= ((val«8)&0xFF00FF00) | ((val»8)&0x00FF00FF);
  return (val»16) | (val«16);
}

float readfloat32(std::istream &is )
{
  union { uint32_t val; float f;} dual;
  dual.val = readint32(is);
  return dual.f;
}

struct el
{
  uint16_t v1;
  uint16_t v2;
  uint16_t v3;
  void read( std::istream & is )
    {
    v1 = readint16(is);
    v2 = readint16(is);
    v3 = readint16(is);
    }
  void print( std::ostream & os )
    {
    os « std::hex « v1 « "\t" « v2 « "\t" « v3 « std::endl;
    }
};

std::vector<el> Vel;

void readelement( std::istream & is )
{
  el e;
  e.read( is );
  Vel.push_back( e );
}

void printascii( uint16_t tag, const char *buffer, size_t len )
{
  std::ostream & os = std::cout;
  if( tag == 0x72 )
    {
    os « "\n  ";
    for(size_t i = 0; i < len; ++i)
      {
      const char &c = buffer[i];
      if( c == 0x0 ) os « "!";
      else if( c == 0x0f ) os « " ";
      else if( c == 0x17 ) os « ":";
      else if( c == 0x14 ) os « ":";
      else if( c == 0x10 ) os « ":";
      else if( c == 0x16 ) os « ":";
      else if( c == 0x08 ) os « ":";
      else if( c == 0x0b ) os « ":";
      else if( c == 0x0e ) os « ":";
      else if( c == 0x07 ) os « ":";
      else os « c;
      }
    os « "";
    }
  else
    {
    (void)len;
    os « "" « buffer « "";
    }
```

```
}

bool DumpADAC( std::istream & is )
{
  std::ostream &os = std::cout;

  char magic[6 + 1];
  magic[6] = 0;
  is.read( magic, 6);
//  std::cout « magic « " ";
  assert( strcmp( magic, "adac01" ) == 0 );
  int c = is.get();
  assert( c == 0 ); (void)c;
  c = is.get();
  assert( c == 'X' );

  uint16_t v;
  v = readint16(is);
//  std::cout « v « std::endl;
  assert( v == 512 ); (void)v; // ??

  int nel = 87;
  for (int i = 0; i <= nel; ++i )
    {
    readelement( is );
    }

  char buffer[512];
  for( int i = 0; i <= nel; ++i )
    {
    const el &e = Vel[i];
    int diff;
    if( i == nel )
      {
      diff = 2048 - e.v3;
      if( diff > 512 ) diff = 512;
      }
    else
      {
      const el &enext = Vel[i+1];
      diff = enext.v3 - e.v3;
      }
    is.seekg( e.v3, std::ios::beg );
    //std::cout « "(" « std::hex « std::setw( 2 ) « std::setfill( '0' ) « e.v1 « ") " « std::hex « std::setw( 3
      ) « std::setfill( '0' ) « e.v2 « " ";
    printname( diff, 0, e.v1 );
    int mult = 1;
    if( e.v2 == 0 )
      {
      is.read( buffer, diff);
      buffer[ diff ] = 0;
      printascii( e.v1, buffer, diff);
      }
    else if( e.v2 == 0x100 )
      {
      mult = diff / 2;
      assert( diff == 2 * mult );
      for ( int ii = 0; ii < mult; ++ii )
        {
        if ( ii ) os « "\\";
        uint16_t val = readint16(is);
        os « "" « std::dec « val « "";
        }
      }
    else if( e.v2 == 0x200 )
      {
      assert( diff == 4 );
      uint32_t val = readint32(is);
      os « "" « std::dec « val « "";
      }
    else if( e.v2 == 0x300 )
      {
      assert( diff == 4 );
      float val = readfloat32(is);
      os « "" « std::dec « val « "";
      }
    else
      {
      assert( 0 );
      }
    os « std::endl;
```

```
    }
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0019,1061) UN (OB) 61\64\61\63\30         # 2048,1 Ver200 ADAC Pegasys Headers
  const gdcm::PrivateTag tver200adacpegasysheaders(0x0019,0x61,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacpegasysheaders ) ) return 1;
  const gdcm::DataElement& ver200adacpegasysheaders = ds.GetDataElement( tver200adacpegasysheaders );
  if ( ver200adacpegasysheaders.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = ver200adacpegasysheaders.GetByteValue();

  // (0019,1021) US 1               # 2,1 Ver200 Number of ADAC Headers
  // TODO

  // (0019,1041) IS [2048\221184 ]  # 12,1-n Ver200 ADAC Header/Image Size
  if( bv->GetLength() != 2048 ) return 1;

  gdcm::Element<gdcm::VR::IS,gdcm::VM::VM2> el;
  const gdcm::PrivateTag tver200adacheaderimagesize(0x0019,0x41,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacheaderimagesize ) ) return 1;
  const gdcm::DataElement& ver200adacheaderimagesize = ds.GetDataElement( tver200adacheaderimagesize );
  el.SetFromDataElement( ver200adacheaderimagesize );
  if( el.GetValue(0) != 2048 ) return 1;

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpADAC( is );
  if( !b ) return 1;



  return 0;
}
```

12.50 DumpExamCard.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*

  Try to extract contents of Philips RAW storage class:

(0002,0002) UI [1.2.840.10008.5.1.4.1.1.66]                        # 26,1 Media Storage SOP Class UID
(0002,0003) UI [1.3.46.670589.11.17240.5.23.4.1.3012.2010032409482568018]         # 56,1 Media Storage SOP
      Instance UID
(0002,0010) UI [1.2.840.10008.1.2.1]                               # 20,1 Transfer Syntax UID
(0002,0012) UI [1.3.46.670589.11.0.0.51.4.4.1]                     # 30,1 Implementation Class UID
(0002,0013) SH [MR DICOM 4.1]                                      # 12,1 Implementation Version Name

 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
```

```
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Triplett,William T for bringing to your attention on this ExamCard stuff
 */
#include "gdcmReader.h"
#include "gdcmDataSet.h"
#include "gdcmPrivateTag.h"
#include "gdcmBase64.h"

#include <iomanip>

static bool compfn(const char *s1, const char *s2)
{
  return strcmp(s1,s2) < 0 ? true : false;
}

static const char *PDFStrings[] = { // Keep me ordered please
  "COILSTATE", // series of string ?
  "HARDWARE_CONFIG", // series of number ?
  "PDF_CONTROL_GEN_PARS",
  "PDF_CONTROL_PREP_PARS",
  "PDF_CONTROL_RECON_PARS",
  "PDF_CONTROL_SCAN_PARS",
  "PDF_EXAM_PARS",
  "PDF_HARDWARE_PARS",
  "PDF_PREP_PARS",
  "PDF_PRESCAN_COIL_PARS",
  "PDF_SPT_PARS",
};

static bool isvalidpdfstring( const char *pdfstring )
{
  assert( pdfstring );
  static const size_t n = sizeof( PDFStrings ) / sizeof( *PDFStrings );
  static const char **begin = PDFStrings;
  static const char **end = begin + n;
  return std::binary_search(begin, end, pdfstring, compfn);
}

typedef enum
{
  param_float = 0,
  param_integer = 1, // 1 « 0
  param_string = 2, // 1 « 1
  param_3, // ??
  param_enum = 4  // 1 « 2
} param_type;

static const char *gettypenamefromtype( int i)
{
  const char *ret = nullptr;
  param_type e = (param_type)i;
  switch( e )
    {
  case param_float:
    ret = "float";
    break;
  case param_integer:
    ret = "int";
    break;
  case param_string:
    ret = "string";
    break;
  case param_3:
    ret = "??";
    break;
  case param_enum:
    ret = "enum";
    break;
    }
  assert( ret );
  return ret;
}

struct header
{
```

```
/*
 * TODO:
 * Looks as if we could read all int*, float* and string* at once...
 */
  int32_t v1; // offset to int pointer array ?
  uint16_t nints; // number of ints (max number?)
  uint16_t v3; // always 0 ?
  int32_t v4; // offset to float pointer array ?
  uint32_t nfloats;
  int32_t v6; // offset to string pointer array ?
  uint32_t nstrings;
  int32_t v8; // always 8 ??
  uint32_t numparams;
  uint32_t getnints() const { return nints; }
  uint32_t getnfloats() const { return nfloats; }
  uint32_t getnstrings() const { return nstrings; }
  uint32_t getnparams() const { return numparams; }
  void read( std::istream & is )
    {
    is.read( (char*)&v1,sizeof(v1));
    if( v1 == 0x01 ) {
      // direct (FIXME how should we detect this, much like TIFF ???)
      nints = 0;
      v3 = 0;
      v4 = 0;
      nfloats = 0;
      v6 = 0;
      nstrings = 0;
      v8 = 0;
      numparams = 0;
      uint32_t bla;
      is.read( (char*)&bla, sizeof(bla) );
      assert( bla == 0x2 || bla == 0x3 );
      nstrings = 1;
      numparams = 1;
    } else {
      // indirect
      is.read( (char*)&nints,sizeof(nints));
      is.read( (char*)&v3,sizeof(v3));
      assert( v3 == 0 ); // looks like this is always 0
      is.read( (char*)&v4,sizeof(v4));
      is.read( (char*)&nfloats,sizeof(nfloats));
      is.read( (char*)&v6,sizeof(v6));
      is.read( (char*)&nstrings,sizeof(nstrings));
      is.read( (char*)&v8,sizeof(v8));
      assert( v8 == 8 );
      is.read( (char*)&numparams,sizeof(numparams));
    }
    }
  void print( std::ostream & os )
    {
    os « v1 « ",";
    os « nints « ",";
    os « v3 « ",";
    os « v4 « ",";
    os « nfloats « ",";
    os « v6 « ",";
    os « nstrings « ",";
    os « v8 « ",";
    os « numparams « std::endl;
    }
};

struct param
{
  char name[32+1];
  uint8_t boolean;
  int32_t type;
  uint32_t dim;
  union {
  uint32_t val;
  char * ptr; } v4;
  int32_t /*std::streamoff*/ offset;
  param_type gettype() const { return (param_type)type; }
  uint32_t getdim() const { return dim; }
  void read_direct_int( std::istream & is ) {
    uint32_t bla;
    int max = 9;
    std::vector<uint32_t> v;
    for( int i = 0; i < max; ++i ) {
      is.read( (char*)&bla, sizeof(bla) );
```

```
    v.push_back( bla );
  }
  is.read( (char*)&bla, sizeof(bla) );
  char name0[32];
  memset(name0,0,sizeof(name0));
  assert( bla < sizeof(name0) );
  is.read( name0, bla);
  size_t l = strlen(name0);
  assert( l == bla ); (void)l;
  char * ptr = strdup( name0 );
  v4.ptr = ptr;
  type = param_string;
  dim = 1;
  offset = 0; // important !
}
void read_direct_string( std::istream & is ) {
  uint32_t bla;
  is.read( (char*)&bla, sizeof(bla) );
  char name0[32];
  memset(name0,0,sizeof(name0));
  assert( bla < sizeof(name0) );
  is.read( name0, bla);
  size_t l = strlen(name0);
  assert( l == bla ); (void)l;
  memcpy( this->name, name0, bla );
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0x1 );
  is.read( (char*)&bla, sizeof(bla) );
  char value[32];
  memset(value,0,sizeof(value));
  assert( bla < sizeof(value) );
  is.read( value, bla);
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0 ); // trailing stuff ?
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0 ); // trailing stuff ?
  const uint32_t cur = (uint32_t)is.tellg();
  std::cerr « "offset:" « cur « std::endl;
  if( cur == 65 )
    is.read( (char*)&bla, 1 );
  else if( cur == 66 )
    is.read( (char*)&bla, 1 );
  else if( cur == 122 )
    is.read( (char*)&bla, 2 );
  else
    assert(0);
  type = param_string;
  dim = 1;
  // FIXME: store the value in v4 for now:
  char * ptr = strdup( value );
  v4.ptr = ptr;
  offset = 0; // important !
}
void read( std::istream & is )
  {
  is.read( name, 32 + 1);
  // This is always the same issue the string can contains garbage from previous run,
  // we need to print only until the first \0 character:
  assert( strlen( name ) <= 32 );
  is.read( (char*)&boolean,1);
  assert( boolean == 0 || boolean == 1 || boolean == 0x69 ); // some kind of bool, or digital trash ?
  is.read( (char*)&type, sizeof( type ) );
  assert( gettypenamefromtype( type ) );
  is.read( (char*)&dim, sizeof( dim ) ); // number of elements
  is.read( (char*)&v4.val, sizeof( v4.val ) );
  //assert( v4.val == 0 ); // always 0 ? sometimes not...
  const uint32_t cur = (uint32_t)is.tellg();
  is.read( (char*)&offset, sizeof( offset ) );
  assert( offset != 0 );
  offset += cur;
  }

void print( std::ostream & os ) const
  {
  os « name « ",";
  os « (int)boolean « ",";
  os « type « ",";
  os « dim « ",";
  os « v4.val « ",";
  os « offset « std::endl;
  }
```

```
  void printvalue( std::ostream & os, std::istream & is ) const
    {
    if( offset ) {
    is.seekg( offset );
    switch( type )
      {
    case param_float:
        {
        os.precision(2);
        os « std::fixed;
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ",";
          float v;
          is.read( (char*)&v, sizeof(v) );
          os « v; // what if the string contains \0 ?
          }
        }
      break;
    case param_integer:
        {
        int32_t v;
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ",";
          is.read( (char*)&v, sizeof(v) );
          os « v;
          }
        }
      break;
    case param_string:
        {
        int size = 81;
        std::string v;
        v.resize( size );
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ";";
          is.read( &v[0], size );
          os « v.c_str();
          }
        }
      break;
    case param_enum:
        {
        int32_t v;
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ",";
          is.read( (char*)&v, sizeof(v) );
          os « v;
          }
        }
      break;
      }
    } else {
#if 1
      // direct
      assert ( type == param_string );
      char * ptr = v4.ptr;
        //std::string v;
        //v.resize( dim );
        //is.read( &v[0], dim );
        os « ptr;
#endif
    }

    }
  void printxml( std::ostream & os, std::istream & is ) const
    {
    // <Attribute Name="CGEN_force_par_mode" Type="enum">0</Attribute>
    os « "  <Attribute";
    os « " Name=\"" « name « "\"";
    os « " Type=\"" « gettypenamefromtype(type) « "\"";
    if( dim != 1 )
      {
      os « " ArraySize=\"" « dim « "\"";
      }
    os « ">";
    printvalue( os, is );
    os « "</Attribute>\n";
```

```
    }
  void printcsv( std::ostream & os, std::istream & is ) const
    {
    os « std::setw(32) « std::left « name « ",";
    os « std::setw(7) « std::right « gettypenamefromtype(type) « ",";
    os « std::setw(4) « dim « ",";
    os « " ";
    printvalue( os, is );
    os « ",\n";
    }
};

static bool ProcessNested( gdcm::DataSet & ds )
{
  /*
  TODO:
   Looks like the real length of the blob is stored here:
(2005,1132) SQ                                                  # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]                 # 26,1 Private Creator
    (2005,1143) SL 3103                                         # 4,1 ?

Wotsit ?
(2005,1132) SQ                                                  # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]                 # 26,1 Private Creator
    (2005,1147) CS [Y ]                                         # 2,1 ?
  */
  bool ret = false;

  //  (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]                  # 20,1 Protocol Data Name
  const gdcm::PrivateTag pt0(0x2005,0x37,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt0 ) ) return false;
  const gdcm::DataElement &de0 = ds.GetDataElement( pt0 );
  if( de0.IsEmpty() ) return false;
  const gdcm::ByteValue * bv0 = de0.GetByteValue();
  std::string s0( bv0->GetPointer() , bv0->GetLength() );

  // (2005,1139) LO [IEEE_PDF]                                   # 8,1 Protocol Data Type
  const gdcm::PrivateTag pt1(0x2005,0x39,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt1 ) ) return false;
  const gdcm::DataElement &de1 = ds.GetDataElement( pt1 );

  // (2005,1143) SL 53                                           # 4,1 Protocol Data Block Length (non-padded)
  const gdcm::PrivateTag pt2(0x2005,0x43,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt2 ) ) return false;
  const gdcm::DataElement &de2 = ds.GetDataElement( pt2 );

  // (2005,1147) CS [Y ]                                         # 2,1 Protocol Data Boolean
  const gdcm::PrivateTag pt3(0x2005,0x47,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt3 ) ) return false;
  const gdcm::DataElement &de3 = ds.GetDataElement( pt3 );
  (void)de3;

  // (2005,1144) OW 00\00\00\00\05\00\00\00\35\2e\31\2e\37\00         # 54,1 Protocol Data Block
  const gdcm::PrivateTag pt(0x2005,0x44,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt ) ) return false;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
  if( de.IsEmpty() ) return false;
  const gdcm::ByteValue * bv = de.GetByteValue();

  if( s0 == "ExamCardBlob" )
    {
    assert( de1.IsEmpty() );

    std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".xml";
    std::ofstream out( fn.c_str() );

    // remove trailing \0
    size_t len = strlen( bv->GetPointer() );
    out.write( bv->GetPointer() , len );
    out.close();

    // Extract binary64 thingy (this is a ugly hack, better use an XML parser)
    std::string dup( bv->GetPointer(), len );
    std::string::size_type pos1 = dup.find( "<ExamCardBlob>" );
```

```
    std::string::size_type pos2 = dup.find( "</ExamCardBlob>" );

    std::string b64( bv->GetPointer() + pos1 + 14, pos2 - (pos1 + 14) );

    // ulgy hack to remove \r\n from input base64:
    std::string::iterator r_pos = std::remove(b64.begin(), b64.end(), '\r');
    b64.erase(r_pos, b64.end());
    std::string::iterator n_pos = std::remove(b64.begin(), b64.end(), '\n');
    b64.erase(n_pos, b64.end());
#if 0
    std::ofstream out2( "debug" );
    out2.write( b64.c_str(), b64.size() );
    out2.close();
#endif

    const size_t dlen = gdcm::Base64::GetDecodeLength(b64.c_str(), b64.size() );

    std::string decoded;
    decoded.resize( dlen );
    gdcm::Base64::Decode( &decoded[0], decoded.size(), b64.c_str(), b64.size() );

    std::ofstream f64( "soap.xml" );
    f64.write( decoded.c_str(), decoded.size() );
    f64.close();

    ret = true;
    }
  else
    {
    if( de1.IsEmpty() ) return false;
    const gdcm::ByteValue * bv1 = de1.GetByteValue();
    gdcm::Element<gdcm::VR::SL,gdcm::VM::VM1> dlen = {{0L}};
    dlen.SetFromDataElement( de2 );
    std::string s1( bv1->GetPointer() , bv1->GetLength() );

    if( s1 == "IEEE_PDF" )
      {

      std::istringstream is;
      assert( bv->GetLength() == (size_t)dlen.GetValue() || bv->GetLength() == (size_t)(dlen.GetValue() + 1) );
      std::string dup( bv->GetPointer(), dlen.GetValue() /*bv->GetLength()*/ );
      is.str( dup );

      header h;
      h.read( is );
      //assert( is.peek() && is.eof() );
#if 1
      static int c = 0;
      std::string fn0 = gdcm::LOComp::Trim( s1.c_str() ); // remove trailing space
      std::stringstream ss;
      ss « fn0 « "_" « c++;
      if( h.v1 == 0x01 )
        ss « ".direct";
      else
        ss « ".indirect";
      std::cout « "fn0=" « ss.str() « " Len= " « bv->GetLength() « std::endl;
      std::ofstream out( ss.str().c_str() );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
#endif
#if 1
      std::cout « dup.c_str() « std::endl;
      h.print( std::cout );
#endif

      std::vector< param > params;
      if( h.v1 == 0x01 ) {
        for( uint32_t i = 0; i < 1 /* h.getnparams()*/; ++i ) {
          param p;
          if( s0 == "HARDWARE_CONFIG " )
            {
            p.read_direct_int( is );
            }
          else if( s0 == "COILSTATE " )
            {
            p.read_direct_string( is );
            }
          else
            {
            assert(0);
            }
```

```
          params.push_back( p );
        }
      } else {
        assert( is.tellg() == std::streampos(0x20) );
        is.seekg( 0x20 );

        param p;
        for( uint32_t i = 0; i < h.getnparams(); ++i )
          {
          p.read( is );
          //p.print( std::cout );
          params.push_back( p );
          }
      }

      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      bool b1 = isvalidpdfstring( fn.c_str() );
      assert( b1 ); (void)b1;
      fn += ".csv";
      //fn += ".xml";
      std::ofstream csv( fn.c_str() );

      // let's do some bookkeeping:
      uint32_t nfloats = 0;
      uint32_t nints = 0;
      uint32_t nstrings = 0;
      for( std::vector<param>::const_iterator it = params.begin();
        it != params.end(); ++it )
        {
        param_type type = it->gettype();
        switch( type )
          {
        case param_float:
          nfloats += it->getdim();
          break;
        case param_integer:
          nints += it->getdim();
          break;
        case param_string:
          nstrings += it->getdim();
          break;
        default:
          ;
          }
        }
#if 0
      std::cout « "Stats:" « std::endl;
      std::cout « "nfloats:" « nfloats « std::endl;
      std::cout « "nints:" « nints « std::endl;
      std::cout « "nstrings:" « nstrings « std::endl;
#endif
      assert( h.getnints() >= nints );
      assert( h.getnfloats() >= nfloats );
      assert( h.getnstrings() >= nstrings);

      for( uint32_t i = 0; i < h.getnparams(); ++i )
        {
        params[i].printcsv( csv, is );
        //params[i].printxml( csv, is );
        }
      csv.close();
      ret = true;
      }
    else if( s1 == "ASCII " )
      {
#if 0
      std::cerr « "ASCII is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".asc";
      std::ofstream out( fn.c_str() );
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();
#endif
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".sin";
      std::ofstream sin( fn.c_str() );

      const char *beg = bv->GetPointer();
      const char *end = beg + bv->GetLength();
      assert( *beg == 0 );
      const char *p = beg + 1; // skip first \0
```

```
      size_t prev = 0;
      for( ; p != end; ++p )
        {
        if( *p == 0 )
          {
          const char *s = beg + prev + 1;
          if( *s )
            {
            sin « s « std::endl;
            }
          else
            {
            sin « std::endl;
            }
          prev = p - beg;
          }
        }
      sin.close();

      ret = true;
      }
    else if( s1 == "BINARY" )
      {
      std::cerr « "BINARY is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".bin";
      std::ofstream out( fn.c_str() );
      //out.write( bv->GetPointer() + 512, bv->GetLength() - 512);
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();

#if 0
      int array[ 128 ];
      memcpy( array, bv->GetPointer(), 512 );
      for( int i = 0; i < 14; ++i )
        {
        std::cout « array[i] « std::endl;
        }
#endif

      ret = true;
      }
    }
  // else -> ret == false
  assert( ret );

  return ret;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
/*
(2005,1132) SQ                                                  # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]                 # 26,1 Private Creator
    (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]                  # 20,1 ?
    (2005,1138) PN (LO) (no value)                              # 0,1 ?
    (2005,1139) PN (LO) [IEEE_PDF]                              # 8,1 ?
    (2005,1140) PN (LO) (no value)                              # 0,1 ?
    (2005,1141) PN (LO) (no value)                              # 0,1 ?
    (2005,1143) SL 3103                                         # 4,1 ?
    (2005,1144) OW
      66\05\00\00\3b\01\00\00\4a\0a\00\00\0e\00\00\00\7a\0a\00\00\95\01\00\00\08\00\00\00\1b\00\00\00\43\47\45\4e\5f\75\73\65\72\5
      # 3104,1 ?
    (2005,1147) CS [Y ]                                         # 2,1 ?
  (fffe,e00d)
*/
  const gdcm::PrivateTag pt(0x2005,0x32,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt ) ) return 1;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
```

```
  if( de.IsEmpty() ) return 1;

  gdcm::SequenceOfItems *sqi = de.GetValueAsSQ();
  if ( !sqi ) return 1;
  gdcm::SequenceOfItems::SizeType s = sqi->GetNumberOfItems();
  for( gdcm::SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    gdcm::Item &item = sqi->GetItem(i);

    gdcm::DataSet &nestedds = item.GetNestedDataSet();

    if( !ProcessNested( nestedds ) ) {
      std::cerr « "Error processing Item #" « i « std::endl;
    }
    }

  return 0;
}
```

12.51 DumpGEMSMovieGroup.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

bool PrintNameValueMapping( gdcm::SequenceOfItems *sqi_values,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  using namespace gdcm;
  // prepare names mapping:
  typedef VRToType<VR::UL>::Type UL;
  std::map< UL, std::string > names;
  assert( sqi_names );
  assert( sqi_values );
  SequenceOfItems::SizeType s = sqi_names->GetNumberOfItems();
  PrivateTag tindex(0x7fe1,0x71,"GEMS_Ultrasound_MovieGroup_001");
  PrivateTag tname (0x7fe1,0x72,"GEMS_Ultrasound_MovieGroup_001");
  // First sequence contains all possible names (this is a dict)
  for( SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    const Item & item = sqi_names->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex )
      || !ds.FindDataElement( tname ) )
      {
      assert( 0 );
      return false;
      }
    const DataElement & index = ds.GetDataElement( tindex );
    const DataElement & name = ds.GetDataElement( tname );
    if( index.IsEmpty() || name.IsEmpty() )
      {
      assert( 0 );
      return false;
      }
    gdcm::Element<VR::UL, VM::VM1> el1;
```

```
    el1.SetFromDataElement( index );

    gdcm::Element<VR::LO, VM::VM1> el2;
    el2.SetFromDataElement( name );
//    std::cout « el1.GetValue() « " " « el2.GetValue() « std::endl;
    names.insert( std::make_pair( el1.GetValue(), el2.GetValue() ) );
    }

  SequenceOfItems::SizeType s2 = sqi_values->GetNumberOfItems();
  assert( s2 <= s );
  PrivateTag tindex2(0x7fe1,0x48,"GEMS_Ultrasound_MovieGroup_001");
  for( SequenceOfItems::SizeType i = 1; i <= s2; ++i )
    {
    const Item & item = sqi_values->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex2 ) )
      {
      assert( 0 );
      return false;
      }
    const DataElement & index2 = ds.GetDataElement( tindex2 );
    if( index2.IsEmpty() )
      {
      assert( 0 );
      return false;
      }
    gdcm::Element<VR::FD, VM::VM1_2> el1;
    el1.SetFromDataElement( index2 );

    UL copy = (UL)el1.GetValue();
#if 1
    std::cout « indent;
    std::cout « "( " « names[ copy ];
#endif
    // (7fe1,1052) FD 1560                                      # 8,1 ?
    // (7fe1,1057) LT [MscSkelSup]                              # 10,1 ?
    //PrivateTag tvalue(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001");
    PrivateTag tvalueint(0x7fe1,0x49,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluefloat1(0x7fe1,0x51,"GEMS_Ultrasound_MovieGroup_001"); // FL
    PrivateTag tvaluefloat(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001"); // FD
    PrivateTag tvalueul(0x7fe1,0x53,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluesl(0x7fe1,0x54,"GEMS_Ultrasound_MovieGroup_001"); // SL
    PrivateTag tvalueob(0x7fe1,0x55,"GEMS_Ultrasound_MovieGroup_001"); // OB
    PrivateTag tvaluetext(0x7fe1,0x57,"GEMS_Ultrasound_MovieGroup_001");  // LT
    PrivateTag tvaluefd(0x7fe1,0x77,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluesl3(0x7fe1,0x79,"GEMS_Ultrasound_MovieGroup_001");  // SL / 1-N
    PrivateTag tvaluesl2(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");  // SL ??
    PrivateTag tvaluefd1(0x7fe1,0x87,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluefloat2(0x7fe1,0x88,"GEMS_Ultrasound_MovieGroup_001");  // FD ??
#if 1
    std::cout « " ) = ";
#endif
    if( ds.FindDataElement( tvalueint ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueint );
      gdcm::Element<VR::UL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat1 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat1 );
      gdcm::Element<VR::FL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat );
      gdcm::Element<VR::FD,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluesl ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl );
      gdcm::Element<VR::SL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvalueul ) )
```

```
      {
      const DataElement & value = ds.GetDataElement( tvalueul );
      gdcm::Element<VR::UL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      assert( el2.GetLength() == 1 );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvalueob ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueob );
//      gdcm::Element<VR::SL,VM::VM1> el2;
//      el2.SetFromDataElement( value );
//      std::cout « el2.GetValue() « std::endl;
      std::cout « value « std::endl;
      }
    else if( ds.FindDataElement( tvaluetext ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluetext );
      gdcm::Element<VR::LT,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluesl2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl2 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluesl3 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl3 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefd ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefd );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      assert( el2.GetLength() == 4 || el2.GetLength() == 3 || el2.GetLength() == 8 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat2 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      assert( el2.GetLength() == 2 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefd1 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefd1 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else
      {
      std::cout « "(no value)" « std::endl;
//      std::cout « ds « std::endl;
      assert( ds.Size() == 2 );
      }
    }
  return true;
}

bool PrintNameValueMapping2( gdcm::PrivateTag const & privtag, const gdcm::DataSet & ds ,
  gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag ) ) return false;
```

```
  const gdcm::DataElement& seq_values = ds.GetDataElement( privtag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = seq_values.GetValueAsSQ();

  return PrintNameValueMapping( sqi, sqi_names, indent);
}

bool PrintNameValueMapping3( gdcm::PrivateTag const & privtag1, gdcm::PrivateTag const & privtag2, const
      gdcm::DataSet & ds ,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag1 ) )
    {
    assert( 0 );
    return false;
    }
  const gdcm::DataElement& values10name = ds.GetDataElement( privtag1 );
  gdcm::Element<gdcm::VR::LO,gdcm::VM::VM1> el;
  el.SetFromDataElement( values10name );
  std::cout « std::endl;
  std::cout « " <" « el.GetValue().c_str() « ">" « std::endl;

  return PrintNameValueMapping2( privtag2, ds, sqi_names, indent);
}

bool print73( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values73(0x7fe1,0x73,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values73 ) )
    {
    std::cout « indent « "No group 73" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values73 = ds10.GetDataElement( tseq_values73 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values73 = seq_values73.GetValueAsSQ();

  size_t ni3 = sqi_values73->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_73 = sqi_values73->GetItem(i3);
    gdcm::DataSet &ds73 = item_73.GetNestedDataSet();
    assert( ds73.Size() == 3 );

    const gdcm::PrivateTag tseq_values74name(0x7fe1,0x74,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values75(0x7fe1,0x75,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values74name, tseq_values75, ds73, sqi_dict, indent);
    std::cout « std::endl;
    }
  return true;
}

bool print36( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)sqi_dict;
  const gdcm::PrivateTag tseq_values36(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values36 ) )
    {
    std::cout « indent « "No group 36" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values36 = ds10.GetDataElement( tseq_values36 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values36 = seq_values36.GetValueAsSQ();

  size_t ni3 = sqi_values36->GetNumberOfItems();
  assert( ni3 >= 1 );
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_36 = sqi_values36->GetItem(i3);
    gdcm::DataSet &ds36 = item_36.GetNestedDataSet();
    assert( ds36.Size() == 4 );

    // (7fe1,1037) UL 47  # 4,1 US MovieGroup Number of Frames
    // (7fe1,1043) OB 40\00\1c\c4\67\2f\0b\11\40         # 376,1 ?
    // (7fe1,1060) OB 4e\4e\49\4f\4e\47\46\43\2a         # 4562714,1 US MovieGroup Image Data
    //
    const gdcm::PrivateTag timagedata(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");
    assert( ds36.FindDataElement( timagedata ) );
    gdcm::DataElement const & imagedata = ds36.GetDataElement( timagedata );

      const gdcm::ByteValue * bv = imagedata.GetByteValue();
  assert( bv );
      static int c = 0;
```

```
      std::stringstream ss;
      ss « "/tmp/debug";
      ss « c++;
      std::ofstream os( ss.str().c_str(), std::ios::binary );
      os.write( bv->GetPointer(), bv->GetLength() );
      os.close();

    //const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    //PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    //std::cout « std::endl;
    }
  return true;
}
bool print83( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values83(0x7fe1,0x83,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values83 ) )
    {
    std::cout « indent « "No group 83" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values83 = ds10.GetDataElement( tseq_values83 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values83 = seq_values83.GetValueAsSQ();

  size_t ni3 = sqi_values83->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_83 = sqi_values83->GetItem(i3);
    gdcm::DataSet &ds83 = item_83.GetNestedDataSet();
    assert( ds83.Size() == 3 );

    const gdcm::PrivateTag tseq_values84name(0x7fe1,0x84,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    std::cout « std::endl;
    }
  return true;
}

bool PrintNameValueMapping4( gdcm::PrivateTag const & privtag0, const gdcm::DataSet & subds, gdcm::PrivateTag
      const & privtag1, gdcm::PrivateTag const & privtag2,
gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)indent;
  if( !subds.FindDataElement( privtag0 ) )
    {
    assert( 0 );
    return false;
    }
  const gdcm::DataElement& seq_values10 = subds.GetDataElement( privtag0 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values10 = seq_values10.GetValueAsSQ();

  size_t ni1 = sqi_values10->GetNumberOfItems();
//  assert( ni1 == 1 );
  for( size_t i1 = 1; i1 <= ni1; ++i1 )
    {
    gdcm::Item &item_10 = sqi_values10->GetItem(i1);
    gdcm::DataSet &ds10 = item_10.GetNestedDataSet();
    assert( ds10.Size() == 2 + 3 );
    // (7fe1,0010)
    // (7fe1,1012)
    // (7fe1,1018)
    // (7fe1,1020)
    // (7fe1,1083)

    PrintNameValueMapping3( privtag1, privtag2, ds10, sqi_dict, "  " );
    std::cout « std::endl;

    const gdcm::PrivateTag tseq_values20(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");
    if( !ds10.FindDataElement( tseq_values20 ) )
      {
      assert( 0 );
      return false;
      }
    const gdcm::DataElement& seq_values20 = ds10.GetDataElement( tseq_values20 );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values20 = seq_values20.GetValueAsSQ();

    size_t ni2 = sqi_values20->GetNumberOfItems();
    //assert( ni == 1 );
    for( size_t i2 = 1; i2 <= ni2; ++i2 )
      {
```

```
      gdcm::Item &item_20 = sqi_values20->GetItem(i2);
      gdcm::DataSet &ds20 = item_20.GetNestedDataSet();
      size_t count = ds20.Size(); (void)count;
      assert( ds20.Size() == 2 + 3 || ds20.Size() == 2 + 2 );
      // (7fe1,0010)
      // (7fe1,1024)
      // (7fe1,1026)
      // (7fe1,1036)
      // (7fe1,103a)
      // (7fe1,1083) (*)

      const gdcm::PrivateTag tseq_values20name(0x7fe1,0x24,"GEMS_Ultrasound_MovieGroup_001");
      const gdcm::PrivateTag tseq_values26(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
      PrintNameValueMapping3( tseq_values20name, tseq_values26, ds20, sqi_dict, "   ");
      std::cout « std::endl;

      print36(ds20, sqi_dict, "    ");
      print83(ds20, sqi_dict, "    ");
      }

    print83(ds10, sqi_dict, "   ");
    }
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  assert( sqi->GetNumberOfItems() == 1 );

  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq_dict(0x7fe1,0x70,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_dict ) ) return 1;
  const DataElement& seq_dict = subds.GetDataElement( tseq_dict );
  SmartPointer<SequenceOfItems> sqi_dict = seq_dict.GetValueAsSQ();

  const PrivateTag tseq_values8(0x7fe1,0x8,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8 ) ) return 1;
  const DataElement& seq_values8 = subds.GetDataElement( tseq_values8 );
  SmartPointer<SequenceOfItems> sqi_values8 = seq_values8.GetValueAsSQ();

  const PrivateTag tseq_values8name(0x7fe1,0x2,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8name ) ) return 1;
  const DataElement& values8name = subds.GetDataElement( tseq_values8name );
{
  Element<VR::LO,VM::VM1> el;
  el.SetFromDataElement( values8name );
  std::cout « el.GetValue() « std::endl;
}
  size_t count = subds.Size(); (void)count;
  assert( subds.Size() == 3 + 2 + 1 || subds.Size() == 3 + 2 + 2);

//  (7fe1,0010) # 30,1 Private Creator
//  (7fe1,1002) # 8,1 US MovieGroup Value 0008 Name
//  (7fe1,1003) # 4,1 ?
//  (7fe1,1008) # 8140,1 US MovieGroup Value 0008 Sequence
//  (7fe1,1010) # 1372196,1 ?
//  (7fe1,1070) # 33684,1 US MovieGroup Dict
//  (7fe1,1073) (*)
  PrintNameValueMapping( sqi_values8, sqi_dict, " ");

  const PrivateTag tseq_values10(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values10name(0x7fe1,0x12,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values18(0x7fe1,0x18,"GEMS_Ultrasound_MovieGroup_001");
```

```
  PrintNameValueMapping4( tseq_values10, subds, tseq_values10name, tseq_values18, sqi_dict,"  ");

  print73( subds, sqi_dict, "  " );

#if 0
  gdcm::DataSet::ConstIterator it = subds.Begin();
  for( ; it != subds.End(); ++it )
    {
  const gdcm::DataElement &de = *it;
    std::cout « de.GetTag() « std::endl;
    }
#endif

  return 0;
}
```

12.52 DumpImageHeaderInfo.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dump TOSHIBA MDW HEADER / Image Header Info
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct element
{
  std::istream & read( std::istream & is );
};

std::istream & element::read( std::istream & is )
{
  static const uint32_t ref = 0xe000fffe;
  std::ostream &os = std::cout;
  if( is.eof() )
    {
    return is;
    }
  uint32_t magic;
  if( !is.read( (char*)&magic, sizeof(magic) ) )
    {
    return is;
    }
  //os « magic « std::endl;
  assert( magic == ref ); (void)ref;

  uint32_t l;
  is.read( (char*)&l, sizeof(l) );
  //os « l « std::endl;

  char str[17];
  str[16] = 0;
  is.read( str, 16 );
  os « str « " (" « l « ")" « std::endl;
  std::vector<char> bytes;
```

```
  bytes.resize( l - 16 );
  if( !bytes.empty() )
    {
    is.read( bytes.data(), l - 16 );
    }
  //os « "pos:" « is.tellg() « std::endl;

  if( strcmp(str, "TUSREMEASUREMENT" ) == 0 )
    {
    const char *p = bytes.data();
    uint32_t val;
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
#if 0
    float f;
    memcpy( (char*)&f, p, sizeof(f) );
    os « " " « f « std::endl;
    p += sizeof(f);
#else
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
#endif
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    char str2[17];
    memcpy( str2, p, 16 );
    str2[16] = 0;
    os « " " « str2 « std::endl;
    }

#if 0
  std::ofstream out( str, std::ios::binary );
  out.write( (char*)&magic, sizeof( magic ) );
  out.write( (char*)&l, sizeof( l ) );
  out.write( str, 16 );
  out.write( &bytes[0], bytes.size() );
#endif
  return is;
}

static bool DumpImageHeaderInfo( std::istream & is, size_t reflen )
{
  // TUSNONIMAGESTAM (5176)
  // TUSREMEASUREMEN (1352)
  // TUSBSINGLELAYOU (16)
  // TUSCLIPPARAMETE (104)

  element el;
  while( el.read( is ) )
    {
    }
  //size_t pos = is.tellg();
  //assert( pos == reflen );
  (void)reflen;

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
```

```
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag timageheaderinfo(0x0029,0x10,"TOSHIBA MDW HEADER");
  if( !ds.FindDataElement( timageheaderinfo) ) return 1;
  const gdcm::DataElement& imageheaderinfo = ds.GetDataElement( timageheaderinfo );
  if ( imageheaderinfo.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = imageheaderinfo.GetByteValue();

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpImageHeaderInfo( is, bv->GetLength() );
  if( !b ) return 1;

#if 0
  const float d1 = 0.0041666668839752674; // 89 88 88 3B // 0x44c
  //const float d1 = 0.053231674455417881;
  const float d2 = 0.10828025639057159; // 0A C2 DD 3D // 0x1ac
  //const float d1 = 0.17869562069272813;
  //const unsigned int d2 = 4294967280;
  const float d3 = 0.10828025639057159; // 0A C2 DD 3D // 0x15c
  const int32_t d4 = 134;
  const uint32_t d5 = 1153476;
  std::ofstream t("/tmp/debug", std::ios::binary );
  //t.write( (char*)&d0, sizeof( d0 ) );
  t.write( (char*)&d1, sizeof( d1 ) );
  t.write( (char*)&d2, sizeof( d2 ) );
  t.write( (char*)&d3, sizeof( d3 ) );
  t.write( (char*)&d4, sizeof( d4 ) );
  t.write( (char*)&d5, sizeof( d5 ) );
  t.close();
#endif

  return 0;
}
```

12.53 DumpPhilipsECHO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDeflateStream.h"
#include "gdcm_zlib.h"

/*
 * This example extract the ZLIB compressed US image from a Philips private tag
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Usage:
 *
 * $ DumpPhilipsECHO private_us.dcm raw_us_img.raw
 * $ gdcmimg --sop-class-uid 1.2.840.10008.5.1.4.1.1.3.1 --size 608,427,88 raw_us_img.raw raw_us_img.dcm
```

```
 */

// header:
struct hframe
{
  uint32_t val0; // 800 increment ?
  uint16_t val1[2];
  uint16_t val2[2];
  uint32_t imgsize;

  bool operator==(const hframe &h) const
    {
    return val0 == h.val0 &&
      val1[0] == h.val1[0] &&
      val1[1] == h.val1[1] &&
      val2[0] == h.val2[0] &&
      val2[1] == h.val2[1] &&
      imgsize == h.imgsize;
    }

};

static bool ProcessDeflate( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streamoff totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
  assert( nframes == (uint32_t)nslices );

  std::vector< std::streamoff > offsets;
  offsets.reserve( nframes );
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    }

  std::vector<char> outbuf;

  const int size[2] = { 608, 427 }; // FIXME: where does it comes from ?
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  //ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « size[0];
  ss « '_';
  ss « size[1];
  ss « '_';
  ss « nframes;
  ss « ".raw";
```

```
  std::ofstream os( ss.str().c_str(), std::ios::binary );

  assert( buf_size >= size[0] * size[1] );
  outbuf.resize( buf_size );

  hframe header;
  //uint32_t prev = 0;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));

    assert( header == crcheaders[r] );
    assert( header.val1[0] == 2000 );
    assert( header.val1[1] == 3 );
    assert( header.val2[0] == 1 );
    assert( header.val2[1] == 1280 );

    uLongf destLen = buf_size; // >= 608,427
    Bytef *dest = (Bytef*)outbuf.data();
    assert( is.tellg() == offsets[r] + 16 );
    const Bytef *source = (const Bytef*)buf + offsets[r] + 16;
    uLong sourceLen;
    if( r + 1 == nframes )
      sourceLen = (uLong)totalsize - (uLong)offsets[r] - 16;
    else
      sourceLen = (uLong)offsets[r+1] - (uLong)offsets[r] - 16;
    // FIXME: in-memory decompression:
    int ret = uncompress (dest, &destLen, source, sourceLen);
    assert( ret == Z_OK ); (void)ret;
    assert( destLen >= (uLongf)size[0] * size[1] ); // 16bytes padding ?
    assert( header.imgsize == (uint32_t)size[0] * size[1] );
    //os.write( &outbuf[0], outbuf.size() );
    os.write( outbuf.data(), size[0] * size[1] );

    // skip data:
    is.seekg( sourceLen, std::ios::cur );
    }
  os.close();
  assert( is.tellg() == totalsize );

  return true;
}

static bool ProcessNone( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streampos totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
  assert( nframes == (uint32_t)nslices );

  std::vector< uint32_t > offsets;
  offsets.reserve( nframes );
```

```
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    //std::cout « offset « std::endl;
    }

  std::vector<char> outbuf;
  // No idea how to present the data, I'll just append everything, and present it as 2D
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « '_';
  ss « nframes;
  ss « ".raw";
  std::ofstream os( ss.str().c_str(), std::ios::binary );
  outbuf.resize( buf_size ); // overallocated + 16
  char *buffer = outbuf.data();

  hframe header;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
    assert( header == crcheaders[r] );

    is.read( buffer, buf_size - 16 );
    os.write( buffer, header.imgsize );
    }
  assert( is.tellg() == totalsize );
  os.close();

  return true;
}

#ifndef NDEBUG
static const char * const UDM_USD_DATATYPE_STRINGS[] = {
  "UDM_USD_DATATYPE_DIN_2D_ECHO",
  "UDM_USD_DATATYPE_DIN_2D_ECHO_CONTRAST",
  "UDM_USD_DATATYPE_DIN_DOPPLER_CW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW_TDI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_FLOW",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_PMI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_CPA",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_MMODE_ECHO",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_PARAM_BLOCK",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_DOPPLER_AUDIO",
  "UDM_USD_DATATYPE_DIN_DOPPLER_HIGHQ",
  "UDM_USD_DATATYPE_DIN_PHYSIO",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_STRAIN",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_RGB",
  "UDM_USD_DATATYPE_DIN_XFOV_REALTIME_GRAPHICS",
  "UDM_USD_DATATYPE_DIN_XFOV_MOSAIC",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_R",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_G",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_B",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_2D_ELASTO",
};

static inline bool is_valid( const char * datatype_str )
{
  static const int n = sizeof( UDM_USD_DATATYPE_STRINGS ) / sizeof( *UDM_USD_DATATYPE_STRINGS );
```

```
  bool found = false;
  if( datatype_str )
    {
    for( int i = 0; !found && i < n; ++i )
      {
      found = strcmp( datatype_str, UDM_USD_DATATYPE_STRINGS[i] ) == 0;
      }
    }
  return found;
}
#endif

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const PrivateTag tseq1(0x200d,0x3cf8,"Philips US Imaging DD 045");
  if( !ds1.FindDataElement( tseq1 ) ) return 1;
  const DataElement& seq1 = ds1.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();
  assert( sqi1->GetNumberOfItems() >= 1 );

  const size_t nitems = sqi1->GetNumberOfItems();
  for( size_t item = 1; item < nitems; ++item )
    {
    Item &item1 = sqi1->GetItem(item);
    DataSet &ds2 = item1.GetNestedDataSet();

    // (200d,300d)  LO  28  UDM_USD_DATATYPE_DIN_2D_ECHO
    const PrivateTag tdatatype(0x200d,0x300d,"Philips US Imaging DD 033");
    if( !ds2.FindDataElement( tdatatype ) ) return 1;
    const DataElement& datatype = ds2.GetDataElement( tdatatype );
    const ByteValue *bvdatatype = datatype.GetByteValue();
    if( !bvdatatype ) return 1;

    const PrivateTag tseq2(0x200d,0x3cf1,"Philips US Imaging DD 045");
    if( !ds2.FindDataElement( tseq2 ) ) return 1;
    const DataElement& seq2 = ds2.GetDataElement( tseq2 );

    SmartPointer<SequenceOfItems> sqi2 = seq2.GetValueAsSQ();
    assert( sqi2->GetNumberOfItems() >= 1 );

    // FIXME: what if not in first Item ?
    assert( sqi2->GetNumberOfItems() == 1 );
    Item &item2 = sqi2->GetItem(1);
    DataSet &ds3 = item2.GetNestedDataSet();

    const PrivateTag tzlib(0x200d,0x3cfa,"Philips US Imaging DD 045");
    if( !ds3.FindDataElement( tzlib ) ) return 1;
    const DataElement& zlib = ds3.GetDataElement( tzlib );

    const ByteValue *bv = zlib.GetByteValue();
    if( !bv ) return 1;
    if( bv->GetLength() != 4 ) return 1;

    // (200d,3010)  IS  2  88
    const PrivateTag tnslices(0x200d,0x3010,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tnslices ) ) return 1;
    const DataElement& nslices = ds3.GetDataElement( tnslices );
    Element<VR::IS,VM::VM1> elnslices;
    elnslices.SetFromDataElement( nslices );
    const int nslicesref = elnslices.GetValue();
    assert( nslicesref >= 0 );
    // (200d,3011)  IS  6  259648
    const PrivateTag tzalloc(0x200d,0x3011,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tzalloc ) ) return 1;
    const DataElement& zalloc = ds3.GetDataElement( tzalloc );
    Element<VR::IS,VM::VM1> elzalloc;
    elzalloc.SetFromDataElement( zalloc );
    const int zallocref = elzalloc.GetValue();
    assert( zallocref >= 0 );
    // (200d,3021)  IS  2  0
```

```
    const PrivateTag tzero(0x200d,0x3021,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tzero ) ) return 1;
    const DataElement& zero = ds3.GetDataElement( tzero );
    Element<VR::IS,VM::VM1> elzero;
    elzero.SetFromDataElement( zero );
    const int zerocref = elzero.GetValue();
    assert( zerocref == 0 ); (void)zerocref;

    // (200d,3cf3) OB
    const PrivateTag tdeflate(0x200d,0x3cf3,"Philips US Imaging DD 045");
    if( !ds3.FindDataElement( tdeflate) ) return 1;
    const DataElement& deflate = ds3.GetDataElement( tdeflate );
    const ByteValue *bv2 = deflate.GetByteValue();

    // (200d,3cfb) OB
    const PrivateTag tcrc(0x200d,0x3cfb,"Philips US Imaging DD 045");
    if( !ds3.FindDataElement( tcrc ) ) return 1;
    const DataElement& crc = ds3.GetDataElement( tcrc );
    const ByteValue *bv3 = crc.GetByteValue();

    std::string outfile = std::string( bvdatatype->GetPointer(), bvdatatype->GetLength() );
    outfile = LOComp::Trim( outfile.c_str() );
    const char *outfilename = outfile.c_str();
    assert( is_valid(outfilename) );
    if( bv2 )
      {
      assert( bv3 );
      assert( zallocref > 0 );
      assert( nslicesref > 0 );
      std::cout « ds2 « std::endl;

      if( strncmp(bv->GetPointer(), "ZLib", 4) == 0 )
        {
        if( !ProcessDeflate( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else if( strncmp(bv->GetPointer(), "None", 4) == 0 )
        {
        if( !ProcessNone( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else
        {
        std::string str( bv->GetPointer(), bv->GetLength() );
        std::cerr « "Unhandled: " « str « std::endl;
        return 1;
        }
      }
    }

  return 0;
}
```

12.54 DumpSiemensBase64.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * https://groups.google.com/forum/#!msg/comp.protocols.dicom/2kZ2lLP8EcM/WzjFrtjnAgAJ
 */
```

```
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"
#include "gdcmCSAHeader.h"
#include "gdcmBase64.h"
#include "gdcmExplicitDataElement.h"
#include "gdcmSwapper.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
  {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
  }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  gdcm::CSAHeader csa;
  const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  if( !ds.FindDataElement( t1 ) ) return 1;
  csa.LoadFromDataElement( ds.GetDataElement( t1 ) );

  //const char name[] = "MRDiffusion";
  const char name[] = "MR_ASL";
  if( csa.FindCSAElementByName(name) )
  {
    const gdcm::CSAElement & el = csa.GetCSAElementByName(name);
    const gdcm::ByteValue* bv = el.GetByteValue();
    std::string str( bv->GetPointer(), bv->GetLength() );
    str.erase(std::remove(str.begin(), str.end(), '\n'), str.end());
    size_t dl = gdcm::Base64::GetDecodeLength( str.c_str(), str.size() );
    std::vector<char> buf;
    buf.resize( dl );
    size_t dl2 = gdcm::Base64::Decode( buf.data(), buf.size(), str.c_str(), str.size() );
    (void)dl2;
    std::stringstream ss;
    ss.str( std::string(buf.data(), buf.size()) );
    gdcm::File file;
    gdcm::DataSet &ds2 = file.GetDataSet();
    gdcm::DataElement xde;
    try
    {
      while( xde.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( ss ) )
      {
        ds2.Insert( xde );
      }
      assert( ss.eof() );
    }
    catch(std::exception &)
    {
      return 1;
    }
    gdcm::Printer p;
    p.SetFile( file );
    p.Print(std::cout);

  }

  return 0;
}
```

12.55 DumpToSQLITE3.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Ref:
 * http://massmail.spl.harvard.edu/public-archives/slicer-devel/2010/004408.html
 *
 * Implementation details:
 * http://www.sqlite.org/c3ref/bind_blob.html
 * http://www.adp-gmbh.ch/sqlite/bind_insert.html
 */
#include "gdcmScanner.h"
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"

#include "sqlite3.h"

#include <stdio.h>
#include <time.h>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  time_t time_start = time(nullptr);

  gdcm::Trace::SetDebug( false );
  gdcm::Trace::SetWarning( false );
  const char *inputdirectory = argv[1];

  gdcm::Directory d;
  unsigned int nfiles = d.Load( inputdirectory, true);

  gdcm::Scanner s;
  using gdcm::Tag;
  s.AddTag( Tag(0x20,0xd) ); // Study Instance UID
  s.AddTag( Tag(0x20,0xe) ); // Series Instance UID

  bool b0 = s.Scan( d.GetFilenames() );
  if( !b0 ) return 1;
  time_t time_scanner = time(nullptr);

  std::cout « "Finished loading data from : " « nfiles « " files" « std::endl;

//  MappingType const &mappings = s.GetMappings();


  sqlite3* db;
  sqlite3_open("./dicom.db", &db);

  if(db == nullptr)
    {
    std::cerr « "Could not open database." « std::endl;
    return 1;
    }

  const char sql_stmt[] = "create table browser (seriesuid, studyuid)";
  int   ret;

  char *errmsg;
  ret = sqlite3_exec(db, sql_stmt, nullptr, nullptr, &errmsg);

  if(ret != SQLITE_OK)
    {
    printf("Error in statement: %s [%s].\n", sql_stmt, errmsg);
    return 1;
    }
  using gdcm::Directory;
  using gdcm::Scanner;
  const Directory::FilenamesType& files = d.GetFilenames();
```

```
  Directory::FilenamesType::const_iterator file = files.begin();

  sqlite3_stmt *stmt;
  if ( sqlite3_prepare(
      db,
      "insert into browser values (?,?)",  // stmt
      -1, // If than zero, then stmt is read up to the first nul terminator
      &stmt,
      nullptr  // Pointer to unused portion of stmt
  )
    != SQLITE_OK)
    {
    printf("\nCould not prepare statement.");
    return 1;
    }
  //printf("\nThe statement has %d wildcards\n", sqlite3_bind_parameter_count(stmt));
  for(; file != files.end(); ++file)
    {
    const char *filename = file->c_str();
    bool b = s.IsKey(filename);
    if( b )
      {
      const Scanner::TagToValue &mapping = s.GetMapping(filename);
      Scanner::TagToValue::const_iterator it = mapping.begin();

      sqlite3_reset(stmt);

      for( int index = 1; it != mapping.end(); ++it, ++index)
        {
        //const Tag & tag = it->first;
        const char *value = it->second;

        if (sqlite3_bind_text (
            stmt,
            index,  // Index of wildcard
            value,
            (int)strlen(value),  // length of text
            SQLITE_STATIC // SQLite assumes that the information is in static
        )
          != SQLITE_OK)
          {
          printf("\nCould not bind int.\n");
          return 1;
          }
        }
      if (sqlite3_step(stmt) != SQLITE_DONE)
        {
        printf("\nCould not step (execute) stmt.\n");
        return 1;
        }
      }
    }

  sqlite3_close(db);

  time_t time_sqlite = time(nullptr);

  std::cout « "Time to scan DICOM files: " « (time_scanner - time_start) « std::endl;
  std::cout « "Time to build SQLITE3: " « (time_sqlite - time_scanner) « std::endl;

  return 0;
}
```

12.56 DumpToshibaDTI.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
/*
 * https://groups.google.com/d/msg/comp.protocols.dicom/7IaIkT0ZG5U/k7LPu81VvAMJ
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f « "debug" « i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                      # 22,1 Private Creator
  // (0029,1001) ?? (SQ) (Sequence with undefined length)              # u/l,1 ?

  const gdcm::PrivateTag tpmtf(0x0029,0x1,"PMTF INFORMATION DATA");
  if( !ds.FindDataElement( tpmtf) ) return 1;
  const gdcm::DataElement& pmtf = ds.GetDataElement( tpmtf );
  if ( pmtf.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = pmtf.GetValueAsSQ();
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                  # 22,1 Private Creator
```

```
    // (0029,1090) ?? (OB) 00\05\00\13\00\12\00\22\                  # 202,1 ?
    const gdcm::PrivateTag tseq(0x0029,0x90,"PMTF INFORMATION DATA");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

12.57 DumpToshibaDTI2.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
      https://gazelle.ihe.net/EVSClient/dicomResult.seam;jsessionid=x+Rf9Zs+ip49P+jC3L8SLZb8?&oid=1.3.6.1.4.1.12559.11.1.2.1.4.162
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI2( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f « "debug" « i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
```

```
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  /*
  (0029,1001) SQ (Sequence with explicit length #=6)      # 18746, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 206, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\07\00\06\00\05\00\04\00\03\00\02\00\0c\00\01\00\00\00\00\00\12... # 170, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
    (fffe,e000) na (Item with explicit length #=2)          # 866, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 45\4e\49\50\53\4c\20\52\41\5c\45\4e\49\50\53\4c\54\5c\52\45\53\55... # 830, 1 Unknown Tag &
      Data
  [...]
  (0029,1002) SQ (Sequence with explicit length #=1)      # 120, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 112, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\10\00\02\53\55\10\80\70\0d\30\31\5e\33\52\4d\5f\43\45\4d\5f\41... #  76, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
  */

  const gdcm::PrivateTag tmecmr3(0x0029,0x1,"TOSHIBA_MEC_MR3");
  if( !ds.FindDataElement( tmecmr3) ) return 1;
  const gdcm::DataElement& mecmr3 = ds.GetDataElement( tmecmr3 );
  if ( mecmr3.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = mecmr3.GetValueAsSQ();
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    const gdcm::PrivateTag tseq(0x0029,0x90,"TOSHIBA_MEC_MR3");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI2( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

12.58 DumpVisusChange.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDirectory.h"
#include "gdcmStringFilter.h"

#include <vector>
#include <algorithm>

/*
 */
static bool process( std::vector<gdcm::DataElement> & ms, const char * filename)
{
  using namespace gdcm;
  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
    std::cerr « "Failure to read: " « filename « std::endl;
    return false;
  }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
  if( !ds1.FindDataElement( tseq1 ) ) return true;
  const gdcm::DataElement& seq1 = ds1.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();

  const size_t nitems = sqi1->GetNumberOfItems();
  for( size_t item = 1; item < nitems; ++item )
    {
    Item &item1 = sqi1->GetItem(item);
    DataSet &ds2 = item1.GetNestedDataSet();
    for(DataSet::ConstIterator it = ds2.Begin(); it != ds2.End(); ++it )
      {
      DataElement const & de = *it;
      // cannot simply use std::set here, see there is a discrepancy in between
      // operator== and operator<.
      // So only use operator== here:
      std::vector<DataElement>::iterator vit = std::find(ms.begin(), ms.end(), de);
      if( vit == ms.end() )
        ms.push_back(de);
      }
    }
  return true;
}

int main(int argc, char *argv[])
{
  bool usefastpath = true;

  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Directory::FilenamesType filenames;
  if( !gdcm::System::FileExists(filename) )
    {
    std::cerr « "Could not find file: " « filename « std::endl;
    return 1;
    }

  gdcm::Directory dir;
  if( gdcm::System::FileIsDirectory(filename) )
  {
    unsigned int nfiles = dir.Load(filename, false);
    if( nfiles == 0 )
      {
      std::cerr « "Could not find files: " « filename « std::endl;
```

```
      return 1;
      }
    filenames = dir.GetFilenames();
  }
  else
  {
    filenames.push_back( filename );
  }
  gdcm::StringFilter sf;

  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filenames[0].c_str() );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
    std::cerr « "Could not read file: " « filename « std::endl;
    return 1;
  }
  gdcm::File &file = reader.GetFile();
  sf.SetFile(file);

  if( usefastpath ) {
    // Heuristic, assume if private tag cannot be found in first file, skip the directory
    gdcm::DataSet &ds1 = file.GetDataSet();

    const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
    if( !ds1.FindDataElement( tseq1 ) ){
      std::cerr « "Could not find private tag in first file skipping whole directory: " « filename « std::endl;
      return 0;
    }
  }
  std::vector<DataElement> ms;
  for(gdcm::Directory::FilenamesType::const_iterator cit = filenames.begin(); cit != filenames.end(); ++cit )
  {
    if( !process(ms, cit->c_str()) ) {
      return 1;
    }
  }

  if( !ms.empty() ) {
    std::sort(ms.begin(), ms.end());
    std::cout « filename « ",\"";
    for(std::vector<DataElement>::const_iterator it = ms.begin(); it != ms.end(); ++it )
    {
      DataElement const & de = *it;
      std::string const & s = sf.ToString( de );
      std::cout « de.GetTag() « " " « s « std::endl;
    }
    std::cout « "\"" « std::endl;
  }

  return 0;
}
```

12.59 DuplicatePCDE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
```

```
#include "gdcmFile.h"
#include "gdcmTag.h"
/*
  Usage:
  DuplicatePCDE gdcmData/D_CLUNIE_CT1_J2KI.dcm out.dcm

aka:
medical.nema.org/medical/dicom/DataSets/WG04/IMAGES/J2KI/CT1_J2KI

See:
  gdcmConformanceTests/CT1_J2KI_DuplicatePCDE.dcm

Original thread can be found at:

http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/82f28c4db28963af


Question:
1.
  There is no restriction for a specific Private Creator Data Element
(PCDE) to be unique within the same group, right ?
  Decoders of Private Data would have to handle the case where a PCDE
would be repeated and should NOT stop on the first instance of a
particular PCDE, right ?

  Eg. when searching for the tag associated with
(0x0029,0x0010,"SIEMENS CSA HEADER") in the following (pseudo)
dataset:

(0029,0010) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,0011) LO [SIEMENS MEDCOM HEADER]                  #  22, 1
PrivateCreator
(0029,0012) LO [SIEMENS MEDCOM HEADER2]                 #  22, 1
PrivateCreator
(0029,0013) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,1008) CS [IMAGE NUM 4]                            #  12, 1
CSAImageHeaderType
(0029,1009) LO [20050723]                               #   8, 1
CSAImageHeaderVersion
(0029,1010) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo
(0029,1018) CS [MR]                                     #   2, 1
CSASeriesHeaderType
(0029,1019) LO [20050723]                               #   8, 1
CSASeriesHeaderVersion
(0029,1020) OB 53\56\31\30\04\03\02\01\2c\00\00\00\4d
\00\00\00\55\73\65\64\50\61... # 51520, 1 CSASeriesHeaderInfo
(0029,1131) LO [4.0.163088300]                          #  14, 1
PMTFInformation1
(0029,1132) UL 32768                                    #   4, 1
PMTFInformation2
(0029,1133) UL 0                                        #   4, 1
PMTFInformation3
(0029,1134) CS [DB TO DICOM]                            #  12, 1
PMTFInformation4
(0029,1260) ?? 63\6f\6d\20                              #   4, 1
Unknown Tag & Data
(0029,1310) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo

  one should return two instances, correct ?

Answer:
I would say that this is covered in principle by the PS 3.5 7.1
"The Data Elements ... shall occur at most once in a Data Set"
rule, since the data element is defined by the tuple
(private creator,gggg,ee) where xxee is the element
number and xx is arbitrary and has no inherent meaning and
does not serve to disambiguate the data element.

E.g.:

(0019,0030) Private Creator ID = "Smith"
...
(0019,0032) Private Creator ID = "Smith"
...
(0019,3015) Fractal Index = "32"
...
(0019,3215) Fractal Index = "32"
```

```
would be illegal because even though they are assigned different
(completely arbitrary) blocks, with the same group, element
number and private creator, (0019,3015) and (0019,3215) are the
"same" data element.

*/

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Let's get all private element from group 0x9:
/*
(0009,0010) LO [GEMS_IDEN_01]                                    # 12,1 Private Creator
(0009,1001) LO [GE_GENESIS_FF ]                                  # 14,1 Full fidelity
(0009,1002) SH [CT01]                                            # 4,1 Suite id
(0009,1004) SH [HiSpeed CT/i]                                    # 12,1 Product id
(0009,1027) SL 862399669                                         # 4,1 Image actual date
(0009,1030) SH (no value)                                        # 0,1 Service id
(0009,1031) SH (no value)                                        # 0,1 Mobile location number
(0009,10e6) SH [05]                                              # 2,1 Genesis Version - now
(0009,10e7) UL 973283917                                         # 4,1 Exam Record checksum
(0009,10e9) SL 862399669                                         # 4,1 Actual series data time stamp
*/
  gdcm::Tag start(0x0009,0x0);
  // Create a temporary duplicate dataset, since we cannot insert data element as we go over them (std::set
  // would reorganize itself as we go over it ...)
  gdcm::DataSet dup;
  gdcm::Tag new_private(0x0009,0x0);
  while (start.GetGroup() == 0x9 )
    {
    const gdcm::DataElement& de = ds.FindNextDataElement(start);
    const gdcm::Tag &t = de.GetTag();
    if( t.IsPrivateCreator() )
      {
      std::cout « t « std::endl;
      // Ok let's duplicate into the next available attribute:
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetElement( (uint16_t)(t.GetElement() + 1) );
      dup.Insert( duplicate );
      new_private = duplicate.GetTag();
      }
    else if( t.IsPrivate() && !t.IsPrivateCreator() )
      {
      //std::cout « de « std::endl;
      std::string owner = ds.GetPrivateCreator( de.GetTag() );
      //std::cout « owner « std::endl;
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetPrivateCreator( new_private );
      if( const gdcm::ByteValue *bv = duplicate.GetByteValue() )
        {
        // Warning: when doing : duplicate = de, only the pointer to the ByteValue is passed
        // (to avoid large memory duplicate). We need to explicitly duplicate the bytevalue ourselves:
        gdcm::ByteValue *dupbv = new gdcm::ByteValue( bv->GetPointer(),
          bv->GetLength() );
        // Let's recognize the duplicated ASCII-type elements:
        if( duplicate.GetVR() & gdcm::VR::VRASCII )
          dupbv->Fill( 'X' );
        duplicate.SetValue( *dupbv );
        }
      dup.Insert( duplicate );
      }
    start = t;
    // move to next possible 'public' element
    start.SetElement( (uint16_t)(start.GetElement() + 1) );
```

```
    }

  gdcm::DataSet::ConstIterator it = dup.Begin();
  for( ; it != dup.End(); ++it )
    {
    ds.Insert( *it );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.60 ELSCINT1WaveToText.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"

/*
 * This example shows how to read a Wave Information tag from ELSCINT1
 * The wave information is stored in Tag (01e1,18,ELSCINT1) hidden in a
 * Secondary Capture Image Storage (usually a 'N' Symbol is shown)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Gauthier Bouilhol
 */

template <typename T>
bool dumpargs(std::ostream & os, T c1, T c2, T c3, T c4, T c5, T c6, T c7, T c8)
{
  static const char sep = '\t';
  os « c1 « sep « c2 « sep « c3 « sep « c4 « sep « c5 « sep « c6 « sep « c7 « sep « c8;
  os « std::endl;
  return true;
}

bool wave2stream( std::ostream &text_file, const char *in, size_t len )
{
  const short * buffer = (const short*)in;
  size_t length = len / sizeof( short );
  text_file « "COMPLETE_WAVE" « '\t' « "MASK"       « '\t' « "AQUISITION_PROFIL" « '\t' « "END-INHALE" « '\t' «
      "END-EXHALE" « '\t' « "AQUISITION_WAVE" « '\t' « "WAVE_STATISTICS" « '\t' « "MASK"        « std::endl;
  for (size_t i=0;i<length-76;i+=2)
    {
    if ( i < 74 )
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « "  "          «
      '\t' « "  "          « '\t' « "  "               « '\t' « buffer[i]          « '\t' « buffer[i+1] «
      std::endl;
```

```
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      }
    else
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « "  "         «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                    « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      }
    }

  return true;
}

int main(int argc, char *argv [])
{
  if( argc < 3 ) return 1;
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag twave(0x01e1,0x18,"ELSCINT1");
  if( !ds.FindDataElement( twave ) ) return 1;
  const gdcm::DataElement& wave = ds.GetDataElement( twave );
  if ( wave.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = wave.GetByteValue();
  assert( bv );

  std::ofstream os( outfilename, std::ios::binary );
  // Dump that to a CSV file:
  wave2stream( os, bv->GetPointer(), bv->GetLength() );
  os.close();

  return 0;
}
```

12.61 EmptyMask.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmEmptyMaskGenerator.h"

#include <string>
#include <cstring>

int main( int argc, char *argv[] )
{
  std::string inputdir;
  std::string outputdir;
  bool input_sopclassuid = true;
  bool grayscale_secondary_sopclassuid = false;
  if( argc < 3 ) return 1;
  inputdir = argv[1];
  outputdir = argv[2];
  // input_sopclassuid -> Use original SOP Class UID from input DICOM (Default).
  // grayscale_secondary_sopclassuid -> Use Grayscale Secondary Image Storage SOP Class UID.
  if( argc >= 3 )
  {
    input_sopclassuid = false;
    if( strcmp("input_sopclassuid", argv[3]) == 0 )
      input_sopclassuid = true;
    else if (strcmp("grayscale_secondary_sopclassuid", argv[3]) == 0 ) {
      grayscale_secondary_sopclassuid = true;
    }
  }

  //
  gdcm::EmptyMaskGenerator emg;
  if( input_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseOriginalSOPClassUID );
  else if( grayscale_secondary_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseGrayscaleSecondaryImageStorage );
  emg.SetInputDirectory( inputdir.c_str() );
  emg.SetOutputDirectory( outputdir.c_str() );
  if( !emg.Execute() )
  {
    return 1;
  }

  return 0;
}
```

12.62 EncapsulateFileInRawData.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
```

```
#include "gdcmSystem.h"

#include "magic.h" // libmagic, API to file command line tool

/*
 * Let say you want to encapsulate a file type that is not defined in DICOM (exe, zip, png)
 * PNG is a bad example, unless it contains transparency (which has been deprecated).
 * It will take care of dispatching each chunk to an appropriate data item (pretty much like
 * WaveformData)
 *
 * Usage:
 * ./EncapsulateFileInRawData large_input_file.exe large_input_file.dcm
 */

// TODO:
// $ file -bi /tmp/gdcm-2.1.0.pdf
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " inputfile output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  if( !gdcm::System::FileExists( filename ) ) return 1;

  size_t s = gdcm::System::FileSize(filename);
  if( !s ) return 1;

  magic_t cookie = magic_open(MAGIC_NONE);
  const char * file_type = magic_file(cookie, filename);
  if( !file_type ) return 1;
  magic_close(cookie);

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  //gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::RawDataStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout « ms.GetString() « std::endl;
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );


  if (!w.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

12.63 ExtractEncryptedContent.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
#include "gdcmReader.h"

#include <fstream>

/*

openssl smime -encrypt -binary -aes256 -in outputfile.dcm -inform DER -out outputfile.der -outform DER
      ../trunk/Testing/Source/Data/certificate.pem

openssl smime -decrypt -binary -in out.der -inform DER -out outputfile.dcm -outform DER -inkey
      ../trunk/Testing/Source/Data/privatekey.pem ../trunk/Testing/Source/Data/certificate.pem

 */

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.der" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::DataElement &EncryptedAttributesSequence = ds.GetDataElement( gdcm::Tag( 0x0400,0x0500 ) );

  gdcm::SequenceOfItems *sqi = EncryptedAttributesSequence.GetValueAsSQ();

  if ( !sqi || sqi->GetNumberOfItems() != 1 ) return 1;

  gdcm::Item &item = sqi->GetItem(1);

  gdcm::DataSet &nestedds = item.GetNestedDataSet();

  if( ! nestedds.FindDataElement( gdcm::Tag( 0x0400,0x0520) ) ) return 1;

  const gdcm::DataElement &EncryptedContent = nestedds.GetDataElement( gdcm::Tag( 0x0400,0x0520) );

  const gdcm::ByteValue *bv = EncryptedContent.GetByteValue();

  std::ofstream of( outfilename, std::ios::binary );
  of.write( bv->GetPointer(), bv->GetLength() );
  of.close();

  return 0;
}
```

12.64 ExtractIconFromFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to either retrieve an Icon if present somewhere
 * in the file, or else generate one.
```

```
 */
#include "gdcmImageReader.h"
#include "gdcmPNMCodec.h"
#include "gdcmIconImageFilter.h"
#include "gdcmIconImageGenerator.h"

bool WriteIconAsPNM(const char* filename, const gdcm::IconImage& icon)
{
  gdcm::PNMCodec pnm;
  pnm.SetDimensions( icon.GetDimensions() );
  pnm.SetPixelFormat( icon.GetPixelFormat() );
  pnm.SetPhotometricInterpretation( icon.GetPhotometricInterpretation() );
  pnm.SetLUT( icon.GetLUT() );
  const gdcm::DataElement& in = icon.GetDataElement();
  bool b = pnm.Write( filename, in );
  assert( b );
  return b;
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read (or not image): " « filename « std::endl;
    return 1;
    }

  gdcm::IconImageFilter iif;
  iif.SetFile( reader.GetFile() );
  bool b = iif.Extract();

  if( b )
    {
    const gdcm::IconImage &icon = iif.GetIconImage(0);
    icon.Print( std::cout );

    if( !icon.GetTransferSyntax().IsEncapsulated() )
      {
      // Let's write out this icon as PNM file
      WriteIconAsPNM("icon.ppm", icon);
      }
    else if( icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGBaselineProcess1
      || icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGExtendedProcess2_4
    )
      {
      const gdcm::DataElement& in = icon.GetDataElement();
      const gdcm::ByteValue *bv = in.GetByteValue();
      assert( bv );
      std::ofstream out( "icon.jpg", std::ios::binary );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
      }
    }
  else
    {
    assert( iif.GetNumberOfIconImages() == 0 );
    std::cerr « "No Icon Found anywhere in file" « std::endl;

    const gdcm::Image &img = reader.GetImage();
    gdcm::IconImageGenerator iig;
    iig.AutoPixelMinMax(true);
    iig.SetPixmap( img );
    const unsigned int idims[2] = { 64, 64 };
    iig.SetOutputDimensions( idims );
    //iig.SetPixelMinMax(60, 868);
    if( !iig.Generate() ) return 1;
    const gdcm::IconImage & icon = iig.GetIconImage();
    WriteIconAsPNM("icon.ppm", icon);
    }

  return 0;
}
```

12.65 Extracting_All_Resolution.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include <fstream>
#include <stdint.h>
#include <string.h>
#include <assert.h>
#include <gdcm_j2k.h>
#include <gdcm_jp2.h>
#include<iostream>
#include <cstring>
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <math.h>
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmSystem.h"
#include <fstream>



#include "gdcm_openjpeg.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

void error_callback(const char *msg, void *) {
  (void)msg;
}
void warning_callback(const char *msg, void *) {
  (void)msg;
}
void info_callback(const char *msg, void *) {
  (void)msg;
}


bool Write_Resolution(gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res, std::ostream&
      of, int flag,  gdcm::SequenceOfItems *sq, int No_Of_Resolutions)
{
  std::ifstream is;
  is.open( filename, std::ios::binary );
  opj_dparameters_t parameters;  /* decompression parameters */
  opj_event_mgr_t event_mgr;    /* event manager */
  opj_dinfo_t* dinfo;  /* handle to a decompressor */
  opj_cio_t *cio;
  opj_image_t *image = NULL;
  // FIXME: Do some stupid work:
  is.seekg( 0, std::ios::end);
  std::streampos buf_size = is.tellg();
  char *dummy_buffer = new char[(unsigned int)buf_size];
  is.seekg(0, std::ios::beg);
  is.read( dummy_buffer, buf_size);
  unsigned char *src = (unsigned char*)dummy_buffer;
  uint32_t file_length = (uint32_t)buf_size; // 32bits truncation should be ok since DICOM cannot have larger
```

```
    than 2Gb image


  /* configure the event callbacks (not required) */
  memset(&event_mgr, 0, sizeof(opj_event_mgr_t));
  event_mgr.error_handler = error_callback;
  event_mgr.warning_handler = warning_callback;
  event_mgr.info_handler = info_callback;

  /* set decoding parameters to default values */
  opj_set_default_decoder_parameters(&parameters);

  // default blindly copied
  parameters.cp_layer=0;
  parameters.cp_reduce= res;
  //   parameters.decod_format=-1;
  //   parameters.cod_format=-1;

  const char jp2magic[] = "\x00\x00\x00\x0C\x6A\x50\x20\x20\x0D\x0A\x87\x0A";
  if( memcmp( src, jp2magic, sizeof(jp2magic) ) == 0 )
    {
    /* JPEG-2000 compressed image data ... sigh */
    // gdcmData/ELSCINT1_JP2vsJ2K.dcm
    // gdcmData/MAROTECH_CT_JP2Lossy.dcm
    //gdcmWarningMacro( "J2K start like JPEG-2000 compressed image data instead of codestream" );
    parameters.decod_format = 1; //JP2_CFMT;
    //assert(parameters.decod_format == JP2_CFMT);
    }
  else
    {
    /* JPEG-2000 codestream */
    //parameters.decod_format = J2K_CFMT;
    //assert(parameters.decod_format == J2K_CFMT);
    assert( 0 );
    }
  parameters.cod_format = 11; // PGX_DFMT;
  //assert(parameters.cod_format == PGX_DFMT);

  /* get a decoder handle */
    dinfo = opj_create_decompress(CODEC_JP2);

  /* catch events using our callbacks and give a local context */
  opj_set_event_mgr((opj_common_ptr)dinfo, &event_mgr, NULL);

  /* setup the decoder decoding parameters using user parameters */
  opj_setup_decoder(dinfo, &parameters);

  /* open a byte stream */
  cio = opj_cio_open((opj_common_ptr)dinfo, src, file_length);

  /* decode the stream and fill the image structure */
  image = opj_decode(dinfo, cio);
  if(!image) {
    opj_destroy_decompress(dinfo);
    opj_cio_close(cio);
    //gdcmErrorMacro( "opj_decode failed" );
    return 1;
  }

      opj_cp_t * cp = ((opj_jp2_t*)dinfo->jp2_handle)->j2k->cp;
      opj_tcp_t *tcp = &cp->tcps[0];
      opj_tccp_t *tccp = &tcp->tccps[0];
    /*   std::cout « "\n No of Cols In Image" « image->x1;
      std::cout « "\n No of Rows In Image" « image->y1;
      std::cout « "\n No of Components in Image" « image->numcomps;
      std::cout « "\n No of Resolutions"« tccp->numresolutions « "\n";
*/
       opj_j2k_t* j2k = NULL;
       opj_jp2_t* jp2 = NULL;
       jp2 = (opj_jp2_t*)dinfo->jp2_handle;
       int reversible = jp2->j2k->cp->tcps->tccps->qmfbid;
       //std:: cout « reversible;
      int compno = 0;
      opj_image_comp_t *comp = &image->comps[compno];
      int Dimensions[2];
      Dimensions[0]= comp->w;
      Dimensions[1] = comp->h;
      opj_cio_close(cio);
      unsigned long len = Dimensions[0]*Dimensions[1] * image->numcomps;
      //std::cout « "\nTest" «image->comps[0].factor;
      char *raw = new char[len];
```

```
  for (unsigned int compno = 0; compno < (unsigned int)image->numcomps; compno++)
    {
    opj_image_comp_t *comp = &image->comps[compno];

    int w = image->comps[compno].w;
    int h = image->comps[compno].h;
      uint8_t *data8 = (uint8_t*)raw + compno;
      for (int i = 0; i < w * h ; i++)
        {
        int v = image->comps[compno].data[i];
        *data8 = (uint8_t)v;
        data8 += image->numcomps;
        }
    }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::CTImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {image->comps[0].w};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
//  w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {image->comps[0].h};
   ds.Insert( col.GetAsDataElement() );
   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {image->numcomps};
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
  ds.Insert( at3.GetAsDataElement() );



  if (flag == 1)
  {

    for (int i=0; i < No_Of_Resolutions; i++)
    {

     int a = 1;
     int b =1;

     while(a!=((No_Of_Resolutions)-i))
        {
          b = b*2;
          a = a+1;
         }
     uint16_t row = (image->y1)/b;
     uint16_t col = (image->x1)/b;
     //std::cout « row;
```

```
    gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
    el2.SetValue(i+1);
    gdcm::DataElement rfn = el2.GetAsDataElement();     //ulr --> upper left row
    rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

    gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
    el.SetValue(1,0);
    el.SetValue(1,1);
    gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
    ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

    gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
    el1.SetValue(col,0);
    el1.SetValue(row,1);
    gdcm::DataElement brr = el1.GetAsDataElement();
    brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row
   gdcm::Item it;
   gdcm::DataSet &nds = it.GetNestedDataSet();
   nds.Insert( rfn );
   nds.Insert(ulr);
   nds.Insert(brr);

   sq->AddItem(it);
  }

  gdcm::Writer w1;
  gdcm::File &file1 = w1.GetFile();
  gdcm::DataSet &ds1 = file1.GetDataSet();
  file1.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid1;
  gdcm::DataElement dea( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  dea.SetVR( gdcm::VR::UI );
  const char *u1 = uid1.Generate();
  dea.SetByteValue( u1, strlen(u1) );
  ds1.Insert( dea );

  gdcm::DataElement deb( gdcm::Tag(0x8,0x16) );
  deb.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms1( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  deb.SetByteValue( ms1.GetString(), strlen(ms1.GetString()));
  ds1.Insert( deb );

  const char mystr1[] = "MONOCHROME2 ";
  gdcm::DataElement dec( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  dec.SetVR( gdcm::VR::CS );
  dec.SetByteValue(mystr, strlen(mystr1));
  ds1.Insert( dec );

   gdcm::Attribute<0x0028,0x0010> row1 = {image->y1};
   //row.SetValue(512);
   ds1.Insert( row1.GetAsDataElement() );
//   w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col1 = {image->x1};
   ds1.Insert( col1.GetAsDataElement() );
   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames1 = {tccp->numresolutions};
   ds1.Insert( Number_Of_Frames1.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> ata = {8};
   ds1.Insert( ata.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> atb = {image->numcomps};
   ds1.Insert( atb.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> atc = {8};
   ds1.Insert( atc.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> atd = {7};
  ds1.Insert( atd.GetAsDataElement() );

   theStreamWriter.SetFile(file1);

  gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
  des.SetVR(gdcm::VR::SQ);
  //des.SetVR(gdcm::VM::VM1);
  des.SetValue(*sq);
```

```
  des.SetVLToUndefined();

  ds1.Insert(des);


  if (!theStreamWriter.WriteImageInformation()){
      std::cerr « "unable to write image information" « std::endl;
      return 1; //the CanWrite function should prevent getting here, else,
      //that's a test failure
    }

 }

   theStreamWriter.SetFile(file);

  if (!theStreamWriter.CanWriteFile()){
      delete [] raw;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

 // Important to write here
 std::vector<unsigned int> extent = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 4;
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];
    std::cout « "\n"«xmax « "\n" « ymax«"\n"«zmax«"\n" « image->numcomps«"\n";


    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }


    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(raw[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] raw;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete raw;

  delete[] src;  //FIXME

if(dinfo) {
    opj_destroy_decompress(dinfo);
  }

 opj_image_destroy(image);

 return true;

}

bool Different_Resolution( gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res,
      std::ostream& of)
```

```
{
  //std::vector<std::string>::const_iterator it = filenames.begin();
  bool b = true;
  int flag = 1;

 gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
 sq->SetLengthToUndefined();


  for(int i = res-1 ; i>=0; --i)
  {
    b = b && Write_Resolution( theStreamWriter, filename, i, of ,flag,sq,res);
   // b = b && Get_Resolution( theStreamWriter, filename, i, of ,0);
    flag = 0;
  }
  //b = b && Get_Lowest_Resolution( writer, sq, filename, res-1 );
  //b = b && PopulateSingeFile( writer, sq, jpeg, filename2 );
  //image.SetDimension(2,  res )
  return b;
}


int main(int argc, char *argv[])
{


   if( argc < 4 )
    {
    std::cerr « argv[0] « " input.jp2 output.dcm No. Of Resolutions " « std::endl;
    return 1;
    }
   const char *filename = argv[1];
  const char *outfilename = argv[2];
  char *resolutions = argv[3];
   int res = int((*resolutions)-48);
    //std:: cout « "\nres"« res;
   gdcm::StreamImageWriter theStreamWriter;

   std::ofstream of;
   of.open( outfilename, std::ios::out | std::ios::binary );
   theStreamWriter.SetStream(of);

   if( !Different_Resolution( theStreamWriter, filename,res,of ) ) return 1;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 assert( of );



return 0;
}
```

12.66 Fake_Image_Using_Stream_Image_Writer.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmReader.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

int main(int, char *[])
{

  char * buffer = new char[ 256 * 256 *3 ];
  // *p = (uint8_t*)buffer;
  char * p = buffer;

  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  for(int row = 0; row < 256; ++row)
  {
    for(int col = 0; col < 256; ++col)
      //for(int b = 0; b < 256; ++b)
      {
        *p++ = 255;
        *p++ = 0;
        *p++ = 0;
       }
  }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "RGB";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {256};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
 //  w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {256};
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {3}; //bits per pixel
```

```
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
   ds.Insert( at3.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x006> at4 = {0};
 ds.Insert( at4.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x0103> at5 = {0};
 ds.Insert( at5.GetAsDataElement() );

 //de.SetTag(gdcm::Tag(0x7fe0,0x0010));
 //ds.Insert(de);

  gdcm::StreamImageWriter theStreamWriter;
gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
 sq->SetLengthToUndefined();

     uint16_t row1 = 256;
     uint16_t col1 = 256;
     //std::cout « row;

     gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
     el2.SetValue(1);
     gdcm::DataElement rfn = el2.GetAsDataElement();     //rfn ---> reference frame number
     rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
     el.SetValue(1,0);
     el.SetValue(1,1);
     gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
     ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
     el1.SetValue(col1,0);
     el1.SetValue(row1,1);
     gdcm::DataElement brr = el1.GetAsDataElement();
     brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row

    gdcm::Item it;
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert( rfn );
    nds.Insert(ulr);
    nds.Insert(brr);

    sq->AddItem(it);

  gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(des);


 theStreamWriter.SetFile(file);

  std::ofstream of;
  of.open( "output.dcm", std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);


if (!theStreamWriter.CanWriteFile()){
      delete [] buffer;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

if (!theStreamWriter.WriteImageInformation()){
      std::cerr « "unable to write image information" « std::endl;
      delete [] buffer;
      return 1; //the CanWrite function should prevent getting here, else,
      //that's a test failure
```

```
    }

 std::vector<unsigned int> extent =
      gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 1;
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];

    std::cout « xmax « ymax « zmax;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(buffer[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] buffer;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete buffer;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 assert( of );


  return 0;
}
```

12.67 FixBrokenJ2K.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmFile.h"

// http://www.lost.in.ua/dicom/c.dcm
//
// -> BuggyJ2Kvvvua-fixed2-j2k.dcm

/*
 * This program attempts to fix a broken J2K/DICOM:
 * It contains 2 bugs:
 * 1. The first 8 bytes seems to be random bytes: remove them
 * 2. YCC is set to 1, while image is grayscale need to set it back to 0
 *
 * Ref:
 * It's a software from http://rentgenprom.ru/ , shipped with universal digital radiographic units
 * "ProScan-2000". The Ukrainian manufacturer developed own digital radiographic unit and it is
 * compatible with software from "ProScan-2000".
 * Information found in DICOM file is:
 *
 * (0008,0070) LO [ZAO "Renthenprom" (JSC Rentgenprom) ]             # 36,1 Manufacturer
 * (0018,1020) LO [2.13.1.7]                                         # 8,1-n Software Version(s)
 *
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  const gdcm::DataElement &pixeldata0 = file.GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
  const gdcm::SequenceOfFragments *sqf = pixeldata0.GetSequenceOfFragments();
  if( !sqf )
    {
    return 1;
    }
  const gdcm::Fragment &frag0 = sqf->GetFragment(0);

  gdcm::ByteValue *bv = const_cast<gdcm::ByteValue*>(frag0.GetByteValue());
  char *ptr = (char*)bv->GetVoidPointer();
  size_t len = bv->GetLength();

  static const unsigned char sig[] = {0,0,0,0,0x6A,0x70,0x32,0x63};
  if( memcmp(ptr, sig, sizeof(sig)) != 0 )
    {
    std::cerr « "magic random signature not found" « std::endl;
    return 1;
    }

  // Apparently the flag to enable a color transform on 3 color components is set in
  // the COD marker. (YCC is byte[6] in the COD marker)
  // we need to disable this flag;
  char *cod_marker = ptr + 0x35; /* 0x2d + 0x8 */ // FIXME
  if( cod_marker[0] == (char)0xff && cod_marker[1] == 0x52 )
    {
    // found start of COD
    if( cod_marker[6+2] == 1 )
      {
      // Change in place:
      *((char*)cod_marker + 6+2) = 0;
      // Prepare a new DataElement:
      gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
      pixeldata.SetVR( gdcm::VR::OB );
      gdcm::SmartPointer<gdcm::SequenceOfFragments> sq = new gdcm::SequenceOfFragments;

      gdcm::Fragment frag;
      // remove 8 first bytes:
```

```
      frag.SetByteValue( ptr + 8, (uint32_t)(len - 8) );
      sq->AddFragment( frag );
      pixeldata.SetValue( *sq );
      file.GetDataSet().Replace( pixeldata );
      }
    else
      {
      return 1;
      }
    }
  else
    {
    std::cerr « "COD not found" « (int)cod_marker[0] « std::endl;
    return 1;
    }

  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  writer.CheckFileMetaInformationOff();
  if( !writer.Write() )
    {
    std::cerr « "Could not write" « std::endl;
    }

  // paranoid check:
  gdcm::ImageReader ireader;
  ireader.SetFileName( outfilename );
  if( !ireader.Read() )
    {
    std::cerr « "file written is still not valid, please report" « std::endl;
    return 1;
    }


  return 0;
}
```

12.68 FixJAIBugJPEGLS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"

#include <fstream>

#include "gdcm_charls.h"

/*
 * This small example should show how one can handle the famous JAI-JPEGLS bug
 * It will take in as invalid DICOM/JAI-JPEG-LS and write out as Explicit Little
 * Endian. One can use `gdcmconv --jpegls` to recompress properly
 *
 * References:
 * http://charls.codeplex.com/discussions/230307?ProjectName=charls
 * http://charls.codeplex.com/workitem/7297
 * http://www.dcm4che.org/jira/browse/DCM-442
 * http://www.dcm4che.org/jira/browse/DCMEE-1144
 * http://java.net/jira/browse/JAI_IMAGEIO_CORE-183
 *
 * Explanation of the issue:
 *
 * Seems, the error is in the calculation of the default values for thresholds T1,
 * T2, T3, in particular min(MAXVAL, 4095) is not applied in
```

```
 *
 * FACTOR = (min(MAXVAL, 4095) + 128)/256
 *
 * as specified in http://www.itu.int/rec/T-REC-T.87-199806-I/en .
 *
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::FileMetaInformation::SetSourceApplicationEntityTitle( "FixJAIBugJPEGLS" );

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::Image &image = reader.GetImage();
  //unsigned long len = image.GetBufferLength();
  const gdcm::DataElement & in =
    reader.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
  const gdcm::SequenceOfFragments *sf = in.GetSequenceOfFragments();
  if( !sf )
    {
    std::cerr « "No pixel data (or not encapsulated)" « std::endl;
    return 1;
    }
  const unsigned int *dims = image.GetDimensions();
  if ( sf->GetNumberOfFragments() != dims[2] )
    {
    std::cerr « "Unsupported" « std::endl;
    return 1;
    }

//  unsigned long totalLen = sf->ComputeByteLength();
  std::vector<unsigned char> rgbyteOutall;
  for(unsigned int i = 0; i < sf->GetNumberOfFragments(); ++i)
    {
    const gdcm::Fragment &frag = sf->GetFragment(i);
    if( frag.IsEmpty() ) return 1;
    const gdcm::ByteValue *bv = frag.GetByteValue();
    if( !bv ) return 1;
    unsigned long totalLen = bv->GetLength();

    std::vector<char> vbuffer;
    vbuffer.resize( totalLen );
    char *buffer = vbuffer.data();
    bv->GetBuffer(buffer, totalLen);
    const unsigned char* pbyteCompressed0 = (const unsigned char*)buffer;
    while( totalLen > 0 && pbyteCompressed0[totalLen-1] != 0xd9 )
      {
      totalLen--;
      }

    JlsParameters metadata;
    char errorMsg[256+1]={'\0'};
    if (JpegLsReadHeader(buffer, totalLen, &metadata, errorMsg) != charls::ApiResult::OK)
      {
      std::cerr « "Can't parse jpegls: " « errorMsg « std::endl;
      return 1;
      }

    std::cout « metadata.width « std::endl;
    std::cout « metadata.height « std::endl;
    std::cout « metadata.bitsPerSample « std::endl;

    gdcm::PixelFormat const & pf = image.GetPixelFormat();
    std::cout « pf « std::endl;

    // http://charls.codeplex.com/discussions/230307?ProjectName=charls
    unsigned char marker_lse_13[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x1F, 0xFF,
```

```
      0x00, 0x22,  // T1 = 34
      0x00, 0x83,  // T2 = 131
      0x02, 0x24,  // T3 = 548
      0x00, 0x40
    };

    unsigned char marker_lse_14[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x3F, 0xFF,
      0x00, 0x42, // T1 = 66
      0x01, 0x03, // T2 = 259
      0x04, 0x44, // T3 = 1092
      0x00, 0x40
    };

    unsigned char marker_lse_15[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x7F, 0xFF,
      0x00, 0x82, // T1 = 130
      0x02, 0x03, // T2 = 515
      0x08, 0x84, // T3 = 2180
      0x00, 0x40
    };

    unsigned char marker_lse_16[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0xFF, 0xFF,
      0x01, 0x02, // T1 = 258
      0x04, 0x03, // T2 = 1027
      0x11, 0x04, // T3 = 4356
      0x00, 0x40
    };

    const unsigned char *marker_lse = nullptr;
    switch( metadata.bitsPerSample )
      {
    case 13:
      marker_lse = marker_lse_13;
      break;
    case 14:
      marker_lse = marker_lse_14;
      break;
    case 15:
      marker_lse = marker_lse_15;
      break;
    case 16:
      marker_lse = marker_lse_16;
      break;
      }
    if( !marker_lse )
      {
      std::cerr « "Can't handle: " « metadata.bitsPerSample « std::endl;
      return 1;
      }

    // FIXME: One should recompute the value for 0x0F
    vbuffer.insert (vbuffer.begin() + 0x0F, marker_lse, marker_lse+15);

#if 0
    std::ofstream of( "/tmp/d.jls", std::ios::binary );
    of.write( &vbuffer[0], vbuffer.size() );
    of.close();
#endif

    const char *pbyteCompressed = vbuffer.data();
    size_t cbyteCompressed = vbuffer.size(); // updated length

    JlsParameters params;
    JpegLsReadHeader(pbyteCompressed, cbyteCompressed, &params, nullptr);

    std::vector<unsigned char> rgbyteOut;
    //rgbyteOut.resize( image.GetBufferLength() );
    rgbyteOut.resize(params.height *params.width * ((params.bitsPerSample + 7)
        / 8) * params.components);

    CharlsApiResultType result =
      JpegLsDecode(rgbyteOut.data(), rgbyteOut.size(), pbyteCompressed, cbyteCompressed, &params, errorMsg );
    if (result != charls::ApiResult::OK)
```

```
      {
      std::cerr « "Could not patch JAI-JPEGLS: " « errorMsg « std::endl;
      return 1;
      }
    rgbyteOutall.insert( rgbyteOutall.end(), rgbyteOut.begin(), rgbyteOut.end() );
    }

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)rgbyteOutall.data(), (uint32_t)rgbyteOutall.size() );


  // Add the pixel data element
  reader.GetFile().GetDataSet().Replace( pixeldata );
  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);

  gdcm::Writer writer;
  writer.SetFileName( outfilename );
  writer.SetFile( reader.GetFile() );
  writer.Write();

  std::cout « "Success !" « std::endl;

  return 0;
}
```

12.69 FixOrientation.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmFile.h"
#include "gdcmOrientation.h"
#include "gdcmAttribute.h"

// Very simple orientation changer, fix invalid dataset
int main(int argc, char* argv[] )
{
  // assume AXIAL input for now
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  const double axial[] = { 1,0,0, 0,1,0 };
  (void)axial;
  const double coronal[] = { 0,0,1, 1,0,0 };
  (void)coronal;
  const double sagittal[] = { 0,1,0, 0,0,1 };
  (void)sagittal;
  gdcm::Attribute<0x0020,0x0032> at1; // IPP
  (void)at1;
  gdcm::Attribute<0x0020,0x0037> at2; // IOP
```

```
  (void)at2;

  gdcm::File & f = reader.GetFile();
  gdcm::DataSet & ds = f.GetDataSet();
  at1.SetFromDataSet( ds );
#if 0
  at2.SetFromDataSet( ds );
  const double * iop = at2.GetValues();
  if( !std::equal(iop, iop + 6, axial ) )
  {
    gdcm::Orientation::OrientationType type = gdcm::Orientation::GetType ( iop );
    std::cerr « "Wrong orientation: " « gdcm::Orientation::GetLabel( type ) « std::endl;
    return 1;
  }
  at2.SetValues( sagittal );
  ds.Replace( at2.GetAsDataElement() );
#endif

  // for sagittal: swap element 0 & 2
  const double tmp0 = at1.GetValue(0);
  const double tmp2 = at1.GetValue(2);
  (void)tmp2;
  //at1.SetValue(tmp2, 0);
  //at1.SetValue(tmp0, 2);
  at1.SetValue( - tmp0 );
  ds.Replace( at1.GetAsDataElement() );

  gdcm::Writer writer;
  writer.SetFile( f );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.70 GenAllVR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFileExplicitFilter.h"

#include <cstdlib>
#include <cstring>


gdcm::Tag FindTagFromVR(gdcm::Dict const &dict, gdcm::VR const &vr)
{
  using gdcm::Dict;
```

```
  Dict::ConstIterator beg = dict.Begin();
  Dict::ConstIterator end = dict.End();
  Dict::ConstIterator it;
  for( it = beg; it != end; ++it)
    {
    const gdcm::Tag &t = it->first;
    const gdcm::DictEntry &de = it->second;
    const gdcm::VR &vr_de = de.GetVR();
    if( vr == vr_de && !de.GetRetired() && t.GetGroup() >= 0x8 )
      {
      return t;
      }
    }
  return gdcm::Tag(0xffff,0xffff);
}

struct rnd_gen {
  rnd_gen(char const* r = "abcdefghijklmnopqrstuvwxyz0123456789")
    : range(r), len(std::strlen(r)) { }

  char operator ()() const {
    return range[static_cast<std::size_t>(std::rand() * (1.0 / ((double)RAND_MAX + 1.0 )) * (double)len)];
  }
private:
  char const* range;
  std::size_t len;
};

/*
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  using gdcm::VR;
  using gdcm::Tag;

  gdcm::Writer w;

  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( true );
  fef.SetFile( w.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change" « std::endl;
    return 1;
    }

  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

//  gdcm::DummyValueGenerator dvg;

  const std::size_t len = 10;
  char ss[len+1];
  ss[len] = '\0';

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  // Create an item
  gdcm::Item it;
  it.SetVLToUndefined();
  gdcm::DataSet &nds = it.GetNestedDataSet();
  //    nds.Insert(owner);
  //    nds.Insert(de);

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
```

```
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  // avoid INVALID = 0
  for(int i = 1; i < 27; ++i)
    {
    VR vr = (VR::VRType)(1LL << i);
    Tag t = FindTagFromVR( pubdict, vr );
    if( vr != VR::UN && vr != VR::SQ )
      {
      assert( t != Tag(0xffff,0xffff) );
      gdcm::DataElement de( t );
      std::generate_n(ss, len, rnd_gen());
      de.SetVR( vr );
      de.SetByteValue( ss, (uint32_t)std::strlen( ss ) );
      nds.Insert( de );
      }
    }
  sq->AddItem(it);

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  ds.Insert( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Insert( de );

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.71 GenFakeIdentifyFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
```

```
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"

#include <cstdlib>
#include <cstring>

gdcm::DataElement CreateFakeElement(gdcm::Tag const &tag, bool toremove)
{
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  static size_t countglobal = 0;
  static std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  size_t count = countglobal % balcptags.size();

  const gdcm::DictEntry &dictentry = pubdict.GetDictEntry(tag);

  gdcm::DataElement de;
  de.SetTag( tag );
  using gdcm::VR;
  const VR &vr = dictentry.GetVR();
  //if( vr != VR::INVALID )
  if( vr.IsDual() )
    {
    if( vr == VR::US_SS )
      {
      de.SetVR( VR::US );
      }
    else if( vr == VR::US_SS_OW )
      {
      de.SetVR( VR::OW );
      }
    else if( vr == VR::OB_OW )
      {
      de.SetVR( VR::OB );
      }
    }
  else
    {
    de.SetVR( vr );
    }
  const char str[] = "BasicApplicationLevelConfidentialityProfileAttributes";
  const char safe[] = "This is safe to keep";
  if( de.GetVR() != VR::SQ )
    {
    if( toremove )
      de.SetByteValue( str, (uint32_t)strlen(str) );
    else
      de.SetByteValue( safe, (uint32_t)strlen(safe) );
    }
  else
    {
    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    // Insert sequence into data set
    assert(de.GetVR() == gdcm::VR::SQ );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
    sq->SetLengthToUndefined();
    de.SetValue(*sq);
    de.SetVLToUndefined();
    //ds.Insert(de);

    if( !toremove )
      {
      nds.Insert( CreateFakeElement( balcptags[count], true ) );
      countglobal++;
      }
    else
      {
      gdcm::Attribute<0x0008,0x0000> at1 = { 0 }; // This element has no reason to be 'anonymized'...
      nds.Insert( at1.GetAsDataElement() );
      gdcm::Attribute<0x000a,0x0000> at2 = { 0 };
      nds.Insert( at2.GetAsDataElement() );
```

```
      }
    sq->AddItem(it);
    }
  return de;
}

/*
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  using gdcm::Tag;
  using gdcm::VR;
  const char *outfilename = argv[1];

  std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();

  gdcm::Writer w;
  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  // Add attribute that need to be anonymized:
  std::vector<gdcm::Tag>::const_iterator it = balcptags.begin();
  for(; it != balcptags.end(); ++it)
    {
    ds.Insert( CreateFakeElement( *it, true ) );
    }

  // Add attribute that do NOT need to be anonymized:
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using gdcm::Dict;
  Dict::ConstIterator dictit = pubdict.Begin();
  for(; dictit != pubdict.End(); ++dictit)
    {
    const gdcm::Tag &dicttag = dictit->first;
    if( dicttag == Tag(0x6e65,0x6146) ) break;
    //const gdcm::DictEntry &dictentry = dictit->second;
    ds.Insert( CreateFakeElement( dicttag, false ) );
    }
  ds.Remove( gdcm::Tag(0x400,0x500) );
  ds.Remove( gdcm::Tag(0x12,0x62) );
  ds.Remove( gdcm::Tag(0x12,0x63) );

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  ds.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Replace( de ); // replace !

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.72 GenLongSeqs.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * We need to make sure that we can store numerous Item in a SQ
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  size_t nitems = 1000;
  nitems += std::numeric_limits<uint32_t>::max();
  for(unsigned int idx = 0; idx < nitems; ++idx)
    {
    // Create a dataelement
    //gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    //de.SetByteValue(ptr, ptr_len);
    //de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    //gdcm::DataSet &nds = it.GetNestedDataSet();
    //nds.Insert(owner);
```

```
    //nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.73 GenSeqs.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 * gdcmConformanceTests/SequenceWithUndefinedLengthNotConvertibleToDefinedLength.dcm
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * Deflated syntax was used in this case since this synthetic example can be
 * nicely compressed using this transfer syntax.
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
```

```
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  //const unsigned int nitems = 1000;
  const unsigned int ptr_len = 42; /*94967296 / nitems; */
  //assert( ptr_len == 42949672 );
  char *ptr = new char[ptr_len];
  memset(ptr,0,ptr_len);

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  for(unsigned int idx = 0; idx < 10/* nitems*/; ++idx)
    {
    // Create a dataelement
    gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    de.SetByteValue(ptr, ptr_len);
    de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert(owner);
    nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.74 GenerateStandardSOPClasses.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmDefs.h"
```

```
#include "gdcmUIDs.h"
#include "gdcmGlobal.h"
#include "gdcmMediaStorage.h"
#include "gdcmSOPClassUIDToIOD.h"

int main(int , char *[])
{
  using gdcm::MediaStorage;
  gdcm::Global& g = gdcm::Global::GetInstance();
  if( !g.LoadResourcesFiles() )
    {
    std::cerr « "Could not LoadResourcesFiles" « std::endl;
    return 1;
    }

  const gdcm::Defs &defs = g.GetDefs();

  int ret = 0;

  //std::cout « "Table B.5-1 STANDARD SOP CLASSES" « std::endl;
  std::cout « "SOP Class Name,SOP Class UID,IOD Specification (defined in PS 3.3)" « std::endl;


  gdcm::MediaStorage::MSType mst;
  for ( mst = gdcm::MediaStorage::MediaStorageDirectoryStorage; mst < gdcm::MediaStorage::MS_END;
    mst = (gdcm::MediaStorage::MSType)(mst + 1) )
    {
    const char *iod = defs.GetIODNameFromMediaStorage(mst);
    gdcm::UIDs uid;
    uid.SetFromUID( gdcm::MediaStorage::GetMSString(mst) /*mst.GetString()*/ );
    if( iod )
      {
      const char *iod_ref = gdcm::SOPClassUIDToIOD::GetIOD(uid);
      if( iod_ref )
        {
        std::string iod_ref_str = iod_ref;
        //iod_ref_str += " IOD Modules";
        //if( iod_ref_str != iod )
          {
          //std::cout « "UID: " « uid « "   ";
          std::cout « '"' « uid.GetName() « '"' «"," « '"' «uid.GetString() « '"' «"," « '"' «iod « '"' «
      std::endl;
          //std::cout « "Incompatible IODs: [" « iod « "] versus ref= [" « iod_ref_str « "]" « std::endl;
          ++ret;
          }
        }
      }
    }


  return 0;
}
```

12.75 GetJPEGSamplePrecision.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example is a little helper to detect the famous SIEMENS JPEG lossless compressed image
 * where DICOM is declared as:
 *
 *  (0028,0100) US 16                                          # 2,1 Bits Allocated
 *  (0028,0101) US 12                                          # 2,1 Bits Stored
 *  (0028,0102) US 11                                          # 2,1 High Bit
 *  (0028,0103) US 0                                           # 2,1 Pixel Representation
 *
```

```
 * But where JPEG is:
 *
 *        JPEG_SOF_Parameters:
 *                SamplePrecision = 16
 *                nLines = 192
 *                nSamplesPerLine = 192
 *                nComponentsInFrame = 1
 *                component 0
 *                        ComponentIdentifier = 1
 *                        HorizontalSamplingFactor = 1
 *                        VerticalSamplingFactor = 1
 *                        QuantizationTableDestinationSelector = 0
 *
 *
 * This case is valid. One simply has to use the 16bits jpeg decoder to decode the 12bits stored image.
 * This used to be an issue in GDCM 1.2.x (fixed in GDCM 1.2.5)
 *
 * The main return 0 (no error) when the file read is actually a potential problem. At the end of the main
 * function, the jpeg stream is stored in the filename specified as second argument
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmJPEGCodec.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.jpg" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  const gdcm::File &file = reader.GetFile();
  const gdcm::Image &image = reader.GetImage();

  const gdcm::TransferSyntax &ts = file.GetHeader().GetDataSetTransferSyntax();

  if( ts != gdcm::TransferSyntax::JPEGLosslessProcess14 && ts != gdcm::TransferSyntax::JPEGLosslessProcess14_1 )
    {
    std::cerr « "Input is not a lossless JPEG" « std::endl;
    return 1;
    }

  // the dataset is the the set of element we are interested in:
  const gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Tag rawTag(0x7fe0, 0x0010); // Default to Pixel Data
  const gdcm::DataElement& pdde = ds.GetDataElement( rawTag );
  const gdcm::SequenceOfFragments *sf = pdde.GetSequenceOfFragments();
  if( sf )
    {
    std::ofstream output(outfilename, std::ios::binary);
    sf->WriteBuffer(output);
    }
  else
    {
    std::cerr « "Error" « std::endl;
    return 1;
    }

  gdcm::JPEGCodec jpeg;
  std::ifstream is(outfilename, std::ios::binary);
  gdcm::PixelFormat pf ( gdcm::PixelFormat::UINT8 ); // let's pretend it's a 8bits jpeg
  jpeg.SetPixelFormat( pf );
  gdcm::TransferSyntax ts_jpg;
  bool b = jpeg.GetHeaderInfo( is, ts_jpg );
```

```
  if( !b )
    {
    return 1;
    }

  //jpeg.Print( std::cout );
  if( jpeg.GetPixelFormat().GetBitsAllocated() != image.GetPixelFormat().GetBitsAllocated()
   || jpeg.GetPixelFormat().GetBitsStored() != image.GetPixelFormat().GetBitsStored() )
    {
    std::cerr « "There is a mismatch in between DICOM declared Pixel Format and Sample Precision used in the
      JPEG stream" « std::endl;
    return 0;
    }

  std::cout « jpeg.GetPixelFormat() « std::endl;
  std::cout « image.GetPixelFormat() « std::endl;

  return 1;
}
```

12.76 GetSequenceUltrasound.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmAttribute.h"

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
      );

int main(int argc, char* argv[] )
{
  // Controllo del numero di argomenti introdotti da riga di comando
  if( argc < 2 )
    {
    std::cerr « "Usage: " « std::endl;
    std::cerr « argv[0] « " inputImageFile  " « std::endl;
    return EXIT_FAILURE;
    }


  unsigned int x_min = 1;
  unsigned int y_min = 1;
  unsigned int x_max = 1;
  unsigned int y_max = 1;

  if( Region ( argv[1], &x_min, &y_min, &x_max, &y_max ) )
    {
    std::cout « "x_min = " « x_min « std::endl;
    std::cout « "y_min = " « y_min « std::endl;
    std::cout « "x_max = " « x_max « std::endl;
    std::cout « "y_max = " « y_max « std::endl;
    }

  else
    {
    std::cout « "no\n";
    }

}

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
      )
{
  gdcm::Reader reader;
  reader.SetFileName( nomefile );
```

```
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « nomefile « std::endl;
    return false;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Tag tsqur(0x0018,0x6011);
  if( !ds.FindDataElement( tsqur ) )
    {
    return false;
    }

  const gdcm::DataElement &squr= ds.GetDataElement( tsqur );
  //std::cout « squr « std::endl;
  const gdcm::SequenceOfItems *sqi = squr.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return false;
    }
  //std::cout « sqi « std::endl;

  const gdcm::Item & item = sqi->GetItem(1);
  //std::cout « item « std::endl;
  const gdcm::DataSet& nestedds = item.GetNestedDataSet();
  //std::cout « nestedds « std::endl;

  gdcm::Tag tX0(0x0018,0x6018);
  gdcm::Tag tY0(0x0018,0x601a);
  gdcm::Tag tX1(0x0018,0x601c);
  gdcm::Tag tY1(0x0018,0x601e);

  if( (!nestedds.FindDataElement( tX0 ))||(!nestedds.FindDataElement( tY0 ))||(!nestedds.FindDataElement( tX1
      ))||(!nestedds.FindDataElement( tY1 )) )
    {
    return false;
    }

  const gdcm::DataElement& deX0 = nestedds.GetDataElement( tX0 );
  const gdcm::DataElement& deY0 = nestedds.GetDataElement( tY0 );
  const gdcm::DataElement& deX1 = nestedds.GetDataElement( tX1 );
  const gdcm::DataElement& deY1 = nestedds.GetDataElement( tY1 );
  //std::cout « deX0 « std::endl « deY0 « std::endl « deX1 « std::endl « deY1 « std::endl;

  //const gdcm::ByteValue *bvX0 = deX0.GetByteValue();
  //const gdcm::ByteValue *bvY0 = deY0.GetByteValue();
  //const gdcm::ByteValue *bvX1 = deX1.GetByteValue();
  //const gdcm::ByteValue *bvY1 = deY1.GetByteValue();
  //std::cout « bvX0 « std::endl « bvY0 « std::endl « bvX1 « std::endl « bvY1 « std::endl;

  gdcm::Attribute<0x0018,0x6018> atX0;
  gdcm::Attribute<0x0018,0x601a> atY0;
  gdcm::Attribute<0x0018,0x601c> atX1;
  gdcm::Attribute<0x0018,0x601e> atY1;
  atX0.SetFromDataElement( deX0 );
  atY0.SetFromDataElement( deY0 );
  atX1.SetFromDataElement( deX1 );
  atY1.SetFromDataElement( deY1 );
  uint32_t X0 = atX0.GetValue();
  uint32_t Y0 = atY0.GetValue();
  uint32_t X1 = atX1.GetValue();
  uint32_t Y1 = atY1.GetValue();
  std::cout « X0 « std::endl « Y0 « std::endl « X1 « std::endl « Y1 « std::endl;

  *X_min = static_cast<unsigned int>(X0);
  *Y_min = static_cast<unsigned int>(Y0);
  *X_max = static_cast<unsigned int>(X1);
  *Y_max = static_cast<unsigned int>(Y1);

  //std::cout « "X_min = " « *X_min « std::endl;
  //std::cout « "Y_min = " « *Y_min « std::endl;
  //std::cout « "X_max = " « *X_max « std::endl;
  //std::cout « "Y_max = " « *Y_max « std::endl;

  return true;
}
```

12.77 GetSubSequenceData.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

/*
 * This example will extract the Movie from the private group of
 * GEMS_Ultrasound_MovieGroup_001 See Attribute
 * (7fe1,60,GEMS_Ultrasound_MovieGroup_001)
 *
 * The output file will be stored in `outvid.dcm` as
 * MultiframeGrayscaleByteSecondaryCaptureImageStorage
 */
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  reader.Read();

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  assert( sqi->GetNumberOfItems() == 1 );
  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq1(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds.FindDataElement( tseq1 ) ) return 1;
  const DataElement& seq1 = subds.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi2 = seq1.GetValueAsSQ();
  //int n = sqi2->GetNumberOfItems();
  int index = 1;
  Item &item2 = sqi2->GetItem(index);
  DataSet &subds2 = item2.GetNestedDataSet();

  const PrivateTag tseq2(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds2.FindDataElement( tseq2 ) ) return 1;
  const DataElement& seq2 = subds2.GetDataElement( tseq2 );

//    std::cout « seq2 « std::endl;

  SmartPointer<SequenceOfItems> sqi3 = seq2.GetValueAsSQ();
  size_t ni3 = sqi3->GetNumberOfItems(); (void)ni3;
  assert( sqi3->GetNumberOfItems() >= 1 );
  Item &item3 = sqi3->GetItem(1);
```

```
  DataSet &subds3 = item3.GetNestedDataSet();

  const PrivateTag tseq6(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq6 ) ) return true;
  const DataElement& seq6 = subds3.GetDataElement( tseq6 );
  SmartPointer<SequenceOfItems> sqi6 = seq6.GetValueAsSQ();
  size_t ni6= sqi6->GetNumberOfItems();
  assert( sqi6->GetNumberOfItems() >= 1 );
  const PrivateTag tseq7(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");
  int dimx = 0, dimy = 0;
  for( size_t i6 = 1; i6 <= ni6; ++i6 )
    {
    Item &item6 = sqi6->GetItem(i6);
    DataSet &subds6 = item6.GetNestedDataSet();

    if( subds6.FindDataElement( tseq7 ) )
      {
      Element<VR::SL, VM::VM4> el;
      el.SetFromDataElement( subds6.GetDataElement( tseq7 ) );
      std::cout « "El= " « el.GetValue() « std::endl;
      dimx = el.GetValue(0);
      dimy = el.GetValue(1);
      }
    }

  const PrivateTag tseq3(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq3 ) ) return true;
  const DataElement& seq3 = subds3.GetDataElement( tseq3 );

//    std::cout « seq3 « std::endl;

  SmartPointer<SequenceOfItems> sqi4 = seq3.GetValueAsSQ();
  size_t ni4= sqi4->GetNumberOfItems();
  assert( sqi4->GetNumberOfItems() >= 1 );
  const PrivateTag tseq8(0x7fe1,0x37,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq4(0x7fe1,0x43,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq5(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");

  std::vector<char> imbuffer;
  int dimz = 0;
  for( size_t i4 = 1; i4 <= ni4; ++i4 )
    {
    Item &item4 = sqi4->GetItem(i4);
    DataSet &subds4 = item4.GetNestedDataSet();

    if( !subds4.FindDataElement( tseq8 ) ) return true;
    const DataElement& de8 = subds4.GetDataElement( tseq8 );
    Element<VR::UL,VM::VM1> ldimz;
    ldimz.SetFromDataElement( de8 );
    dimz += ldimz.GetValue();
    if( !subds4.FindDataElement( tseq4 ) ) return true;
    const DataElement& seq4 = subds4.GetDataElement( tseq4 );
    if( !subds4.FindDataElement( tseq5 ) ) return true;
    const DataElement& seq5 = subds4.GetDataElement( tseq5 );

    //    std::cout « seq4 « std::endl;
    //    std::cout « seq5 « std::endl;

    const ByteValue *bv4 = seq4.GetByteValue();
    (void)bv4;
#if 0
      {
      std::ofstream out( "/tmp/mo4", std::ios::binary );
      out.write( bv4->GetPointer(), bv4->GetLength());
      out.close();
      }
#endif
  const ByteValue *bv5 = seq5.GetByteValue();
#if 0
    {
    std::ofstream out( "/tmp/mo5", std::ios::binary );
    out.write( bv5->GetPointer(), bv5->GetLength());
    out.close();
    }
#endif

    std::cout « bv5->GetLength() « std::endl;
    imbuffer.insert( imbuffer.begin(), bv5->GetPointer(), bv5->GetPointer() + bv5->GetLength() );
    }
  DataElement fakedata;
```

```
  fakedata.SetByteValue( imbuffer.data(), (uint32_t)imbuffer.size() );


  gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;
  im->SetNumberOfDimensions( 3 );

  im->SetDimension(0, dimx );
  im->SetDimension(1, dimy );
  im->SetDimension(2, dimz );
  size_t l1 = imbuffer.size();
  (void)l1;
  size_t l2 = im->GetBufferLength();
  (void)l2;
  assert( im->GetBufferLength() == imbuffer.size() );
  im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::MONOCHROME2 );

  im->SetDataElement( fakedata );

  gdcm::ImageWriter w;
  w.SetImage( *im );
  DataSet &dataset = w.GetFile().GetDataSet();

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  dataset.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  dataset.Replace( de ); // replace !

  w.SetFileName( "outvid.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.78 HelloVizWorld.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Basic example for dealing with a DICOM file that contains an Image
 * (read: Pixel Data element)
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
```

```
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  // If we reach here, we know for sure 2 things:
  // 1. It is a valid DICOM
  // 2. And it contains an Image !

  // The output of superclass gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // The other output of gdcm::ImageReader is a gdcm::Image
  const gdcm::Image &image = reader.GetImage();

  // Let's get some property from the image:
  unsigned int ndim = image.GetNumberOfDimensions();
  // Dimensions of the image:
  const unsigned int *dims = image.GetDimensions();
  // Origin
  const double *origin = image.GetOrigin();
  const gdcm::PhotometricInterpretation &pi = image.GetPhotometricInterpretation();
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Dim(" « i « "): " « dims[i] « std::endl;
    }
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Origin(" « i « "): " « origin[i] « std::endl;
    }
  std::cout « "PhotometricInterpretation: " « pi « std::endl;

  // Write the modified DataSet back to disk
  gdcm::ImageWriter writer;
  writer.SetImage( image );
  writer.SetFileName( outfilename );
  //writer.SetFile( file ); // We purposely NOT copy the meta information from the input
                            // file, and instead only pass the image
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

12.79 HelloWorld.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example is ... guess what this is for :)
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
```

```
#include "gdcmAttribute.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // If we reach here, we know for sure only 1 thing:
  // It is a valid DICOM file (potentially an old ACR-NEMA 1.0/2.0 file)
  // (Maybe, it's NOT a Dicom image -could be a DICOMDIR, a RTSTRUCT, etc-)

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  // Construct a static(*) type for Image Comments :
  gdcm::Attribute<0x0020,0x4000> imagecomments;
  imagecomments.SetValue( "Hello, World !" );

  // Now replace the Image Comments from the dataset with our:
  ds.Replace( imagecomments.GetAsDataElement() );

  // Write the modified DataSet back to disk
  gdcm::Writer writer;
  writer.CheckFileMetaInformationOff(); // Do not attempt to reconstruct the file meta to preserve the file
                                        // as close to the original as possible.
  writer.SetFileName( outfilename );
  writer.SetFile( file );
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}

/*
 * (*) static type, means that extra DICOM information VR & VM are computed at compilation time.
 * The compiler is deducing those values from the template arguments of the class.
 */
```

12.80 LargeVRDSExplicit.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
```

```
#include "gdcmAttribute.h"
#include "gdcmFileExplicitFilter.h"
#include "gdcmSequenceOfItems.h"

bool interpolate(const double * pts, size_t npts, std::vector<double> &out )
{
  out.clear();
  for(size_t i = 0; i < 2*npts; ++i )
    {
    const size_t j = i / 2;
    if( i % 2 )
      {
      if( j != npts - 1 )
        {
        assert( 3*j+5 < 3*npts );
        const double midpointx = (pts[3*j+0] + pts[3*j+3]) / 2;
        const double midpointy = (pts[3*j+1] + pts[3*j+4]) / 2;
        const double midpointz = (pts[3*j+2] + pts[3*j+5]) / 2;
        out.push_back( midpointx );
        out.push_back( midpointy );
        out.push_back( midpointz );
        }
      }
    else
      {
      assert( j < npts );
      out.push_back( pts[3*j+0] );
      out.push_back( pts[3*j+1] );
      out.push_back( pts[3*j+2] );
      }
    }
  assert( out.size() == 2 * npts * 3 - 3 );
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( changeprivatetags );
  fef.SetFile( reader.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change: " « filename « std::endl;
    return 1;
    }

  // (3006,0039) SQ (Sequence with undefined length #=4)     # u/l, 1 ROIContourSequence
  gdcm::Tag tag(0x3006,0x0039);

  const gdcm::DataElement &roicsq = ds.GetDataElement( tag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = roicsq.GetValueAsSQ();
  //sqi->SetNumberOfItems( 1 );
  const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
  const gdcm::DataSet& nestedds = item.GetNestedDataSet();

  gdcm::Tag tcsq(0x3006,0x0040);
  if( !nestedds.FindDataElement( tcsq ) )
    {
    return 0;
    }
  const gdcm::DataElement& csq = nestedds.GetDataElement( tcsq );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi2 = csq.GetValueAsSQ();
  if( !sqi2 || !sqi2->GetNumberOfItems() )
    {
```

```
    return 0;
    }
  //unsigned int nitems = sqi2->GetNumberOfItems();
  gdcm::Item & item2 = sqi2->GetItem(1); // Item start at #1

  gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
  //item2.SetVLToUndefined();
  //std::cout « nestedds2 « std::endl;
  // (3006,0050) DS [43.57636\65.52504\-10.0\46.043102\62.564945\-10.0\49.126537\60.714... # 398,48 ContourData
  gdcm::Tag tcontourdata(0x3006,0x0050);
  const gdcm::DataElement & contourdata = nestedds2.GetDataElement( tcontourdata );
  //std::cout « contourdata « std::endl;

  //const gdcm::ByteValue *bv = contourdata.GetByteValue();
  gdcm::Attribute<0x3006,0x0046> ncontourpoints;
  ncontourpoints.Set( nestedds2 );

  gdcm::Attribute<0x3006,0x0050> at;
  at.SetFromDataElement( contourdata );
  const double* pts = at.GetValues();
  unsigned int npts = at.GetNumberOfValues() / 3;

  std::vector<double> out( pts, pts + npts * 3 );
  std::vector<double> out2;

  //const unsigned int niter = 7;
  const unsigned int niter = 8;
  for( unsigned int i = 0; i < niter; ++i)
    {
    //bool b =
    interpolate(out.data(), out.size() / 3, out2);
    //const double *pout = &out[0];
    out = out2;
    out2.clear();
    }
  assert( out.size() % 3 == 0 );

  gdcm::Attribute<0x3006,0x0050> at_interpolate;
  at_interpolate.SetNumberOfValues( (unsigned int)(out.size() / 3) );
  at_interpolate.SetValues( out.data(), (uint32_t)out.size() );

  ncontourpoints.SetValue( at_interpolate.GetNumberOfValues() / 3 );
  nestedds2.Replace( at_interpolate.GetAsDataElement() );
  nestedds2.Replace( ncontourpoints.GetAsDataElement() );

  //assert(0);

  // Let's take item one and subdivide it

  gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
  ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;

  gdcm::FileMetaInformation &fmi = file.GetHeader();
  const char *tsuid = gdcm::TransferSyntax::GetTSString( ts );
  // const char * is ok since padding is \0 anyway...
  gdcm::DataElement de( gdcm::Tag(0x0002,0x0010) );
  de.SetByteValue( tsuid, (uint32_t)strlen(tsuid) );
  de.SetVR( gdcm::Attribute<0x0002, 0x0010>::GetVR() );
  fmi.Replace( de );
  fmi.Remove( gdcm::Tag(0x0002,0x0012) ); // will be regenerated
  fmi.Remove( gdcm::Tag(0x0002,0x0013) ); //  '   '    '
  fmi.SetDataSetTransferSyntax(ts);


  gdcm::Writer w;
  w.SetFile( file );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.81 MakeTemplate.cxx

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmFileAnonymizer.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"

int main(int argc, char *argv[])
{
  if( argc < 3 ) return 1;
  const char* filename = argv[1];
  const char* outfilename = argv[2];

  //gdcm::Trace::DebugOn();

  // Remove Pixel Data element:
  gdcm::FileAnonymizer fa;
  fa.SetInputFileName( filename );
  fa.SetOutputFileName( outfilename );

  fa.Empty( gdcm::Tag(0x7fe0,0x10) );
  // cannot replace in-place DICOM header:
  //fa.Replace( gdcm::Tag(0x2,0x2), "1.2.840.10008.5.1.4.1.1.7" );

  if( !fa.Write() )
    {
    std::cerr « "impossible to remove Pixel Data attribute" « std::endl;
    return 1;
    }

  // Update the DICOM Header:
  gdcm::Reader reader;
  reader.SetFileName( outfilename );
  if( !reader.Read() )
    {
    std::cerr « "could not read back" « std::endl;
    return 1;
    }

  gdcm::File & file = reader.GetFile();
  gdcm::FileMetaInformation &fmi = file.GetHeader();
  gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
  ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;
  fmi.SetDataSetTransferSyntax(ts);

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename ); // warning overwrite file !
  if( !writer.Write() )
    {
    std::cerr « "could not write back" « std::endl;
    return 1;
    }

  return 0;
}
```

12.82 MergeTwoFiles.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
```

```
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example will show how one can read in two DICOM files, use the dataset
 * from file1 and use image from file2  to save it in a 3rd file.
 *
 * Eg:
 * MergeTwoFiles gdcmData/012345.002.050.dcm gdcmData/test.acr merge.dcm
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *file1 = argv[1];
  const char *file2 = argv[2];
  const char *file3 = argv[3];

  // Read file1
  gdcm::ImageReader reader1;
  reader1.SetFileName( file1 );
  if( !reader1.Read() )
    {
    return 1;
    }

  // Read file2
  gdcm::ImageReader reader2;
  reader2.SetFileName( file2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  // Ok now let's take the DataSet from file1 and the Image from file2
  // Warning: if file2 is -for example- a Secondary Capture Storage, then it has no
  // Image Orientation (Patient) thus any Image Orientation (Patient) from file1
  // will be discarded...

  // let's be fancy. In case reader2 contains explicit, but reader1 is implicit
  // we would rather see an implicit output
  if( reader1.GetFile().GetHeader().GetDataSetTransferSyntax() == gdcm::TransferSyntax::ImplicitVRLittleEndian )
    {
    reader2.GetImage().SetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
    }

  gdcm::ImageWriter writer;
  writer.SetFileName( file3 );
  writer.SetFile( reader1.GetFile() );
  // ImageWriter will always use all of gdcm::Image information an override anything wrong from
  // reader1.GetFile(), including the Transfer Syntax
  writer.SetImage( reader2.GetImage() );

  gdcm::DataSet &ds = reader1.GetFile().GetDataSet();

  // Make sure that SOPInstanceUID are different
  // Simply removing it is sufficient as gdcm::ImageWriter will generate one by default
  // if not found.
  ds.Remove( gdcm::Tag(0x0008,0x0018) );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

12.83 MrProtocol.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
 */

/*
28 - 'MrProtocol' VM 1, VR UN, SyngoDT 0, NoOfItems 6, Data '### ASCCONV BEGIN ###
ulVersion                                = 0xbee332
tSequenceFileName                        = "%SiemensSeq%\fl_fq_shphs"
tProtocolName                            = "flash+AF8-100+AF8-through-plane+AF8-V"
tReferenceImage0                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004658"
tReferenceImage1                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004635"
tReferenceImage2                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004683"
ucScanRegionPosValid                     = 0x1
sProtConsistencyInfo.tBaselineString     = "N4_VB11A_LATEST_20031004"
sProtConsistencyInfo.flNominalB0         = 1.494
sProtConsistencyInfo.flGMax              = 22
sProtConsistencyInfo.flRiseTime          = 10
sGRADSPEC.sEddyCompensationX.aflAmplitude[0] = 0.0141111
sGRADSPEC.sEddyCompensationX.aflAmplitude[1] = 0.057038
sGRADSPEC.sEddyCompensationX.aflAmplitude[2] = -0.00986504
sGRADSPEC.sEddyCompensationX.aflAmplitude[3] = 0.00247627
sGRADSPEC.sEddyCompensationX.aflAmplitude[4] = 0.0026377
sGRADSPEC.sEddyCompensationX.aflTimeConstant[0] = 1.53826
sGRADSPEC.sEddyCompensationX.aflTimeConstant[1] = 0.746617
sGRADSPEC.sEddyCompensationX.aflTimeConstant[2] = 0.339236
sGRADSPEC.sEddyCompensationX.aflTimeConstant[3] = 0.0309809
sGRADSPEC.sEddyCompensationX.aflTimeConstant[4] = 0.00067694
sGRADSPEC.sEddyCompensationY.aflAmplitude[0] = 0.0156411
sGRADSPEC.sEddyCompensationY.aflAmplitude[1] = 0.0440623
sGRADSPEC.sEddyCompensationY.aflAmplitude[2] = -0.00782663
sGRADSPEC.sEddyCompensationY.aflAmplitude[3] = 0.00186828
sGRADSPEC.sEddyCompensationY.aflAmplitude[4] = 0.00154504
sGRADSPEC.sEddyCompensationY.aflTimeConstant[0] = 1.47145
sGRADSPEC.sEddyCompensationY.aflTimeConstant[1] = 0.750538
sGRADSPEC.sEddyCompensationY.aflTimeConstant[2] = 0.339397
sGRADSPEC.sEddyCompensationY.aflTimeConstant[3] = 0.0312962
sGRADSPEC.sEddyCompensationY.aflTimeConstant[4] = 0.000895133
sGRADSPEC.sEddyCompensationZ.aflAmplitude[0] = 0.00618504
sGRADSPEC.sEddyCompensationZ.aflAmplitude[1] = 0.00313121
sGRADSPEC.sEddyCompensationZ.aflAmplitude[2] = 0.000289346
sGRADSPEC.sEddyCompensationZ.aflAmplitude[3] = -0.00019677
sGRADSPEC.sEddyCompensationZ.aflAmplitude[4] = 7.66445e-005
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[0] = 3.37462
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[1] = 0.999351
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[2] = 0.0174646
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[3] = 0.0110094
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[4] = 0.00199922
sGRADSPEC.bEddyCompensationValid         = 1
sGRADSPEC.sB0CompensationX.aflAmplitude[0] = 0.307474
sGRADSPEC.sB0CompensationX.aflAmplitude[1] = 0.029337
sGRADSPEC.sB0CompensationX.aflAmplitude[2] = -0.187118
sGRADSPEC.sB0CompensationX.aflTimeConstant[0] = 0.98583
sGRADSPEC.sB0CompensationX.aflTimeConstant[1] = 0.0308443
sGRADSPEC.sB0CompensationX.aflTimeConstant[2] = 0.000466792
sGRADSPEC.sB0CompensationY.aflAmplitude[0] = 0.365257
sGRADSPEC.sB0CompensationY.aflAmplitude[1] = -0.318647
sGRADSPEC.sB0CompensationY.aflAmplitude[2] = -0.0118978
sGRADSPEC.sB0CompensationY.aflTimeConstant[0] = 0.61535
sGRADSPEC.sB0CompensationY.aflTimeConstant[1] = 0.488831
sGRADSPEC.sB0CompensationY.aflTimeConstant[2] = 0.00199991
sGRADSPEC.sB0CompensationZ.aflAmplitude[0] = -0.44647
sGRADSPEC.sB0CompensationZ.aflAmplitude[1] = -0.0455154
sGRADSPEC.sB0CompensationZ.aflAmplitude[2] = -0.0304901
sGRADSPEC.sB0CompensationZ.aflTimeConstant[0] = 0.959231
sGRADSPEC.sB0CompensationZ.aflTimeConstant[1] = 0.0720189
```

```
sGRADSPEC.sB0CompensationZ.aflTimeConstant[2] = 0.00190141
sGRADSPEC.bB0CompensationValid           = 1
sGRADSPEC.sCrossTermCompensationXY.aflAmplitude[0] = 0.00105046
sGRADSPEC.sCrossTermCompensationXY.aflTimeConstant[0] = 0.842014
sGRADSPEC.sCrossTermCompensationXZ.aflAmplitude[0] = -0.00150189
sGRADSPEC.sCrossTermCompensationXZ.aflTimeConstant[0] = 0.736169
sGRADSPEC.sCrossTermCompensationYX.aflAmplitude[0] = -5.5278e-005
sGRADSPEC.sCrossTermCompensationYX.aflTimeConstant[0] = 0.228697
sGRADSPEC.sCrossTermCompensationYZ.aflAmplitude[0] = 0.000307999
sGRADSPEC.sCrossTermCompensationYZ.aflTimeConstant[0] = 1.19431
sGRADSPEC.sCrossTermCompensationZX.aflAmplitude[0] = -0.000286868
sGRADSPEC.sCrossTermCompensationZX.aflTimeConstant[0] = 0.665979
sGRADSPEC.sCrossTermCompensationZY.aflAmplitude[0] = 0.000355175
sGRADSPEC.sCrossTermCompensationZY.aflTimeConstant[0] = 0.844189
sGRADSPEC.bCrossTermCompensationValid    = 1
sGRADSPEC.lOffsetX                       = 25
sGRADSPEC.lOffsetY                       = 84
sGRADSPEC.lOffsetZ                       = 47
sGRADSPEC.bOffsetValid                   = 1
sGRADSPEC.lDelayX                        = 12
sGRADSPEC.lDelayY                        = 11
sGRADSPEC.lDelayZ                        = 9
sGRADSPEC.bDelayValid                    = 1
sGRADSPEC.flSensitivityX                 = 0.000264087
sGRADSPEC.flSensitivityY                 = 0.000272009
sGRADSPEC.flSensitivityZ                 = 0.000272677
sGRADSPEC.bSensitivityValid              = 1
sGRADSPEC.alShimCurrent[0]               = 183
sGRADSPEC.alShimCurrent[1]               = -25
sGRADSPEC.alShimCurrent[2]               = -85
sGRADSPEC.alShimCurrent[3]               = 378
sGRADSPEC.alShimCurrent[4]               = 82
sGRADSPEC.bShimCurrentValid              = 1
sGRADSPEC.ucMode                         = 0x2
sTXSPEC.asNucleusInfo[0].tNucleus        = "1H"
sTXSPEC.asNucleusInfo[0].lFrequency      = 63684693
sTXSPEC.asNucleusInfo[0].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[0].flReferenceAmplitude = 359.734
sTXSPEC.asNucleusInfo[0].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[0].flAmplitudeCorrection = 1
sTXSPEC.asNucleusInfo[0].bAmplitudeCorrectionValid = 1
sTXSPEC.asNucleusInfo[1].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[1].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[1].bAmplitudeCorrectionValid = 1
sTXSPEC.aRFPULSE[0].tName                = "03GreFCE"
sTXSPEC.aRFPULSE[0].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[0].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[1].tName                = "02GreFCE"
sTXSPEC.aRFPULSE[1].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[1].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[2].tName                = "01GreFCE"
sTXSPEC.aRFPULSE[2].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[2].flAmplitude          = 147.095
sTXSPEC.lNoOfTraPulses                   = 3
sTXSPEC.lBTB1ParallelCapacity            = 2
sTXSPEC.lBTB1SerialCapacity              = 24
sTXSPEC.lBTB2ParallelCapacity            = 2
sTXSPEC.lBTB2SerialCapacity              = 26
sTXSPEC.bBTBValid                        = 1
sTXSPEC.flKDynMagnitudeMin               = 0.5
sTXSPEC.flKDynMagnitudeMax               = 1.5
sTXSPEC.flKDynMagnitudeClipLow           = 0.96
sTXSPEC.flKDynMagnitudeClipHigh          = 1.04
sTXSPEC.flKDynPhaseMax                   = 0.698132
sTXSPEC.flKDynPhaseClip                  = 0.174533
sTXSPEC.bKDynValid                       = 1
sTXSPEC.ucRFPulseType                    = 0x1
sTXSPEC.ucExcitMode                      = 0x1
sTXSPEC.ucSimultaneousExcitation         = 0x1
sRXSPEC.lGain                            = 1
sRXSPEC.bGainValid                       = 1
sRXSPEC.aFFT_SCALE[0].lRxChannel         = 1
sRXSPEC.aFFT_SCALE[0].flFactor           = 1.06857
sRXSPEC.aFFT_SCALE[0].bValid             = 1
sRXSPEC.aFFT_SCALE[1].lRxChannel         = 2
sRXSPEC.aFFT_SCALE[1].flFactor           = 1.07454
sRXSPEC.aFFT_SCALE[1].bValid             = 1
sRXSPEC.aFFT_SCALE[2].lRxChannel         = 3
sRXSPEC.aFFT_SCALE[2].flFactor           = 1.06622
sRXSPEC.aFFT_SCALE[2].bValid             = 1
sRXSPEC.aFFT_SCALE[3].lRxChannel         = 4
```

```
sRXSPEC.aFFT_SCALE[3].flFactor          = 1.06524
sRXSPEC.aFFT_SCALE[3].bValid            = 1
sRXSPEC.aFFT_SCALE[4].lRxChannel        = 5
sRXSPEC.aFFT_SCALE[4].flFactor          = 0.982692
sRXSPEC.aFFT_SCALE[4].bValid            = 1
sRXSPEC.aFFT_SCALE[5].lRxChannel        = 6
sRXSPEC.aFFT_SCALE[5].flFactor          = 0.988603
sRXSPEC.aFFT_SCALE[5].bValid            = 1
sRXSPEC.aFFT_SCALE[6].lRxChannel        = 7
sRXSPEC.aFFT_SCALE[6].flFactor          = 0.981538
sRXSPEC.aFFT_SCALE[6].bValid            = 1
sRXSPEC.aFFT_SCALE[7].lRxChannel        = 8
sRXSPEC.aFFT_SCALE[7].flFactor          = 1.00856
sRXSPEC.aFFT_SCALE[7].bValid            = 1
sRXSPEC.bVariCapVoltagesValid           = 1
sRXSPEC.alDwellTime[0]                  = 8500
sAdjFreSpec.ulMode                      = 0x1
sAdjFreSpec.ucAdjWithBC                 = 0x1
sAdjTraSpec.ucAdjWithBC                 = 0x1
sAdjShimSpec.ulMode                     = 0x1
sAdjShimSpec.ucAdjWithBC                = 0x1
sAdjWatSupSpec.ulMode                   = 0x1
sAdjWatSupSpec.ucAdjWithBC              = 0x1
alTR[0]                                 = 37000
lContrasts                              = 1
alTE[0]                                 = 4000
acFlowComp[0]                           = 1
lCombinedEchoes                         = 1
sSliceArray.asSlice[0].sPosition.dSag   = 35.31199581
sSliceArray.asSlice[0].sPosition.dCor   = -8.387765754
sSliceArray.asSlice[0].sPosition.dTra   = -23.13178296
sSliceArray.asSlice[0].sNormal.dSag     = 0.771051253
sSliceArray.asSlice[0].sNormal.dCor     = 0.5863890019
sSliceArray.asSlice[0].sNormal.dTra     = -0.2482496801
sSliceArray.asSlice[0].dThickness       = 6
sSliceArray.asSlice[0].dPhaseFOV        = 187.5
sSliceArray.asSlice[0].dReadoutFOV      = 250
sSliceArray.lSize                       = 1
sSliceArray.lSag                        = 1
sSliceArray.lConc                       = 1
sSliceArray.ucMode                      = 0x1
sSliceArray.sTSat.dThickness            = 40
sSliceArray.sTSat.dGap                  = 10
sGroupArray.asGroup[0].nSize            = 1
sGroupArray.asGroup[0].dDistFact        = 0.2
sGroupArray.anMember[1]                 = -1
sGroupArray.lSize                       = 1
sGroupArray.sPSat.dThickness            = 50
sGroupArray.sPSat.dGap                  = 10
sAutoAlign.dAAMatrix[0]                 = 1
sAutoAlign.dAAMatrix[5]                 = 1
sAutoAlign.dAAMatrix[10]                = 1
sAutoAlign.dAAMatrix[15]                = 1
sNavigatorPara.ucRespComp               = 0x4
sPrepPulses.ucFatSat                    = 0x4
sPrepPulses.ucWaterSat                  = 0x4
sPrepPulses.ucInversion                 = 0x4
sPrepPulses.ucSatRecovery               = 0x1
sPrepPulses.ucFatSatMode                = 0x2
sKSpace.lBaseResolution                 = 256
sKSpace.lPhaseEncodingLines             = 192
sKSpace.dPhaseResolution                = 1
sKSpace.lPartitions                     = 32
sKSpace.lImagesPerSlab                  = 32
sKSpace.dSliceResolution                = 1
sKSpace.ucPhasePartialFourier           = 0x10
sKSpace.ucSlicePartialFourier           = 0x10
sKSpace.ucAveragingMode                 = 0x2
sKSpace.ucMultiSliceMode                = 0x1
sKSpace.ucDimension                     = 0x2
sKSpace.ucAsymmetricEchoAllowed         = 0x1
sKSpace.unReordering                    = 0x1
sFastImaging.lEPIFactor                 = 1
sFastImaging.lTurboFactor               = 1
sFastImaging.lSegments                  = 3
sFastImaging.ulEnableRFSpoiling         = 0x1
sPhysioImaging.lSignal1                 = 2
sPhysioImaging.lMethod1                 = 2
sPhysioImaging.lSignal2                 = 1
sPhysioImaging.lMethod2                 = 1
sPhysioImaging.lPhases                  = 21
```

```
sPhysioImaging.lRetroGatedImages         = 16
sPhysioImaging.sPhysioECG.lScanWindow    = 805
sPhysioImaging.sPhysioECG.lTriggerPulses = 1
sPhysioImaging.sPhysioECG.lTriggerWindow = 5
sPhysioImaging.sPhysioECG.lArrhythmiaDetection = 1
sPhysioImaging.sPhysioECG.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioECG.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioPulse.lTriggerPulses = 1
sPhysioImaging.sPhysioPulse.lTriggerWindow = 5
sPhysioImaging.sPhysioPulse.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioPulse.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioExt.lTriggerPulses = 1
sPhysioImaging.sPhysioExt.lTriggerWindow = 5
sPhysioImaging.sPhysioExt.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioExt.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioResp.lRespGateThreshold = 20
sPhysioImaging.sPhysioResp.lRespGatePhase = 2
sPhysioImaging.sPhysioResp.dGatingRatio  = 0.3
sSpecPara.lPhaseCyclingType              = 1
sSpecPara.lPhaseEncodingType             = 1
sSpecPara.lRFExcitationBandwidth         = 1
sSpecPara.ucRemoveOversampling           = 0x1
sSpecPara.lDecouplingType                = 1
sSpecPara.lNOEType                       = 1
sSpecPara.lExcitationType                = 1
sSpecPara.lSpectralSuppression           = 1
sDiffusion.ulMode                        = 0x1
sAngio.sFlowArray.asElm[0].nVelocity     = 100
sAngio.sFlowArray.asElm[0].nDir          = 0x4
sAngio.sFlowArray.lSize                  = 1
sAngio.ucPCFlowMode                      = 0x2
sAngio.ucTOFInflow                       = 0x4
sAngio.ucRephasedImage                   = 0x1
sAngio.ucPhaseImage                      = 0x1
sEllipticalFilter.ucMode                 = 0x1
sPat.lAccelFactPE                        = 1
sPat.lAccelFact3D                        = 1
sPat.ucPATMode                           = 0x1
sPat.ucRefScanMode                       = 0x1
ucAutoMovie                              = 0x1
ucDisableChangeStoreImages               = 0x1
ucReconstructionMode                     = 0x1
ucPHAPSMode                              = 0x1
ucDixon                                  = 0x1
lAverages                                = 2
adFlipAngleDegree[0]                     = 30
lScanTimeSec                             = 103
lTotalScanTimeSec                        = 112
dRefSNR                                  = 165404.1473
dRefSNR_VOI                              = 165404.1473
tdefaultEVAProt                          = "%SiemensEvaDefProt%\Inline\Inline.evp"
tcurrentEVAProt                          = "%CURRENTEVAPROT%\EVA2A5.tmp"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tElement = "PP6"
sCOIL_SELECT_MEAS.asList[0].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[0].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tElement = "PP5"
sCOIL_SELECT_MEAS.asList[1].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[1].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tElement = "PP3"
sCOIL_SELECT_MEAS.asList[2].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[2].lRxChannelConnected = 2
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tElement = "PP4"
sCOIL_SELECT_MEAS.asList[3].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[3].lRxChannelConnected = 3
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tElement = "PP2"
sCOIL_SELECT_MEAS.asList[4].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[4].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tElement = "PP1"
sCOIL_SELECT_MEAS.asList[5].lElementSelected = 1
```

```
sCOIL_SELECT_MEAS.asList[5].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tElement = "PA6"
sCOIL_SELECT_MEAS.asList[6].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[6].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tElement = "PA5"
sCOIL_SELECT_MEAS.asList[7].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[7].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tElement = "PA3"
sCOIL_SELECT_MEAS.asList[8].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[8].lRxChannelConnected = 6
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tElement = "PA4"
sCOIL_SELECT_MEAS.asList[9].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[9].lRxChannelConnected = 7
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tElement = "PA2"
sCOIL_SELECT_MEAS.asList[10].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[10].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tElement = "PA1"
sCOIL_SELECT_MEAS.asList[11].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[11].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[0] = 0xff
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[1] = 0x76
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[2] = 0x78
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[3] = 0x87
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[4] = 0x67
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[0] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[1] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[2] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[3] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[4] = 0x2
sEFISPEC.bEFIDataValid                   = 1
### ASCCONV END ###
'
*/

/*
 * Table of equivalence:
 *
ulVersion                                = 0xbee332
<=>
27 - 'MrProtocolVersion' VM 1, VR IS, SyngoDT 6, NoOfItems 6, Data '12510002'
*/

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"

#include <map>

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

  gdcm::CSAHeader csa;
```

```
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  //const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

  if( ds.FindDataElement( t2 ) )
    {
    csa.LoadFromDataElement( ds.GetDataElement( t2 ) );
    //csa.Print( std::cout );
    }

  if( !csa.FindCSAElementByName( "MrProtocol" ) )
    {
    return 1;
    }
  const gdcm::CSAElement &csael = csa.GetCSAElementByName( "MrProtocol" );
  //std::cout « csael « std::endl;

  const gdcm::ByteValue *bv = csael.GetByteValue();
  if( !bv )
    {
    return 1;
    }
  std::string str(bv->GetPointer(), bv->GetLength());
  std::istringstream is(str);
  std::string s;
  typedef std::map< std::string, std::string > MyMapType;
  MyMapType mymap;
  while( std::getline(is, s ) )
    {
    std::string::size_type pos = s.find( '=' );
    if( pos != std::string::npos )
      {
      std::string sub1 = s.substr(0, pos);
      sub1.erase( sub1.find_last_not_of(' ') + 1);
      std::string sub2 = s.substr(pos+1); // skip the '=' char
      sub2.erase( 0, sub2.find_first_not_of(' '));
      //std::cout « sub1 « std::endl;
      mymap.insert( MyMapType::value_type(sub1, sub2) );
      }
    else
      {
      // ### ASCCONV BEGIN ###
      // ### ASCCONV END ###
      }
    }
  const char fourierstr[] = "sKSpace.ucSlicePartialFourier";
  const gdcm::CSAHeaderDict &csadict = gdcm::Global::GetInstance().GetDicts().GetCSAHeaderDict();
  const gdcm::CSAHeaderDictEntry &fourier = csadict.GetCSAHeaderDictEntry( fourierstr );
  std::cout « fourier « std::endl;
  MyMapType::const_iterator it = mymap.find ( fourierstr );
  if( it == mymap.end() ) return 1;
  //std::cout « it->second « std::endl;
  const std::string &partial_fourier = it->second;
  if( partial_fourier == "0x1" )
    {
    std::cout « "partial fourier is 4/8" « std::endl;
    }
  else if( partial_fourier == "0x2" )
    {
    std::cout « "partial fourier is 5/8" « std::endl;
    }
  else if( partial_fourier == "0x4" )
    {
    std::cout « "partial fourier is 6/8" « std::endl;
    }
  else if( partial_fourier == "0x8" )
    {
    std::cout « "partial fourier is 7/8" « std::endl;
    }
  else if( partial_fourier == "0x10" )
    {
    std::cout « "partial fourier is 8/8" « std::endl;
    }
  else
    {
    std::cerr « "Impossible: " « partial_fourier « std::endl;
    return 1;
    }
/*
This is the Flip Angle:
```

```
adFlipAngleDegree[0]                    = 30

One can find it also in the protocol:

...
      <ParamFunctor.""TlmapFunctor"">
      {
        <Class> ""TlmapFunctor@IceImagePostProcFunctors""

        <ParamBool.""EXECUTE"">  { }
        <ParamDouble.""Flip1_deg"">  { <Precision> 16  14.7378520000000000  }
...

*/
  // Below is an attempt to play with the CSAHeader dict:
#if 0
  const char gspec[] = "sGRADSPEC.flSensitivityX";
  it = mymap.find( gspec );
  if( it == mymap.end() ) return 1;
  const std::string &dummy = it->second;
  std::cout « dummy « std::endl;

  const gdcm::CSAHeaderDictEntry &csaentry = csadict.GetCSAHeaderDictEntry( gspec );
  std::cout « csaentry  « std::endl;
#endif


/*
    sSliceArray.ucMode -- should be in (1, 2, 4)
    enum SeriesMode
    {
      ASCENDING   = 0x01,
      DESCENDING  = 0x02,
      INTERLEAVED = 0x04
    };
*/
  const char sliceorderstr[] = "sSliceArray.ucMode";
  const gdcm::CSAHeaderDictEntry &sliceorder = csadict.GetCSAHeaderDictEntry( sliceorderstr );
  std::cout « sliceorder « std::endl;

  it = mymap.find ( sliceorderstr );
  if( it == mymap.end() ) return 1;
  const std::string &slice_order = it->second;
  if( slice_order == "0x1" )
    {
    std::cout « "slice_order: ASCENDING" « std::endl;
    }
  else if( slice_order == "0x2" )
    {
    std::cout « "slice_order: DESCENDING" « std::endl;
    }
  else if( slice_order == "0x4" )
    {
    std::cout « "slice_order: INTERLEAVED" « std::endl;
    }
  else
    {
    std::cerr « "Impossible: " « slice_order « std::endl;
    return 1;
    }

  gdcm::MrProtocol mrprot;
  if(  csa.GetMrProtocol(ds, mrprot) )
  {
    std::cout « mrprot « std::endl;
  }

  return 0;
}
```

12.84 PrintLUT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  const gdcm::Image &image = reader.GetImage();

  const gdcm::LookupTable & lut = image.GetLUT();
  lut.Print( std::cout );

  return 0;
}
```

12.85 PublicDict.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dummy example to show GDCM Dict(s) API (Part 6) + Collected Private Attributes:
 */

#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmCSAHeader.h"
#include "gdcmPrivateTag.h"

int main(int , char *[])
{
  const gdcm::Global& g = gdcm::Global::GetInstance(); // sum of all knowledge !
  const gdcm::Dicts &dicts = g.GetDicts();
```

```
  const gdcm::Dict &pub = dicts.GetPublicDict(); // Part 6

  //std::cout « pub « std::endl;

  // 3 different ways to access the same information

  // 1. From the public dict only:
  gdcm::Tag patient_name(0x10,0x10);
  const gdcm::DictEntry &entry1 = pub.GetDictEntry(patient_name);
  std::cout « entry1 « std::endl;

  // 2. From all dicts:
  const gdcm::DictEntry &entry2 = dicts.GetDictEntry(patient_name);
  std::cout « entry2 « std::endl;

  // 3. This solution is the most flexible solution as you can request using the same
  // API either a public tag or a private tag
  const char *strowner = nullptr;
  const gdcm::DictEntry &entry3 = dicts.GetDictEntry(patient_name,strowner);
  std::cout « entry3 « std::endl;

  // Private attributes:

  // try with a private tag now:
  const gdcm::PrivateTag &private_tag = gdcm::CSAHeader::GetCSAImageHeaderInfoTag();
  //std::cout « private_tag « std::endl;
  const gdcm::DictEntry &entry4 = dicts.GetDictEntry(private_tag,private_tag.GetOwner());
  std::cout « entry4 « std::endl;

  // Let's pretend that private lookup is on 0x10xx elements:
  gdcm::PrivateTag dummy = private_tag;
  dummy.SetElement( (uint16_t)(0x1000 + dummy.GetElement()) );
  const gdcm::DictEntry &entry5 = dicts.GetDictEntry(dummy,dummy.GetOwner());
  std::cout « entry5 « std::endl;


  return 0;
}
```

12.86 QIDO-RS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmJSON.h"

/*
 * Simple QIDO-RS round-trip to test implementation of gdcm::JSON
 * See Sup166 for details
 */
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::JSON json;
  json.PrettyPrintOn();
  std::stringstream ss;
  const gdcm::File & f = reader.GetFile();
```

```
  json.Code( f.GetDataSet(), ss);

  std::cout « ss.str() « std::endl;

  gdcm::Writer w;
  gdcm::File & ff = w.GetFile();
  ff.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  if( !json.Decode(ss, ff.GetDataSet() ) )
    {
    std::cerr « "Could not decode" « std::endl;
    return 1;
    }
  w.SetFileName( "/tmp/debug.dcm" );
  if( !w.Write() ) return 1;

  return 0;
}
```

12.87 ReadAndDumpDICOMDIR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing this example
 */
#include "gdcmReader.h"
#include "gdcmMediaStorage.h"

typedef std::set<gdcm::DataElement> DataElementSet;
typedef DataElementSet::const_iterator ConstIterator;

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];

  gdcm::Reader reader;
  reader.SetFileName( filename);
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  std::stringstream strm;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::FileMetaInformation &fmi = file.GetHeader();

  gdcm::MediaStorage ms;
  ms.SetFromFile(file);
  if( ms != gdcm::MediaStorage::MediaStorageDirectoryStorage )
    {
    std::cout « "This file is not a DICOMDIR" « std::endl;
    return 1;
    }

  if (fmi.FindDataElement( gdcm::Tag (0x0002, 0x0002)))
    {   strm.str("");
    fmi.GetDataElement( gdcm::Tag (0x0002, 0x0002) ).GetValue().Print(strm);
    }
  else
    {
```

```
  std::cerr « " Media Storage Sop Class UID not present" « std::endl;
  }

//TODO il faut trimer strm.str() avant la comparaison au cas ou...
if ("1.2.840.10008.1.3.10"!=strm.str())
  {
  std::cout « "This file is not a DICOMDIR" « std::endl;
  return 1;
  }

ConstIterator it = ds.GetDES().begin();

for( ; it != ds.GetDES().end(); ++it)
  {

  if (it->GetTag()==gdcm::Tag (0x0004, 0x1220))
    {

    const gdcm::DataElement &de = (*it);
    // ne pas utiliser GetSequenceOfItems pour extraire les items
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi =de.GetValueAsSQ();
    unsigned int itemused = 1;
    while (itemused<=sqi->GetNumberOfItems())

      {
      strm.str("");

      if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
        sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

      //TODO il faut trimer strm.str() avant la comparaison
      while((strm.str()=="PATIENT")||((strm.str()=="PATIENT ")))
        {
        std::cout « strm.str() « std::endl;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0010)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0010)).GetValue().Print(strm);
        std::cout « "PATIENT NAME : " « strm.str() « std::endl;


        //PATIENT ID
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0020)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0020)).GetValue().Print(strm);
        std::cout « "PATIENT ID : " « strm.str() « std::endl;

        /*ADD TAG TO READ HERE*/
        std::cout « "========================== "  « std::endl;
        itemused++;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

        //TODO il faut trimer strm.str() avant la comparaison
        while((strm.str()=="STUDY")||((strm.str()=="STUDY ")))
          {
          std::cout « "  " « strm.str() « std::endl;
          //UID
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000d)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000d)).GetValue().Print(strm);
          std::cout « "      STUDY UID : " « strm.str() « std::endl;

          //STUDY DATE
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0020)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0020)).GetValue().Print(strm);
          std::cout « "      STUDY DATE : " « strm.str() « std::endl;

          //STUDY DESCRIPTION
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x1030)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x1030)).GetValue().Print(strm);
          std::cout « "      STUDY DESCRIPTION : " « strm.str() « std::endl;

          /*ADD TAG TO READ HERE*/
          std::cout « "      " « "========================== "  « std::endl;

          itemused++;
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
```

```
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

          //TODO il faut trimer strm.str() avant la comparaison
          while((strm.str()=="SERIES")||((strm.str()=="SERIES ")))
            {
            std::cout « "      " « strm.str() « std::endl;
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000e)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000e)).GetValue().Print(strm);
            std::cout « "          SERIE UID" « strm.str() « std::endl;

            //SERIE MODALITY
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0060)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0060)).GetValue().Print(strm);
            std::cout « "          SERIE MODALITY" « strm.str() « std::endl;

            //SERIE DESCRIPTION
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x103e)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x103e)).GetValue().Print(strm);
            std::cout « "          SERIE DESCRIPTION" « strm.str() « std::endl;


            /*ADD TAG TO READ HERE*/

            std::cout « "          " « "========================== "  « std::endl;
            itemused++;
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);


            //TODO il faut trimer strm.str() avant la comparaison
            while ((strm.str()=="IMAGE")||((strm.str()=="IMAGE ")))
              // if(tmp=="IMAGE")
              {
              std::cout « "          " « strm.str() « std::endl;


              //UID
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1511)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1511)).GetValue().Print(strm);
              std::cout « "              IMAGE UID : " « strm.str() « std::endl;

              //PATH de l'image
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1500)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1500)).GetValue().Print(strm);
              std::cout « "              IMAGE PATH : " « strm.str() « std::endl;
              /*ADD TAG TO READ HERE*/



              if(itemused < sqi->GetNumberOfItems())
                {itemused++;
                }else{break;}

              strm.str("");

              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

              }
            }
          }
        }
      itemused++;
      }
    }
  }
  return 0;
}
```

12.88 ReadAndDumpDICOMDIR2.cxx

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2017 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing the original
 *    ReadAndDumpDICOMDIR.cxx example
 *   Mihail Isakov for contributing offset calculation code here:
 *    https://sourceforge.net/p/gdcm/mailman/gdcm-developers/?viewmonth=201707&viewday=15
 *   Tod Baudais for combining the above and cleaning up this example
 */

#include <string>
#include <unordered_map>
#include <iostream>
#include <memory>

#include "gdcmReader.h"
#include "gdcmAttribute.h"
#include "gdcmDirectory.h"

//==============================================================================
//==============================================================================

#define TAG_MEDIA_STORAGE_SOP_CLASS_UID 0x0002,0x0002
#define TAG_DIRECTORY_RECORD_SEQUENCE 0x0004,0x1220
#define TAG_DIRECTORY_RECORD_TYPE 0x0004,0x1430
#define TAG_PATIENTS_NAME 0x0010,0x0010
#define TAG_PATIENT_ID 0x0010,0x0020
#define TAG_STUDY_DATE 0x0008,0x0020
#define TAG_STUDY_DESCRIPTION 0x0008,0x1030
#define TAG_MODALITY 0x0008,0x0060
#define TAG_SERIES_DESCRIPTION 0x0008,0x103E
#define TAG_REFERENCED_FILE_ID 0x0004,0x1500
#define TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET 0x0004,0x1420
#define TAG_NEXT_DIRECTORY_RECORD_OFFSET 0x0004,0x1400

//==============================================================================
// Some handy utility functions
//==============================================================================

std::string left_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(ss.begin(), std::find_if(ss.begin(), ss.end(), std::not1(std::ptr_fun<int, int>(std::isspace))));
    return ss;
}

std::string right_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(std::find_if(ss.rbegin(), ss.rend(), std::not1(std::ptr_fun<int, int>(std::isspace))).base(),
      ss.end());
    return ss;
}

std::string trim(const std::string &s) {
    return left_trim(right_trim(s));
}

//==============================================================================
// This code could be put in a header file somewhere
//==============================================================================

class DICOMDIRReader {
    public:
                                DICOMDIRReader      (void) {}
                                DICOMDIRReader      (const DICOMDIRReader &rhs) = delete;
                                DICOMDIRReader      (DICOMDIRReader &&rhs) = delete;
        DICOMDIRReader &        operator =          (const DICOMDIRReader &rhs) = delete;
        DICOMDIRReader &        operator =          (DICOMDIRReader &&rhs) = delete;
```

```
    virtual                 ~DICOMDIRReader     (void) {}

public:
    struct Common {
        int64_t child_offset;
        int64_t sibling_offset;
    };

    struct Image: public Common {
        std::string path;
    };

    struct Series: public Common {
        std::string modality;
        std::string description;

        std::vector<std::shared_ptr<Image» children;
    };

    struct Study: public Common {
        std::string date;
        std::string description;

        std::vector<std::shared_ptr<Series» children;
    };

    struct Patient: public Common {
        std::string name;
        std::string id;

        std::vector<std::shared_ptr<Study» children;
    };

    struct Other: public Common {
    };

    const std::vector<std::shared_ptr<Patient»&    load        (const std::string &path);

    const std::vector<std::shared_ptr<Patient»&    patients    (void)  {   return _patients;   }

private:

    template <class T>
    std::string     get_string              (const T &ds, const gdcm::Tag &tag)
    {
        std::stringstream strm;
        if (ds.FindDataElement(tag)) {
            auto &de = ds.GetDataElement(tag);
            if (!de.IsEmpty() && !de.IsUndefinedLength())
                de.GetValue().Print(strm);
        }
        return trim(strm.str());
    }

    template <class P, class C, class O>
    void            reassemble_hierarchy    (P &parent_offsets, C &child_offsets, O &other_offsets)
    {
        for (auto &parent : parent_offsets) {
            int64_t sibling_offset;
            auto c = child_offsets[parent.second->child_offset];
            if (!c) {
                auto o = other_offsets[parent.second->child_offset];
                if (!o) {
                    continue;
                } else {
                    sibling_offset = o->sibling_offset;
                }
            } else {
                parent.second->children.push_back(c);
                sibling_offset = c->sibling_offset;
            }

            // Get all siblings
            while (sibling_offset) {
                c = child_offsets[sibling_offset];
                if (!c) {
                    auto o = other_offsets[sibling_offset];
                    if (!o) {
                        break;
                    } else {
                        sibling_offset = o->sibling_offset;
```

```
                        }
                    } else {
                        parent.second->children.push_back(c);
                        sibling_offset = c->sibling_offset;
                    }
                }
            }
        }

        std::vector<std::shared_ptr<Patient» _patients;
};

//==============================================================================
// This code could be put in an implementation file somewhere
//==============================================================================

const std::vector<std::shared_ptr<DICOMDIRReader::Patient»& DICOMDIRReader::load (const std::string &path)
{
    _patients.clear();

    //
    // Read the dataset from the DICOMDIR file
    //

    gdcm::Reader reader;
    reader.SetFileName(path.c_str());
    if(!reader.Read()) {
        throw std::runtime_error("Unable to read file");
    }

    // Retrieve information from file
    auto &file = reader.GetFile();
    auto &data_set = file.GetDataSet();
    auto &file_meta_information = file.GetHeader();

    // Retrieve and check the Media Storage class from file
    gdcm::MediaStorage media_storage;
    media_storage.SetFromFile(file);
    if(media_storage != gdcm::MediaStorage::MediaStorageDirectoryStorage) {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    auto media_storage_sop_class_uid = get_string(file_meta_information,
      gdcm::Tag(TAG_MEDIA_STORAGE_SOP_CLASS_UID));

    // Make sure we have a DICOMDIR file
    if (media_storage_sop_class_uid != "1.2.840.10008.1.3.10") {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    //
    // Offset to first item courtesy of Mihail Isakov
    //

    gdcm::VL first_item_offset = 0;
    auto it = data_set.Begin();
    for(; it != data_set.End() && it->GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE); ++it) {
        first_item_offset += it->GetLength<gdcm::ExplicitDataElement>();
    }
    // Tag (4 bytes)
    first_item_offset += it->GetTag().GetLength();
    // VR field
    first_item_offset += it->GetVR().GetLength();
    // VL field
    // For Explicit VR: adventitiously VL field length = VR field length,
    // for SQ 4 bytes:
    // http://dicom.nema.org/medical/dicom/current/output/html/part05.html#table_7.1-1
    first_item_offset += it->GetVR().GetLength();

    //
    // Iterate all data elements
    //

    // For each item in data set
    for(auto data_element : data_set.GetDES()) {

        // Only look at Directory sequence
        if (data_element.GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE))
            continue;

        auto item_sequence = data_element.GetValueAsSQ();
```

```
  auto num_items = item_sequence->GetNumberOfItems();

  //
  // Compute an offset table
  //

  // Start calculation of offset to each item courtesy of Mihail Isakov
  std::vector<int64_t> item_offsets(num_items+1);
  item_offsets[0] = file_meta_information.GetFullLength() + static_cast<int64_t>(first_item_offset);

  //
  // Extract out all of the items
  //

  std::unordered_map<int64_t, std::shared_ptr<Patient» patient_offsets;
  std::unordered_map<int64_t, std::shared_ptr<Study» study_offsets;
  std::unordered_map<int64_t, std::shared_ptr<Series» series_offsets;
  std::unordered_map<int64_t, std::shared_ptr<Image» image_offsets;
  std::unordered_map<int64_t, std::shared_ptr<Other» other_offsets;

  for (uint32_t item_index = 1; item_index <= num_items; ++item_index) {
      auto &item = item_sequence->GetItem(item_index);

      // Add offset for item to offset table
      item_offsets[item_index] = item_offsets[item_index-1] + item.GetLength<gdcm::ExplicitDataElement>();

      // Child offset
      gdcm::Attribute<TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET> child_offset;
      child_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET)));

      // Sibling offset
      gdcm::Attribute<TAG_NEXT_DIRECTORY_RECORD_OFFSET> sibling_offset;
      sibling_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_NEXT_DIRECTORY_RECORD_OFFSET)));

      // Record Type
      auto record_type = trim(get_string(item, gdcm::Tag (TAG_DIRECTORY_RECORD_TYPE)));

      // std::cout « "record_type " « record_type « " at " « item_offsets[item_index-1] « std::endl;
      // std::cout « " child_offset " « child_offset.GetValue() « std::endl;
      // std::cout « " sibling_offset " « sibling_offset.GetValue() « std::endl;

      // Extract patient information
      if (record_type == "PATIENT") {
          auto patient = std::make_shared<Patient>();
          patient->name = get_string(item, gdcm::Tag (TAG_PATIENTS_NAME));
          patient->id = get_string(item, gdcm::Tag (TAG_PATIENT_ID));

          patient->child_offset = child_offset.GetValue();
          patient->sibling_offset = sibling_offset.GetValue();
          patient_offsets[item_offsets[item_index-1]] = patient;

      // Extract study information
      } else if (record_type == "STUDY") {
          auto study = std::make_shared<Study>();
          study->date = get_string(item, gdcm::Tag (TAG_STUDY_DATE));
          study->description = get_string(item, gdcm::Tag (TAG_STUDY_DESCRIPTION));

          study->child_offset = child_offset.GetValue();
          study->sibling_offset = sibling_offset.GetValue();
          study_offsets[item_offsets[item_index-1]] = study;

      // Extract series information
      } else if (record_type == "SERIES") {
          auto series = std::make_shared<Series>();
          series->modality = get_string(item, gdcm::Tag (TAG_MODALITY));
          series->description = get_string(item, gdcm::Tag (TAG_SERIES_DESCRIPTION));

          series->child_offset = child_offset.GetValue();
          series->sibling_offset = sibling_offset.GetValue();
          series_offsets[item_offsets[item_index-1]] = series;

      // Extract image information
      } else if (record_type == "IMAGE") {
          auto image = std::make_shared<Image>();
          image->path = get_string(item, gdcm::Tag (TAG_REFERENCED_FILE_ID));

          image->child_offset = child_offset.GetValue();
          image->sibling_offset = sibling_offset.GetValue();
          image_offsets[item_offsets[item_index-1]] = image;
```

```
            } else {
                auto other = std::make_shared<Other>();

                other->child_offset = child_offset.GetValue();
                other->sibling_offset = sibling_offset.GetValue();
                other_offsets[item_offsets[item_index-1]] = other;
            }
        }

        // Check validity
        if (patient_offsets.size() == 0)
            throw std::runtime_error("Unable to find patient record");

        reassemble_hierarchy(series_offsets, image_offsets, other_offsets);
        reassemble_hierarchy(study_offsets, series_offsets, other_offsets);
        reassemble_hierarchy(patient_offsets, study_offsets, other_offsets);

        // Set the new root
        for (auto &patient : patient_offsets) {
            _patients.push_back(patient.second);
        }
    }

    return _patients;
}

//==============================================================================
// Quick test
//==============================================================================

int main(int argc, const char *argv[]) {
    DICOMDIRReader reader;

    try {
        if (argc != 2)
            throw std::runtime_error("Wrong number of arguments");

        auto &patients = reader.load(argv[1]);

        for (auto &patient : patients) {

            std::cout « "PATIENT" « std::endl;
            std::cout « "NAME: " « patient->name « std::endl;
            std::cout « "ID: " « patient->id « std::endl;

            int x = 0;
            for (auto &study : patient->children) {
                std::cout « "    STUDY" « std::endl;
                std::cout « "    DESCRIPTION: " « study->description « std::endl;
                std::cout « "    DATE: " « study->date « std::endl;

                for (auto &series : study->children) {
                    x+=1;
                    std::cout « "        SERIES " « x « std::endl;
                    std::cout « "        DESCRIPTION: " « series->description « std::endl;
                    std::cout « "        MODALITY: " « series->modality « std::endl;

                    for (auto &image : series->children) {
                        std::cout « "            IMAGE PATH: " « image->path « std::endl;
                    }
                }
            }
        }
    }
    catch (...) {
        // TODO handle this
        return EXIT_FAILURE;
    }

    return EXIT_SUCCESS;
}
```

12.89 ReadAndPrintAttributes.cxx

```
/*=============================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This small example will show how one can read and print
 * a DICOM Attribute using different technique (by tag or by name)
 */

#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmAttribute.h"
#include "gdcmStringFilter.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Global& g = gdcm::Global::GetInstance();
  const gdcm::Dicts &dicts = g.GetDicts();
  const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using namespace gdcm;

  // In this example we will show why using name to lookup attribute can be
  // dangerous.
  Tag tPatientName(0x0,0x0);
  //const DictEntry &de1 =
  pubdict.GetDictEntryByName("Patient Name", tPatientName);

  std::cout « "Found: " « tPatientName « std::endl;

  // Indeed the attribute could not be found. Since DICOM 2003, Patient Name
  // has become Patient's Name.

  Tag tPatientsName;
  //const DictEntry &de2 =
  pubdict.GetDictEntryByName("Patient's Name", tPatientsName);

  std::cout « "Found: " « tPatientsName « std::endl;

  // Let's try to read an arbitrary DICOM Attribute:
  Tag tDoseGridScaling;
  //const DictEntry &de3 =
  pubdict.GetDictEntryByName("Dose Grid Scaling", tDoseGridScaling);

  std::cout « "Found: " « tDoseGridScaling « std::endl;

  if( ds.FindDataElement( tDoseGridScaling ) )
    {
    gdcm::StringFilter sf;
```

```
    sf.SetFile(file);
    std::cout « "Attribute Value as String: " « sf.ToString( tDoseGridScaling ) « std::endl;

    // Let's check the name again:
    std::pair<std::string, std::string> pss
      = sf.ToStringPair( tDoseGridScaling );
    std::cout « "Attribute Name Checked: " « pss.first « std::endl;
    std::cout « "Attribute Value (string): " « pss.second « std::endl;

    //const DataElement &dgs = ds.GetDataElement( tDoseGridScaling );

    // Let's assume for a moment we knew the tag number:
    Attribute<0x3004,0x000e> at;
    assert( at.GetTag() == tDoseGridScaling );
    at.SetFromDataSet( ds );
    // For the sake of long term maintenance, we will not write
    // that this particular attribute is stored as a double. What if
    // a user made a mistake. It is much safer to rely on GDCM internal
    // mechanism to deduce the VR::DS type (represented as a ieee double)
    Attribute<0x3004,0x000e>::ArrayType v = at.GetValue();
    std::cout « "DoseGridScaling=" « v « std::endl;
    }

  return 0;
}
```

12.90 ReadExplicitLengthSQIVR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmByteValue.h"
#include "gdcmDataSet.h"
#include "gdcmImplicitDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmReader.h"
#include "gdcmSequenceOfItems.h"

using namespace gdcm;

int main(int argc, char *argv[])
{
  if ( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader r;
  r.SetFileName( filename );
  r.Read();


  //gdcm::PrivateTag pt(0xe1,0x42,"ELSCINT1");
  //gdcm::Tag pt(0x88,0x200);
  gdcm::Tag pt(0x8,0x1140);
  DataSet &ds = r.GetFile().GetDataSet();
  const DataElement &de = ds.GetDataElement( pt );

  std::cout « de « std::endl;
  const ByteValue *bv = de.GetByteValue();
  SmartPointer<SequenceOfItems> sqi = new SequenceOfItems;
  sqi->SetLength( bv->GetLength() );
  std::stringstream ss;
  ss.str( std::string( bv->GetPointer(), bv->GetLength() ) );
  sqi->Read<ImplicitDataElement,SwapperNoOp>( ss );

  std::cout « *sqi « std::endl;

  return 0;
}
```

12.91 ReadGEMSSDO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"

#include <iostream>
#include <string>

using namespace gdcm;

struct SDOElement
{
  typedef std::vector<std::string>::size_type SizeType;
  const char *GetData(SizeType index) const {
    return Data[index].c_str();
  }
  SizeType GetNumberOfData() const {
    return Data.size();
  }
  void SetData(SizeType index, const char *data) {
    Data[index] = data;
  }
  const char *GetDataFormat() const {
    return DataFormat.c_str();
  }
  void SetDataFormat(const char *dataformat, SizeType num) {
    DataFormat = dataformat;
    Data.resize( num );
  }
  void Print( std::ostream &os ) const {
    os « DataFormat « ":" « std::endl;
    std::vector<std::string>::const_iterator it = Data.begin();
    size_t s = 0;
    for( ; it != Data.end(); ++it )
      {
      os « "  (" « s++ « ") " « *it « std::endl;
      }
  }
private:
  std::string DataFormat;
  std::vector<std::string> Data;
};

class SDOHeader
{
public:
  typedef std::vector<SDOElement> SDOElements;
  typedef SDOElements::size_type SizeType;
  SizeType GetNumberOfSDOElements() const {
  return InternalSDODataSet.size();
  }
  void AddSDOElement(SDOElement const &sdoelement) {
  InternalSDODataSet.push_back( sdoelement );
  }
  const SDOElement &GetSDOElement(SizeType index) const {
  return InternalSDODataSet[index];
  }
  const SDOElement &GetSDOElementByName(const char *) const {
    return InternalSDODataSet[0];
  }
  void LoadFromAttributes(std::string const &s1, std::string const &s2)
    {
  std::string tok;
  std::string tok2;
  std::stringstream strstr(s1);
```

```
  std::stringstream strstr2(s2);

  SDOElement element;
  // Do format
  size_t count = 0;
  while ( std::getline ( strstr2, tok, '\\' ) )
    {
    //std::cout « tok « " ";
    std::getline ( strstr2, tok2, '\\' );
    //std::cout « tok2 « std::endl;
    count += atoi( tok2.c_str() );
    element.SetDataFormat( tok.c_str(), atoi( tok2.c_str() ) );
    for( size_t t = 0; t < element.GetNumberOfData(); ++t )
      {
      std::getline ( strstr, tok, '\\' );
      element.SetData(t, tok.c_str() );
      }
    AddSDOElement( element );
    }
  //while ( std::getline ( strstr, tok, '^' ) )
//  while ( std::getline ( strstr, tok, '\\' ) )
//    {
//    std::cout « tok « std::endl;
//    count++;
//    }
//  std::cout « "Count: " « count « std::endl;
//  count = 0;

//  std::cout « "Count: " « count « std::endl;

    }
  void Print( std::ostream &os ) const {
    SDOElements::const_iterator it = InternalSDODataSet.begin();
    for( ; it != InternalSDODataSet.end(); ++it )
      {
      it->Print ( os );
      }
  }
private:
  SDOElements InternalSDODataSet;
};

bool sdo_decode( DataElement const &stringdata, DataElement const &stringdataformat )
{
  const char *sd = stringdata.GetByteValue()->GetPointer();
  const size_t len_sd = stringdata.GetByteValue()->GetLength();

  std::string s1 = std::string( sd, len_sd );

  const char *sdf = stringdataformat.GetByteValue()->GetPointer();
  const size_t len_sdf = stringdataformat.GetByteValue()->GetLength();

  std::string s2 = std::string( sdf, len_sdf );

//  std::cout « s1 « std::endl;
//  std::cout « s2 « std::endl;

  SDOHeader header;
  header.LoadFromAttributes( s1, s2 );

  header.Print( std::cout );

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  File &file = reader.GetFile();
```

```
  DataSet &ds = file.GetDataSet();

  // StringData (0033,xx1F) 3 "GEMS_GENIE_1" List of SDO parameters stored as
  // list of strings
  const PrivateTag tstringdata(0x33,0x1f,"GEMS_GENIE_1");
  // StringDataFormat (0033,xx23) 3 "GEMS_GENIE_1" Format of string parameters;
  // contains information about name and number of strings in list
  const PrivateTag tstringdataformat(0x33,0x23,"GEMS_GENIE_1");

  if( !ds.FindDataElement( tstringdata ) ) return 1;
  const DataElement& stringdata = ds.GetDataElement( tstringdata );
  if( !ds.FindDataElement( tstringdataformat ) ) return 1;
  const DataElement& stringdataformat = ds.GetDataElement( tstringdataformat );

  sdo_decode( stringdata, stringdataformat );

  return 0;
}
```

12.92 ReadMultiTimesException.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// The intention of this sample program is to provoke bad_alloc exceptions in gdcm code

#include "gdcmImageReader.h"

int main(int argc, char* argv[])
{
  // We pre-allocate some memory (about 1Gb) to help the issue to show up earlier
  char *dummyBuffer = new char[1024*1024*1100]; (void)dummyBuffer;
  // Check the number of parameters given
  if (argc < 3)
    {
    std::cerr « "Usage: " « argv[0] « " Filename numberOfTries" « std::endl;
    return 1;
    }

  std::cout « "We are going to read the file: " « argv[1] « " " « argv[2] « " times" « std::endl;
  // We hold the pointers in an array to avoid the memory to be released
  // We read the input file n-times
  for (int i = 0; i < atoi(argv[2]); ++i)
    {
    gdcm::ImageReader reader;
    std::cout « "Reading try: " « i « std::endl;
    // Read files
    reader.SetFileName(argv[1]);
    try
      {
      reader.Read();
      gdcm::Image & img = reader.GetImage();
      unsigned long len = img.GetBufferLength();
      char *buffer = new char[ len ];
      img.GetBuffer( buffer ); // do NOT de-allocate buffer !
      }
    catch (std::bad_alloc &ba)
      {
      (void)ba;
      std::cerr « "BAD ALLOC Exception caught!" « std::endl;
      }
    catch (...)
      {
      std::cerr « "Exception caught!" « std::endl;
      }
    }

  return 0;
```

```
}
```

12.93 ReadUTF8QtDir.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * GDCM API expect a const char * as input for SetFileName
 * In order to use this API from Qt, here is a simple test that
 * shows how to do it in a portable manner:
 *
 * http://doc.qt.nokia.com/latest/qdir.html#navigation-and-directory-operations
 */

#include "gdcmReader.h"
#include "gdcmDirectory.h"

#include <QDir>
#include <QString>
#include <QCoreApplication>

#include <string>
#include <fstream>

#include <stdio.h> // fopen

static int TestBothFuncs(const char *info , const char *ba_str)
{
  int res = 0;
  FILE *f = fopen( ba_str, "r" );
  if( f )
    {
    std::cout « info « " fopen: " « ba_str « std::endl;
    fclose(f);
    ++res;
    }
  gdcm::Reader reader;
  std::ifstream is( ba_str, std::ios::binary );
  if( is.is_open() )
    {
    std::cout « info « " is_open: " « ba_str « std::endl;
    ++res;
    }
  reader.SetStream( is );
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetStream/CanRead:" « ba_str « std::endl;
    ++res;
    }
  is.close();
  reader.SetFileName( ba_str );
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetFileName/CanRead:" « ba_str « std::endl;
    ++res;
    }
  return 4 - res;
}

static int scanFolder(const char dirname[])
{
  int res = 0;
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname, true );
  const gdcm::Directory::FilenamesType &filenames = dir.GetFilenames();

  for( unsigned int i = 0; i < nfiles; ++i )
```

```
    {
    const char *ba_str = filenames[i].c_str();
    res += TestBothFuncs("GDCM",ba_str);
    }
  return res;
}

static int scanFolderQt(QDir const &dir, QStringList& files)
{
  int res = 0;
  QFileInfoList children = dir.entryInfoList(QDir::AllEntries|QDir::NoDotAndDotDot);
  for ( int i=0; i<children.count(); i++ ) {
    QFileInfo file = children.at(i);
    if ( file.isDir() == true ) {
      res += scanFolderQt(QDir(file.absoluteFilePath()), files);
      continue;
    }
    // Convert back from the internal representation to 8bits
    // toLocal8Bit() returns by copy. Need to store explicitly the QByteArray
    QByteArray str = file.absoluteFilePath().toLocal8Bit();
    const char *ba_str1 = str.constData();
    res += TestBothFuncs("QString", ba_str1);
    }
  return res;
}

int main(int argc, char *argv[])
{
  // very important:
  QCoreApplication qCoreApp( argc , argv );
  if( argc < 2 )
    {
    std::cerr « argv[0] « " dir " « std::endl;
    return 1;
    }

  int res = 0;
  const char *dirname = argv[1];
  res += scanFolder( dirname );

  QDir dir( QString::fromLocal8Bit(dirname) );
  QStringList files;
  res += scanFolderQt( dir, files);

  if( res )
    std::cerr « "Problem with UTF-8" « std::endl;
  else
    std::cerr « "Success with UTF-8" « std::endl;

  return res;
}
```

12.94 SimpleScanner.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Simple example to show how to use Scanner API.
 * It exposes the three different cases:
 *  - DICOM Attribute is present and has a value
 *  - DICOM Attribute is present and has no value
 *  - DICOM Attribute is not present at all
 * It also shows the purpose of the function 'IsKey' to detect whether or
 * not the file has been read by the gdcm::Scanner. Technically most of the time
 * if a file is not a 'Key' this is because it is not a DICOM file. You need to use
 * gdcm::System::FileExists to decide whether or not the file actually exist on the disk.
```

```
 *
 * It was tested on this particular image:
 * ./SimpleScanner gdcmData/012345.002.050.dcm
 */

#include "gdcmStrictScanner.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmFileNameEvent.h"

class MyFileWatcher : public gdcm::SimpleSubjectWatcher
{
public:
  MyFileWatcher(gdcm::Subject * s, const char *comment = ""):
    gdcm::SimpleSubjectWatcher(s,comment){}
  void ShowFileName(gdcm::Subject *, const gdcm::Event &evt) override
    {
    const gdcm::FileNameEvent &pe = dynamic_cast<const gdcm::FileNameEvent&>(evt);
    const char *fn = pe.GetFileName();
    std::cout « "FileName: " « fn « " FileSize: " « gdcm::System::FileSize( fn ) « std::endl;
    }
};

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char filename_invalid[] = "this is a file that may not exist on this disk.dcm";


  gdcm::SmartPointer<gdcm::StrictScanner> sp = new gdcm::StrictScanner;
  gdcm::StrictScanner &s = *sp;
  //gdcm::SimpleSubjectWatcher w(&s, "TestFileName" );
  MyFileWatcher w(&s, "TestFileName" );

  const gdcm::Tag tag_array[] = {
    gdcm::Tag(0x8,0x50),
    gdcm::Tag(0x8,0x51),
    gdcm::Tag(0x8,0x60),
    gdcm::Tag(0x8,0x80),
  };
  s.AddTag( tag_array[0] );
  s.AddTag( tag_array[1] );
  s.AddTag( tag_array[2] );
  s.AddTag( tag_array[3] );

  gdcm::Directory::FilenamesType filenames;
  filenames.push_back( filename );
  filenames.push_back( filename_invalid );

  if( !s.Scan( filenames ) )
    {
    return 1;
    }

  //s.Print( std::cout );


  for(gdcm::Directory::FilenamesType::const_iterator it = filenames.begin();
    it != filenames.end(); ++it )
    {
    if( s.IsKey( it->c_str() ) )
      {
      std::cout « "INFO:" « it->c_str() « " is a proper Key for the Scanner (this is a DICOM file)" « std::endl;
      }
    else
      {
      std::cout « "INFO:" « it->c_str() « " is not a proper Key for the Scanner (this is either not a DICOM file
      or file does not exist)" « std::endl;
      }
    }

  gdcm::StrictScanner::TagToValue const &ttv = s.GetMapping(filename);

  const gdcm::Tag *ptag = tag_array;
  for( ; ptag != tag_array + 3; ++ptag )
    {
    gdcm::StrictScanner::TagToValue::const_iterator it = ttv.find( *ptag );
    if( it != ttv.end() )
```

```
      {
      std::cout « *ptag « " was properly found in this file" « std::endl;
      // it contains a pair of value. the first one is the actual tag, so the following is always true:
      //  *ptag == it->first
      // The second part is the actual value (stored as RAW strings). You will have to reinterpret this string
      // if VR for *ptag is not VR::VRASCII !
      const char *value = it->second;
      if( *value )
        {
        std::cout « "  It has the value: " « value « std::endl;
        }
      else
        {
        std::cout « "  It has no value (empty)" « std::endl;
        }
      }
    else
      {
      std::cout « "Sorry " « *ptag « " could not be found in this file" « std::endl;
      }
    }

  return 0;
}
```

12.95 SortImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"


bool mysort(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  //gdcm::Attribute<0x0020,0x0013> at1; // Instance Number
  gdcm::Attribute<0x0018,0x1060> at1; // Trigger Time
  gdcm::Attribute<0x0020,0x0032> at11; // Image Position (Patient)
  at1.Set( ds1 );
  at11.Set( ds1 );
  //gdcm::Attribute<0x0020,0x0013> at2;
  gdcm::Attribute<0x0018,0x1060> at2;
  gdcm::Attribute<0x0020,0x0032> at22;
  at2.Set( ds2 );
  at22.Set( ds2 );
  if( at11 == at22 )
    {
    return at1 < at2;
    }
  return at11 < at22;
}

bool mysort_part1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0018,0x1060> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0018,0x1060> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort_part2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
```

```
{
  gdcm::Attribute<0x0020,0x0032> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

// technically all files are in the same Frame of Reference, so this function
// should be a no-op
bool mysort_dummy(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x0052> at1; // FrameOfReferenceUID
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0052> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

int main(int argc, char *argv[])
{
  if (argc < 2 ) return 1;
  const char *dirname = argv[1];
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname );

  dir.Print( std::cout );

  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort );
  sorter.Sort( dir.GetFilenames() );

  std::cout « "Sorter:" « std::endl;
  sorter.Print( std::cout );

  gdcm::Sorter sorter2;
  sorter2.SetSortFunction( mysort_part1 );
  sorter2.StableSort( dir.GetFilenames() );
  sorter2.SetSortFunction( mysort_part2 );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT
  sorter2.SetSortFunction( mysort_dummy );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT

  std::cout « "Sorter2:" « std::endl;
  sorter2.Print( std::cout );

  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( dir.GetFilenames() );

  //s.Print( std::cout );

  // Count how many different IPP there are:
  const gdcm::Scanner::ValuesType &values = s.GetValues();
  size_t nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;

  //std::cout « "nfiles=" « nfiles « std::endl;
  if( nfiles % nvalues != 0 )
    {
    std::cerr « "Impossible: this is a not a proper series" « std::endl;
    return 1;
    }
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;

  return 0;
}
```

12.96 StreamImageReaderTest.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmStreamImageReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmSystem.h"
#include "gdcmFilename.h"
#include "gdcmByteSwap.h"
#include "gdcmTrace.h"
#include "gdcmTesting.h"
#include "gdcmImageHelper.h"
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmMediaStorage.h"
#include "gdcmRAWCodec.h"
#include "gdcmJPEGLSCodec.h"
#include "gdcmUIDGenerator.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

bool StreamImageRead(gdcm::StreamImageWriter & theStreamWriter,
  const char* filename, const char* outfilename, int resolution)
{
  gdcm::StreamImageReader reader;

  reader.SetFileName( filename );

  if (!reader.ReadImageInformation())
    {
    std::cerr « "unable to read image information" « std::endl;
    return 1; //unable to read tags as expected.
    }
  //let's be tricky; each image will be read in portions, first the top half, then the bottom
  //that way, we can test how the stream handles fragmentation of the data
  //we could also loop this to get various different size combinations, but I'm not sure
  //that's useful, yet.
  std::vector<unsigned int> extent =
    gdcm::ImageHelper::GetDimensionsValue(reader.GetFile());
  // std::cout « extent[0];
  //at this point, these values aren't used, but may be in the future
  //unsigned short xmin = 0;
  //unsigned short xmax = extent[0];
  //unsigned short ymin = 0;
  //unsigned short ymax = extent[1];
  //unsigned short zmin = 0;
  //unsigned short zmax = extent[2];

  std::cout« "\n Row: "«extent[0] «"\n Col :"« extent[1]« "\n Resolution :"« extent[2] « std::endl;

  int a =1;
  for (int i=1; i<=(extent[2]-resolution);++i)
    a = a*2;

  reader.DefinePixelExtent(0, extent[0]/a, 0, extent[1]/a, resolution-1, resolution);

  unsigned long len = reader.DefineProperBufferLength();
  char* finalBuffer = new char[len];
  memset(finalBuffer, 0, sizeof(char)*len);

  if (reader.CanReadImage())
    {
    bool result = reader.Read(finalBuffer, len);
    if( !result )
      {
      std::cout « "res2 failure:" « filename « std::endl;
      delete [] finalBuffer;
      return 1;
      }
    else
      {
      std::cout« "Able to read";
      }
    }
```

```
  else
    {
    std::cerr« "Not able to put in buffer"« std::endl;
    }
/*
    //now, read in smaller buffer extents
    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);
    len = reader.DefineProperBufferLength();

    char* buffer = new char[len];
    bool res2 = reader.Read(buffer, len);
    if( !res2 ){
      std::cerr « "res2 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(finalBuffer, buffer, len);

    //now read the next half of the image
    ymin = ymax;
    ymax = extent[1];

    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);

    //std::cerr « "Success to read image from file: " « filename « std::endl;
    unsigned long len2 = reader.DefineProperBufferLength();

    char* buffer2 = new char[len2];
    bool res3 = reader.Read(buffer2, len2);
    if( !res3 ){
      std::cerr « "res3 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(&(finalBuffer[len]), buffer2, len2);

    delete [] buffer;
    delete [] buffer2;
*/

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0010> row = {extent[0]/a};//
   ds.Insert( row.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0011> col = {extent[1]/a};//
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {1};//
```

```
   ds.Insert( at1.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0102> at3 = {7};
   ds.Insert( at3.GetAsDataElement() );
    /*
   ds1.Remove( gdcm::Tag(0x0028,0x0008) );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds1.Insert( Number_Of_Frames.GetAsDataElement() );
*/
   theStreamWriter.SetFile(file);

   if (!theStreamWriter.WriteImageInformation())
     {
     std::cerr « "unable to write image information" « std::endl;
     return 1; //the CanWrite function should prevent getting here, else,
     //that's a test failure
     }
    std::vector<unsigned int> extent1 = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent1[0];
    unsigned short ymax = extent1[1];
    unsigned short theChunkSize = 1;
    unsigned short ychunk = extent1[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = 1;

    std::cout« "\n Row: "«extent1[0] «"\n Col :"« extent1[1]« "\n Resolution :"« extent1[2] « std::endl;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.

    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer1 = new char[len];
        memcpy(finalBuffer1, &(finalBuffer[prevLen]), len);
        std::cout « "\nable to write";

        if (!theStreamWriter.Write(finalBuffer1, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] finalBuffer1;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer1;
        prevLen += len;
      }
    }
   delete [] finalBuffer;
   std::cout « "all is set";

  return true;
}


int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm Resolution" « std::endl;
    return 1;
    }

  const char *filename = argv[1];
  const char *outfilename = argv[2];
```

```
  char *res = argv[3];

  int resolution = atoi(res);

  gdcm::StreamImageWriter theStreamWriter;

  std::ofstream of;
  of.open( outfilename, std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);

  // else
  // First of get rid of warning/debug message
  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  if(!StreamImageRead( theStreamWriter, filename, outfilename, resolution))
    return 1;

  uint16_t firstTag1 =  0xfffe;
  uint16_t secondTag1 = 0xe0dd;
  uint32_t thirdTag1 =  0x00000000;
  //uint16_t fourthTag1 = 0xffff;
  const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
  char* tmpBuffer2 = new char[theBufferSize1];
  memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
  //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
  assert( of && !of.eof() && of.good() );
  of.write(tmpBuffer2, theBufferSize1);
  of.flush();
  assert( of );

  return 0;
}
```

12.97 TemplateEmptyImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmFileStreamer.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmImageRegionReader.h"
#include "gdcmImageHelper.h"
#include "gdcmWriter.h"
#include "gdcmImageWriter.h"
#include "gdcmTagKeywords.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char * filename = argv[1];
  gdcm::ImageRegionReader irr;
  irr.SetFileName( filename );
  const bool b3 = irr.ReadInformation();
  std::cout « b3 « std::endl;
  gdcm::Image & img = irr.GetImage();
  std::cout « img « std::endl;
  //  const gdcm::Region & r = irr.GetRegion();
  //  std::cout « r « std::endl;
  gdcm::ImageWriter w;
  gdcm::File & file = w.GetFile();
  gdcm::DataSet & ds = file.GetDataSet();

  gdcm::UIDGenerator uid;
```

```
  namespace kwd = gdcm::Keywords;
  kwd::FrameOfReferenceUID frameref;
  frameref.SetValue( uid.Generate() );
  // ContentDate
  char date[22];
  const size_t datelen = 8;
  int res = gdcm::System::GetCurrentDateTime(date);
  (void)res;
  kwd::ContentDate contentdate;
  // Do not copy the whole cstring:
  contentdate.SetValue( gdcm::DAComp( date, datelen ) );
  ds.Insert( contentdate.GetAsDataElement() );
  // ContentTime
  const size_t timelen = 6 + 1 + 6; // time + milliseconds
  kwd::ContentTime contenttime;
  // Do not copy the whole cstring:
  contenttime.SetValue( gdcm::TMComp(date+datelen, timelen) );
  ds.Insert( contenttime.GetAsDataElement() );
  gdcm::MediaStorage ms0 = w.ComputeTargetMediaStorage();
  std::cout « ms0 « std::endl;
  kwd::SeriesNumber seriesnumber = { 1 };
  kwd::InstanceNumber instancenum = { 1 };
  kwd::StudyID studyid = { "St1" };
  kwd::PatientID patientid = { "P1" };
  kwd::SOPClassUID sopclassuid;
  kwd::PositionReferenceIndicator pri;
  //kwd::Laterality lat;
  //kwd::BodyPartExamined bodypartex = { "HEAD" };
  kwd::BodyPartExamined bodypartex = { "ANKLE" };
  kwd::PatientOrientation pator;
  kwd::BurnedInAnnotation bia = { "NO" };
  kwd::ConversionType convtype = { "SYN" };
  kwd::PresentationLUTShape plutshape = { "IDENTITY" }; // MONOCHROME2
  // gdcm will pick the Word in case Byte class is not compatible:
  gdcm::MediaStorage ms = gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage;
  sopclassuid.SetValue( ms.GetString() );
  ds.Insert( instancenum.GetAsDataElement() );
  ds.Insert( sopclassuid.GetAsDataElement() );
  ds.Insert( seriesnumber.GetAsDataElement() );
  ds.Insert( patientid.GetAsDataElement() );
  ds.Insert( studyid.GetAsDataElement() );
  ds.Insert( frameref.GetAsDataElement() );
  ds.Insert( pri.GetAsDataElement() );
  //ds.Insert( lat.GetAsDataElement() );
  ds.Insert( bodypartex.GetAsDataElement() );
  ds.Insert( pator.GetAsDataElement() );
  ds.Insert( bia.GetAsDataElement() );
  ds.Insert( convtype.GetAsDataElement() );
  ds.Insert( plutshape.GetAsDataElement() );
  //    gdcm::MediaStorage ms1 = w.ComputeTargetMediaStorage();
  //    std::cout « ms1 « std::endl;
  std::cout « ds « std::endl;
  gdcm::PixelFormat & pf = img.GetPixelFormat();
  pf.SetPixelRepresentation(0); // always overwrite
  img.SetSlope(1);
  img.SetIntercept(0);
  w.SetImage( img );
  w.SetFileName( "TemplateImage.dcm" );
  if( !w.Write() )
  {
    return 1;
  }

  return 0;
}
```

12.98 TraverseModules.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmDefs.h"
#include "gdcmGlobal.h"
#include "gdcmIODs.h"
#include "gdcmIOD.h"
#include "gdcmMacros.h"
#include "gdcmIODEntry.h"
#include "gdcmModules.h"
#include "gdcmModule.h"
#include "gdcmAnonymizer.h"
#include "gdcmDicts.h"

int main(int , char *[])
{
  using namespace gdcm;
  static Global &g = Global::GetInstance();

  if( !g.LoadResourcesFiles() )
    {
    return 1;
    }

  static const Defs &defs = g.GetDefs();
  static const Modules &modules = defs.GetModules();
  static const IODs &iods = defs.GetIODs();
  static const Macros &macros = defs.GetMacros();
  static const Dicts &dicts = g.GetDicts();

  std::vector<Tag> tags = gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  for( std::vector<Tag>::const_iterator tit = tags.begin(); tit != tags.end(); ++tit )
    {
    const Tag &tag = *tit;
    const DictEntry &dictentry = dicts.GetDictEntry(tag);
    std::cout « "Processing Attribute: " « tag « " " « dictentry « std::endl;

    IODs::IODMapTypeConstIterator it = iods.Begin();
    for( ; it != iods.End(); ++it )
      {
      const IODs::IODName &name = it->first;
      const IOD &iod = it->second;

      const size_t niods = iod.GetNumberOfIODs();
      // Iterate over each iod entry in order:
      for(unsigned int idx = 0; idx < niods; ++idx)
        {
        const IODEntry &iodentry = iod.GetIODEntry(idx);
        const char *ref = iodentry.GetRef();
        //Usage::UsageType ut = iodentry.GetUsageType();

        const Module &module = modules.GetModule( ref );
        if( module.FindModuleEntryInMacros(macros, tag ) )
          {
          const ModuleEntry &module_entry = module.GetModuleEntryInMacros(macros,tag);
          Type type = module_entry.GetType();
          std::cout « "IOD Name: " « name « std::endl;
          std::cout « "Type: " « type « std::endl;
          }
        }

      }
    }

  return 0;
}
```

12.99 VolumeSorter.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmIPPSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"
#include "gdcmTesting.h"


bool mysort1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000d> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000d> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000e> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000e> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort3(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // This is a floating point number is the comparison ok ?
  gdcm::Attribute<0x0020,0x0037> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0037> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort4(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // Do the IPP sorting here
  gdcm::Attribute<0x0020,0x0032> ipp1;
  gdcm::Attribute<0x0020,0x0037> iop1;
  ipp1.Set( ds1 );
  iop1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> ipp2;
  gdcm::Attribute<0x0020,0x0037> iop2;
  ipp2.Set( ds2 );
  iop2.Set( ds2 );
  if( iop1 != iop2 )
    {
    return false;
    }

  // else
  double normal[3];
  normal[0] = iop1[1]*iop1[5] - iop1[2]*iop1[4];
  normal[1] = iop1[2]*iop1[3] - iop1[0]*iop1[5];
  normal[2] = iop1[0]*iop1[4] - iop1[1]*iop1[3];
  double dist1 = 0;
  for (int i = 0; i < 3; ++i) dist1 += normal[i]*ipp1[i];
  double dist2 = 0;
  for (int i = 0; i < 3; ++i) dist2 += normal[i]*ipp2[i];

  std::cout « dist1 « "," « dist2 « std::endl;
  return dist1 < dist2;

}


int main(int argc, char *argv[])
```

```
{
  const char *extradataroot = gdcm::Testing::GetDataExtraRoot();
  std::string dir1;
  if( argc < 2 )
    {
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !
  const gdcm::Directory::FilenamesType &l1 = d.GetFilenames();
  const size_t nfiles = l1.size();
  std::cout « nfiles « std::endl;

  //if( nfiles != 280 )
  //  {
  //  return 1;
  //  }

  //d.Print( std::cout );

  gdcm::Scanner s0;
  const gdcm::Tag t1(0x0020,0x000d); // Study Instance UID
  const gdcm::Tag t2(0x0020,0x000e); // Series Instance UID
  //const gdcm::Tag t3(0x0010,0x0010); // Patient's Name
  s0.AddTag( t1 );
  s0.AddTag( t2 );
  //s0.AddTag( t3 );
  //s0.AddTag( t4 );
  //s0.AddTag( t5 );
  //s0.AddTag( t6 );
  bool b = s0.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr « "Scanner failed" « std::endl;
    return 1;
    }

  //s0.Print( std::cout );

  // Only get the DICOM files:
  gdcm::Directory::FilenamesType l2 = s0.GetKeys();
  const size_t nfiles2 = l2.size();
  std::cout « nfiles2 « std::endl;

  if ( nfiles2 > nfiles )
    {
    return 1;
    }


  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort1 );
  sorter.StableSort( l2 );

  sorter.SetSortFunction( mysort2 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort3 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort4 );
  sorter.StableSort( sorter.GetFilenames() );

  //sorter.Print( std::cout );

  // Let's try to check our result:
  // assume that IPP is precise enough so that we can test floating point equality:
  size_t nvalues = 0;
{
  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
```

```
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( d.GetFilenames() );

  //s.Print( std::cout );

  const gdcm::Scanner::ValuesType &values = s.GetValues();
  nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;
  assert( nfiles2 % nvalues == 0 );
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;
}

  gdcm::Directory::FilenamesType sorted_files = sorter.GetFilenames();

  // Which means we can take nvalues files at a time and execute gdcm::IPPSorter on it:
  gdcm::IPPSorter ippsorter;
  gdcm::Directory::FilenamesType sub( sorted_files.begin(), sorted_files.begin() + nvalues);
  std::cout « sub.size() « std::endl;
  std::cout « sub[0] « std::endl;
  std::cout « sub[nvalues-1] « std::endl;
  ippsorter.SetComputeZSpacing( false );
  if( !ippsorter.Sort( sub ) )
    {
    std::cerr « "Could not sort" « std::endl;
    return 1;
    }

  std::cout « "IPPSorter:" « std::endl;
  ippsorter.Print( std::cout );


  return 0;
}
```

12.100 csa2img.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * I do not know what the format is, just guessing from info found on the net:
 *
 * http://atonal.ucdavis.edu/matlab/fmri/spm5/spm_dicom_convert.m
 *
 * This example is an attempt at understanding the format used by SIEMENS
 * their "SIEMENS CSA NON-IMAGE" DICOM file (1.3.12.2.1107.5.9.1)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 */
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // gdcmDataExtra/gdcmNonImageData/exCSA_Non-Image_Storage.dcm
```

```
// PHANTOM.MR.CARDIO_COEUR_S_QUENCE_DE_REP_RAGE.9.257.2008.03.20.14.53.25.578125.43151705.IMA
const char *filename = argv[1];

gdcm::Reader reader; // Do not use ImageReader
reader.SetFileName( filename );
if( !reader.Read() )
  {
  std::cerr « "Failed to read: " « filename « std::endl;
  return 1;
  }

gdcm::CSAHeader csa;
const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
//std::cout « t1 « std::endl;
//const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

if( ds.FindDataElement( t1 ) )
  {
  csa.LoadFromDataElement( ds.GetDataElement( t1 ) );
  csa.Print( std::cout );
  }
int dims[2] = {};
if( csa.FindCSAElementByName( "Columns" ) )
  {
  const gdcm::CSAElement &csael = csa.GetCSAElementByName( "Columns" );
  std::cout « csael « std::endl;
  //const gdcm::ByteValue *bv = csael.GetByteValue();
  gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el;
  el.Set( csael.GetValue() );
  dims[0] = el.GetValue();
  std::cout « "Columns:" « el.GetValue() « std::endl;
  }

if( csa.FindCSAElementByName( "Rows" ) )
  {
  const gdcm::CSAElement &csael2 = csa.GetCSAElementByName( "Rows" );
  std::cout « csael2 « std::endl;
  gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
  el2.Set( csael2.GetValue() );
  dims[1] = el2.GetValue();
  std::cout « "Rows:" « el2.GetValue() « std::endl;
  }

double spacing[2] = { 1. , 1. };
bool spacingfound = false;
if( csa.FindCSAElementByName( "PixelSpacing" ) )
  {
  const gdcm::CSAElement &csael3 = csa.GetCSAElementByName( "PixelSpacing" );
  if( !csael3.IsEmpty() )
    {
    std::cout « csael3 « std::endl;
    gdcm::Element<gdcm::VR::DS, gdcm::VM::VM2> el3;
    el3.Set( csael3.GetValue() );
    spacing[0] = el3.GetValue(0);
    spacing[1] = el3.GetValue(1);
    std::cout « "PixelSpacing:" « el3.GetValue() « "," « el3.GetValue(1) « std::endl;
    spacingfound = true;
    }
  }

if( !spacingfound )
  {
  std::cerr « "Problem with PixelSpacing" « std::endl;
  //return 1;
  }
if( !dims[0] || !dims[1] )
  {
  std::cerr « "Problem with dims" « std::endl;
  return 1;
  }

gdcm::ImageWriter writer;

gdcm::Image &image = writer.GetImage();
image.SetNumberOfDimensions( 2 ); // good default
image.SetDimension(0, dims[0] );
image.SetDimension(1, dims[1] );
image.SetSpacing(0, spacing[0] );
image.SetSpacing(1, spacing[1] );
```

```
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::INT16; // bytepix = spm_type('int16','bits')/8;

  //unsigned long l = image.GetBufferLength();
  //const int p =  l / (dims[0] * dims[1]);

  //image.SetNumberOfDimensions( 3 );
  //image.SetDimension(2, p / pixeltype.GetPixelSize() );

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  //pixeltype.SetSamplesPerPixel(  );
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );
  //image.SetIntercept( inputimage.GetIntercept() );
  //image.SetSlope( inputimage.GetSlope() );

  //gdcm::DataElement pixeldata( gdcm::Tag(0x7fe1,0x1010) );
  //pixeldata.SetByteValue( &outbuf[0], outbuf.size() );
  gdcm::PrivateTag csanonimaget(0x7fe1,0x10,"SIEMENS CSA NON-IMAGE");
  const gdcm::DataElement &pixeldata = ds.GetDataElement( csanonimaget );
  image.SetDataElement( pixeldata );

  std::string outfilename = "outcsa.dcm";
  //writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
    }


  return 0;
}
```

12.101 iU22tomultisc.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * iU22 Raw Data extractor
 */
#include "gdcmReader.h"
#include "gdcmImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // IM_001
  const char *filename = argv[1];

  gdcm::Reader reader; // Do not use ImageReader
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

 // * The data is simply 8-bit unsigned in the obvious x/y/z order
 // * 200D,300B contains the data
 // * 200D,3001 contains the no. of voxels (416,412,256 in this case)
```

```
 // * 200D,3003 contains the voxel sizes (0.156184527398215 /
 // 0.1223749613981957 / 0.328479990704639 in this case)

  const gdcm::File &file = reader.GetFile();
  const gdcm::DataSet &ds = file.GetDataSet();
  const gdcm::PrivateTag trawdataus( 0x200d, 0x0b, "Philips US Imaging DD 033" );
  const gdcm::DataElement &rawdataus = ds.GetDataElement( trawdataus );

  const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x01, "Philips US Imaging DD 036" );
  const gdcm::DataElement &colsrowsframes = ds.GetDataElement( tcolsrowsframes );
  // const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x02, "Philips US Imaging DD 036" );
  // this is just a duplicate previous tag.
  const gdcm::PrivateTag tvoxelspacing( 0x200d, 0x03, "Philips US Imaging DD 036" );
  const gdcm::DataElement &voxelspacing = ds.GetDataElement( tvoxelspacing );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> dims; // Use DS to interpret value stored in LO
  dims.SetFromDataElement( colsrowsframes );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> spacing;
  spacing.SetFromDataElement( voxelspacing );

  gdcm::ImageWriter writer;

  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 3 ); // good default
  image.SetDimension(0, (unsigned int)dims[0] );
  image.SetDimension(1, (unsigned int)dims[1] );
  image.SetDimension(2, (unsigned int)dims[2] );
  image.SetSpacing(0, spacing[0] );
  image.SetSpacing(1, spacing[1] );
  image.SetSpacing(2, spacing[2] );
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::UINT8;

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );

  image.SetDataElement( rawdataus );

  std::string outfilename = "outiu22.dcm";

  gdcm::DataElement de( gdcm::Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::UltrasoundMultiFrameImageStorage );
//    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  writer.GetFile().GetDataSet().Replace( de );

  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
    }


  return 0;
}
```

12.102 pmsct_rgb1.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
```

```
 * This example shows how to rewrite a ELSCINT1/PMSCT_RGB1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Jean-Pierre Roux for providing the sample datasets
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

void delta_decode(const unsigned char *data_in, size_t data_size,
  std::vector<unsigned char> &new_stream, unsigned short pc, size_t w, size_t h)
{
  const size_t plane_size = h * w;
  const size_t outputlen = 3 * plane_size;
  new_stream.resize( outputlen );

  assert( data_size != outputlen );
  if( data_size == outputlen )
    {
    return;
    }
  typedef unsigned char byte;
  enum {
    COLORMODE  = 0x81,
    ESCMODE    = 0x82,
    REPEATMODE = 0x83
  };

  const byte* src = (const byte*)data_in;
  byte* dest = (byte*)new_stream.data();
  union { byte gray; byte rgb[3]; } pixel;
  pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
  // always start in grayscale mode
  bool graymode = true;
  size_t dx = 1;
  size_t dy = 3;
  // algorithm works with both planar configuration
  // It does produce surprising greenish background color for planar
  // configuration is 0, while the nested Icon SQ display a nice black
  // background
  if (pc)
    {
    dx = plane_size;
    dy = 1;
    }
  size_t ps = plane_size;

  // The following is highly unoptimized as we have nested if statement in a while loop
  // we need to switch from one algorithm to the other (RGB <-> GRAY)
  while (ps)
    {
    // next byte:
    byte b = *src++;
    assert( src < data_in + data_size );
    // mode selection:
    switch ( b )
      {
    case ESCMODE:
      // Used to treat a byte 81/82/83 as a normal byte
      if (graymode)
        {
        pixel.gray += *src++;
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        }
      else
```

```
        {
        pixel.rgb[0] += *src++;
        pixel.rgb[1] += *src++;
        pixel.rgb[2] += *src++;
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        }
      dest += dy;
      ps--;
      break;
    case REPEATMODE:
      // repeat mode (RLE)
      b = *src++;
      ps -= b;
      if (graymode)
        {
        while (b-- > 0)
          {
          dest[0*dx] = pixel.gray;
          dest[1*dx] = pixel.gray;
          dest[2*dx] = pixel.gray;
          dest += dy;
          }
        }
      else
        {
        while (b-- > 0)
          {
          dest[0*dx] = pixel.rgb[0];
          dest[1*dx] = pixel.rgb[1];
          dest[2*dx] = pixel.rgb[2];
          dest += dy;
          }
        }
      break;
    case COLORMODE:
      // We are switching from one mode to the other. The stream contains an intermixed
      // compression of RGB codec and GRAY codec. Each one not knowing of the other
      // reset old value to 0.
      if (graymode)
        {
        graymode = false;
        pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
        }
      else
        {
        graymode = true;
        pixel.gray = 0;
        }
      break;
    default:
      // This is identical to ESCMODE, it would be nicer to use fall-through
      if (graymode)
        {
        pixel.gray += b;
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        }
      else
        {
        pixel.rgb[0] += b;
        pixel.rgb[1] += *src++;
        pixel.rgb[2] += *src++;
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        }
      dest += dy;
      ps--;
      break;
      } // end switch
    } // end while
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
```

```
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RGB1]                                    # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
  if ( compressiontype.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = compressiontype.GetByteValue();
  std::string comprle = "PMSCT_RLE1";
  std::string comprgb = "PMSCT_RGB1";
  bool isrle = false;
  bool isrgb = false;
  if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
    isrle = true;
    return 1;
    }
  if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {
    isrgb = true;
    }
  if( !isrgb && !isrle ) return 1;

  const gdcm::PrivateTag tcompressedpixeldata(0x07a1,0x000a,"ELSCINT1");
  if( !ds.FindDataElement( tcompressedpixeldata) ) return 1;
  const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tcompressedpixeldata);
  if ( compressionpixeldata.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

  gdcm::Attribute<0x0028,0x0006> at0;
  at0.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0010> at1;
  at1.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0011> at2;
  at2.SetFromDataSet( ds );

  std::vector<unsigned char> buffer;
  delta_decode((const unsigned char*)bv2->GetPointer(), bv2->GetLength(), buffer,
    at0.GetValue(), at1.GetValue(), at2.GetValue() );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)buffer.size() );
  // TODO we should check that decompress byte buffer match the expected size (row*col*...)

  // Add the pixel data element
  reader.GetFile().GetDataSet().Replace( pixeldata );

  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );

  // Cleanup stuff:
  // remove the compressed pixel data:
  // FIXME: should I remove more private tags ? all of them ?
  // oh well this is just an example
  // use gdcm::Anonymizer::RemovePrivateTags if needed...
  writer.GetFile().GetDataSet().Remove( compressionpixeldata.GetTag() );
  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrgb.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

12.103 rle2img.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RLE1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Mauro Maiorca for bringing to our attention on this new ELSCINT1
 * compression algorithm : PMSCT_RLE1 (different from the 'LOSSLESS RICE')
 * See post at:
 * http://groups.google.com/group/comp.protocols.dicom/msg/f2b99bf706a7f8ca
 *
 * Thanks to Jesus Spinola, for more datasets,
 * http://www.itk.org/pipermail/insight-users/2008-April/025571.html
 *
 * And last but not least, a very big thank to Ivo van Poorten, without
 * whom we would still be looking at this compressed byte stream as if
 * it was RLE compressed.
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

/* FIXME: Why is PhilipsLosslessRice.dcm a 512x512 image ... */
void delta_decode(const char *inbuffer, size_t length, std::vector<unsigned short> &output)
{
  // RLE pass
  std::vector<char> temp;
  for(size_t i = 0; i < length; ++i)
    {
    if( inbuffer[i] == (char)0xa5 )
      {
      //unsigned char repeat = (unsigned char)inbuffer[i+1] + 1;
      //assert( (unsigned char)inbuffer[i+1] != 255 );
      int repeat = (unsigned char)inbuffer[i+1] + 1;
      char value = inbuffer[i+2];
      while(repeat)
        {
        temp.push_back( value );
        --repeat;
        }
      i+=2;
      }
    else
      {
      temp.push_back( inbuffer[i] );
      }
    }

  // Delta encoding pass
  unsigned short delta = 0;
  for(size_t i = 0; i < temp.size(); ++i)
    {
    if( temp[i] == 0x5a )
```

```
      {
      unsigned char v1 = (unsigned char)temp[i+1];
      unsigned char v2 = (unsigned char)temp[i+2];
      unsigned short value = (unsigned short)(v2 * 256 + v1);
      output.push_back( value );
      delta = value;
      i+=2;
      }
    else
      {
      unsigned short value = (unsigned short)(temp[i] + delta);
      output.push_back( value );
      delta = value;
      }
    //assert( output[output.size()-1] == ref[output.size()-1] );
    }

  if ( output.size() % 2 )
    {
    output.resize( output.size() - 1 );
    }
  std::cout « length « " -> " « output.size() * 2 « std::endl;
}

int main(int argc, char *argv [])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « "input.dcm [output.dcm]" « std::endl;
    std::cerr « "will default to 'outrle.dcm' unless output.dcm is specified."
      « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RLE1]                                    # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
  if ( compressiontype.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = compressiontype.GetByteValue();
  std::string comprle = "PMSCT_RLE1";
  std::string comprgb = "PMSCT_RGB1";
  bool isrle = false;
  bool isrgb = false;
  if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
    isrle = true;
    }
  if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {
    isrgb = true;
    std::cerr « "See: pmsct_rgb1.cxx instead" « std::endl;
    return 1;
    }
  if( !isrgb && !isrle ) return 1;

  // check if compressed pixel data reside in private or standard tag
  const gdcm::PrivateTag tprivatepixeldata(0x07a1,0x100a,"ELSCINT1");
  const gdcm::Tag tstandardpixeldata(0x7fe0, 0x0010);
  gdcm::Tag tpixeldata;
  if(ds.FindDataElement(tprivatepixeldata)) tpixeldata = tprivatepixeldata;
  else if(ds.FindDataElement(tstandardpixeldata)) tpixeldata = tstandardpixeldata;
  if(!ds.FindDataElement(tpixeldata)) return 1;

  const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tpixeldata);
  if ( compressionpixeldata.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

  gdcm::Attribute<0x0028,0x0010> at1;
  at1.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0011> at2;
```

```
  at2.SetFromDataSet( ds );

  gdcm::DataElement pixeldata;
  // if standard voxel data element does not exist, create it
  if( !reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
  {
    pixeldata = gdcm::DataElement( tpixeldata, 0, gdcm::VR::OW );
  }
  else{
    pixeldata = reader.GetFile().GetDataSet().GetDataElement( tpixeldata );
  }

  pixeldata.SetVR( gdcm::VR::OW );
  gdcm::VL bv2l = bv2->GetLength();
  gdcm::VL at1l = at1.GetValue() * at2.GetValue() * 2; /* sizeof(unsigned short) == 2 */
  // Handle special case that is not compressed:
  if( bv2l == at1l )
    {
    pixeldata.SetByteValue( bv2->GetPointer(), bv2->GetLength() );
    }
  else
    {
    std::vector<unsigned short> buffer;
    delta_decode(bv2->GetPointer(), bv2->GetLength(), buffer);
    pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)(buffer.size() * sizeof( unsigned short )) );
    }
  // TODO we should check that decompress byte buffer match the expected size (row*col*...)

  // Add the pixel data element
  if( reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
  {
    reader.GetFile().GetDataSet().Replace( pixeldata );
  }
  else
  {
    reader.GetFile().GetDataSet().ReplaceEmpty( pixeldata );
  }


  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );

  // Cleanup stuff:
  // This makes the code equivalent to Philips workstation IntelliSpace Portal
  if( writer.GetFile().GetDataSet().FindDataElement( tcompressiontype ) )
  {
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x1011) );
  }
  if( writer.GetFile().GetDataSet().FindDataElement( tprivatepixeldata ) )
  {
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x100a) );
  }

  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrle.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

12.104 uid_unique.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>
#include <set>

int main()
{
  gdcm::UIDGenerator uid;
  //const char myroot[] = "9876543210.9876543210.9876543210.9876543210.9876543210"; // fails in ~40000 tries
  const char myroot[] = "9876543210.9876543210.9876543210";
  uid.SetRoot( myroot );
  std::set<std::string> uids;
  uint64_t wrap = 0;
  uint64_t c = 0;
  while(true)
    {
    const char *unique = uid.Generate();
    //std::cout « unique « std::endl;
    if( c % 10000 == 0 )
      {
      std::cout « "wrap=" « wrap « ",c=" « c « std::endl;
      }
    ++c;
    if( c == 0 )
      {
      wrap++;
      }
    if ( uids.count(unique) == 1 )
      {
      std::cerr « "Failed with: " « unique « std::endl;
      return 1;
      }
    uids.insert( unique );
    }
}
```

12.105 DecompressImage.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressImage.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressImage gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressImage
{
```

```
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    change.SetInput( reader.GetImage() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    Image out = change.GetOutput();
    System.out.println( out.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( out );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

12.106 DecompressPixmap.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressPixmap.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressPixmap gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressPixmap
{
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    PixmapReader reader = new PixmapReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
```

```
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    PixmapToPixmapFilter filter = (PixmapToPixmapFilter)change;
    filter.SetInput( reader.GetPixmap() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    // The following does not work in Java/swig 2.0.7
    //Pixmap p = ((PixmapToPixmapFilter)change).GetOutput();
    Pixmap p = change.GetOutputAsPixmap();  // be explicit
    //System.out.println( p.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( p );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

12.107 ExtractImageRegion.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java ExtractImageRegion input.dcm
 */
import gdcm.*;
import java.io.FileOutputStream;

public class ExtractImageRegion
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];

    // instantiate the reader:
    ImageRegionReader reader = new ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return;
    // Get file infos
    File f = reader.GetFile();

    // get some info about image
```

```
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    long buffer_length = dims.get(0) * dims.get(1) * pixelsize;
    byte[] buffer = new byte[ (int)buffer_length ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (int z = 0; z < dims.get(2); z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims.get(0) - 1, 0, dims.get(1) - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // long buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, buffer_length))
        {
        FileOutputStream fos = new FileOutputStream("/tmp/frame.raw");
        fos.write(buffer);
        fos.close();
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    }
}
```

12.108 FileAnonymize.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

import gdcm.*;

public class FileAnonymize
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
      ProgressEvent pe = ProgressEvent.Cast(evt);
      System.out.println( "This is my progress: " + pe.GetProgress() );
      }
    }

  public static void main(String[] args) throws Exception
    {
    String input = args[0];
    String output = args[1];

    FileAnonymizer fa = new FileAnonymizer();
    fa.SetInputFileName( input );
    fa.SetOutputFileName( output );

    // Empty Operations
```

```
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.out.println( "Could not write" );
      return;
      }

    System.out.println( "success" );
    }
}
```

12.109 HelloSimple.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/HelloSimple.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java HelloSimple gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class HelloSimple
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    System.out.println( ds.toString() );

    System.out.println("Success reading: " + filename );
    }
}
```

12.110 ReadFiles.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import gdcm.*;
import java.io.File;

public class ReadFiles
{
  static int i = 0;
  public static void process(String path)
    {
    //String path = file.getPath();
    assert PosixEmulation.FileExists(path) : "Problem converting to 8bits";

    System.out.println("Reading: " + path );
    System.out.println("File: " + i++);
    Reader r = new Reader();
    try
      {
      r.SetFileName( path );
      TagSetType skip = new TagSetType();
      skip.insert( new Tag(0x7fe0,0x10) );
      boolean b = r.ReadUpToTag( new Tag(0x88,0x200), skip );
      //System.out.println("DS:\n" + r.GetFile().GetDataSet().toString() );
      }
    finally
      {
      r.delete(); // will properly call C++ destructor and close file descriptor
      }
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void waiting (int n)
    {
    long t0, t1;
    t0 =  System.currentTimeMillis();
    do
      {
      t1 = System.currentTimeMillis();
      }
    while ((t1 - t0) < (n * 1000));
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory gdir = new Directory();
    long n = gdir.Load( directory, true );
    System.out.println( gdir.toString() );
    FilenamesType files = gdir.GetFilenames();
    for( long i = 0; i < n; ++i )
      {
      String path = files.get( (int)i );
      process( path );
```

```
      }

    System.out.println( "Java API" );

    //waiting( 10 );
    for( int i = 0; i < 2; ++i )
      {
      File dir = new File(directory);
      visitAllFiles(dir);
      }
    }
}
```

12.111 ScanDirectory.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

import gdcm.*;
import gdcm.Reader;
import gdcm.LookupTable;
import java.io.File;
import java.io.*;
import java.awt.image.*;
import javax.imageio.ImageIO;

public class ScanDirectory
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
      ProgressEvent pe = ProgressEvent.Cast(evt);
      System.out.println( "This is my progress: " + pe.GetProgress() );
      }
    }

  public static byte[] GetAsByte(Bitmap input)
    {
    long len = input.GetBufferLength();
    byte[] buffer = new byte[ (int)len ];
    PhotometricInterpretation pi = input.GetPhotometricInterpretation();
    if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
      {
      ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
      icpi.SetInput( input );
      icpi.SetPhotometricInterpretation(
        new PhotometricInterpretation(
          PhotometricInterpretation.PIType.MONOCHROME2 ) );
      if( icpi.Change() )
        {
        Bitmap output = icpi.GetOutput();
        output.GetArray( buffer );
        }
      return buffer;
      }
    else
      {
      input.GetArray( buffer );
      return buffer;
      }
    }
  public static short[] GetAsShort(Bitmap input)
    {
    long len = input.GetBufferLength(); // length in bytes
```

```
  short[] buffer = new short[ (int)len / 2 ];
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
    ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
    icpi.SetInput( input );
    icpi.SetPhotometricInterpretation(
      new PhotometricInterpretation(
        PhotometricInterpretation.PIType.MONOCHROME2 ) );
    if( icpi.Change() )
      {
      Bitmap output = icpi.GetOutput();
      output.GetArray( buffer );
      }
    return buffer;
    }
  else
    {
    input.GetArray( buffer );
    return buffer;
    }
  }
public static boolean WritePNG(Bitmap input, String outfilename )
  {
  int imageType = BufferedImage.TYPE_CUSTOM;
  PixelFormat pf = input.GetPixelFormat();
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  // We need to handle both public and private icon
  // It could well be that we are getting an RGB Icon or 16 bits Icon:
  ColorModel colorModel = null;
  if( pf.GetSamplesPerPixel() == 1 )
    {
    if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1
       || pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME2 )
      {
      if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
        imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT12 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT16 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      }
    else if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
      {
      LookupTable lut = input.GetLUT();
      long rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
      byte[] rbuf = new byte[ (int)rl ];
      long rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
      assert rl == rl2;
      long gl = lut.GetLUTLength( LookupTable.LookupTableType.GREEN );
      byte[] gbuf = new byte[ (int)gl ];
      long gl2 = lut.GetLUT( LookupTable.LookupTableType.GREEN, gbuf );
      assert gl == gl2;
      long bl = lut.GetLUTLength( LookupTable.LookupTableType.BLUE );
      byte[] bbuf = new byte[ (int)bl ];
      long bl2 = lut.GetLUT( LookupTable.LookupTableType.BLUE, bbuf );
      assert bl == bl2;
      colorModel = new IndexColorModel(8, (int)rl, rbuf, gbuf, bbuf);
      // For code below
      imageType = BufferedImage.TYPE_BYTE_GRAY;
      }
    }
  else if( pf.GetSamplesPerPixel() == 3 )
    {
    if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
      {
      // FIXME should be TYPE_3BYTE_RGB
      imageType = BufferedImage.TYPE_3BYTE_BGR;
      }
    }
  //System.out.println( "pf: " + pf.toString() );
  //System.out.println( "pi: " + pi.toString() );
  long width  = input.GetDimension(0);
  long height = input.GetDimension(0);
  BufferedImage bi;
```

```
    if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
      {
      bi = new BufferedImage(colorModel,
        colorModel.createCompatibleWritableRaster((int)width, (int)height),
        false, null);
      }
    else
      {
      bi = new BufferedImage((int)width,(int)height,imageType);
      }
    WritableRaster wr = bi.getRaster();
    //System.out.println( "imagetype: " + imageType );
    if( imageType == BufferedImage.TYPE_BYTE_GRAY
      || imageType == BufferedImage.TYPE_3BYTE_BGR )
      {
      byte[] buffer = GetAsByte( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }
    else if( imageType == BufferedImage.TYPE_USHORT_GRAY )
      {
      short[] buffer = GetAsShort( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }

    File outputfile = new File( outfilename );
    try {
      ImageIO.write(bi, "png", outputfile);
    } catch (IOException e) {
      return false;
    }
    return true;
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory d = new Directory();
    long nfiles = d.Load( directory, true );
    if(nfiles == 0)
      {
      throw new Exception("No files found");
      }
//    System.out.println( "Files:\n" + d.toString() );
    FilenamesType fns = d.GetFilenames();

    //Scanner s = new Scanner();
    SmartPtrScan sscan = Scanner.New();
    Scanner s = sscan.__ref__();
    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(s, "MySimple");
    MyWatcher watcher = new MyWatcher(s);
    Tag[] tagarray = {
      new Tag(0x0010, 0x0010),    // PatientName
      new Tag(0x0010, 0x0020),    // PatientID
      new Tag(0x0010, 0x0030),    // PatientBirthDate
      new Tag(0x0010, 0x0040),    // PatientSex
      new Tag(0x0010, 0x1010),    // PatientAge
      new Tag(0x0020, 0x000d),    // StudyInstanceUID
      new Tag(0x0020, 0x0010),    // StudyID
      new Tag(0x0008, 0x0020),    // StudyDate
      new Tag(0x0008, 0x1030),    // StudyDescription
      new Tag(0x0020, 0x000e),    // SeriesInstanceUID
      new Tag(0x0020, 0x0011),    // SeriesNumber
      new Tag(0x0008, 0x0021),    // SeriesDate
      new Tag(0x0008, 0x103e),    // SeriesDescription
      new Tag(0x0008, 0x0090),    // ReferringPhysicianName
      new Tag(0x0008, 0x0060),    // Modality
      new Tag(0x0054, 0x0400),    // ImageID ?? Should be Instance number ??
      new Tag(0x0008, 0x0018),    // SOPInstanceUID
      new Tag(0x0008, 0x0032),    // AcquisitionTime
      new Tag(0x0008, 0x0033),    // ContentTime
      new Tag(0x0020, 0x0013),    // InstanceNumber
      new Tag(0x0020, 0x1041),    // SliceLocation
      new Tag(0x0018, 0x0050),    // SliceThickness ?? Eg. Enhanced MR Image Storage
      new Tag(0x0008, 0x0080),    // InstitutionName
      new Tag(0x0028, 0x1050),    // WindowCenter
      new Tag(0x0028, 0x1051),    // WindowWidth
    };
    for( Tag t : tagarray ) {
      //System.out.println( "Tag: " + t.toString() );
      s.AddTag( t );
```

```
    }
    boolean b = s.Scan( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
    String fn0 = fns.get(0);
    TagToValue mappings = s.GetMapping( fn0 );
    System.out.println( "mappings size: " + mappings.size() );
    for( Tag tag : tagarray ) {
      if( mappings.has_key( tag ) ) {
        String val = mappings.get( tag );
        System.out.println( "tag/val: " + tag + "->" + val );
      }
    }

    for( long idx = 0; idx < fns.size(); ++idx )
      {
      Reader r = new Reader();
      String fn = fns.get( (int)idx );
      String outfn = fn + ".png";
      r.SetFileName( fn );
      TagSetType tst = new TagSetType();
      tst.insert( new Tag(0x7fe0,0x10) );
      b = r.ReadUpToTag( new Tag(0x88,0x200), tst );
      UIntArrayType dims = ImageHelper.GetDimensionsValue( r.GetFile() );
      if( b )
        {
        IconImageFilter iif = new IconImageFilter();
        System.out.println( "Processing: " + fn );

        iif.SetFile( r.GetFile() );
        b = iif.Extract();
        if( b )
          {
          Bitmap icon = iif.GetIconImage(0);
          WritePNG(icon, outfn);
          }
        else
          {
          ImageReader ir = new ImageReader();
          ir.SetFileName( fn );
          if( ir.Read() )
            {
            Image img = ir.GetImage();
            StringFilter sf = new StringFilter();
            sf.SetFile( r.GetFile() );
            String strval = sf.ToString( new Tag(0x0028,0x0120) );
            IconImageGenerator iig = new IconImageGenerator();
            iig.SetPixmap( img );
            iig.AutoPixelMinMax( true );
            try {
              double val = Double.parseDouble( strval );
              iig.SetOutsideValuePixel( val );
            }
            catch ( NumberFormatException e) {
              }
            iig.ConvertRGBToPaletteColor( false );
            long idims[] = { 128, 128};
            iig.SetOutputDimensions( idims );
            iig.Generate();
            Bitmap icon = iig.GetIconImage();
            WritePNG(icon, outfn);
            }
          }
        }
      }

    System.out.println( "Scan:\n" + s.toString() );

    System.out.println( "success" );
    }
}
```

12.112 SimplePrint.java

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/SimplePrint.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java SimplePrint gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, String indent)
    {
    JavaDataSet cds = new JavaDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        long uvl = de.GetVL().GetValueLength(); // Test cast is ok
        System.out.println(  indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        long n = sq.GetNumberOfItems();
        for( long i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
      else
        {
        System.out.println( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );
    }
}
```

12.113 AddPrivateAttribute.py

```
00001
00014
00015 """
```

```
Usage:

  python AddPrivateAttribute.py input.dcm output.dcm


"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()

  # Create a dataelement
  de = gdcm.DataElement(gdcm.Tag(0x0051, 0x1011))
  de.SetByteStringValue("p2")
  de.SetVR(gdcm.VR(gdcm.VR.SH))

  ds.Insert(de)

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

12.114 ConvertMPL.py

```


"""
display a DICOM image with matPlotLib via numpy

Caveats:
- Does not support UINT12/INT12

Usage:

 python ConvertNumpy.py "IM000000"

Thanks:
  plotting example - Ray Schumacher 2009
"""

import gdcm
import numpy
from pylab import *


def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
                gdcm.PixelFormat.INT8   :numpy.uint8,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
```

```
    """
    pf = image.GetPixelFormat().GetScalarType()
    print 'pf', pf
    print image.GetPixelFormat().GetScalarTypeAsString()
    assert pf in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf
    d = image.GetDimension(0), image.GetDimension(1)
    print 'Image Size: %d x %d' % (d[0], d[1])
    dtype = get_numpy_array_type(pf)
    gdcm_array = image.GetBuffer()

    result = numpy.frombuffer(gdcm_array, dtype=dtype).astype(float)

    result.shape = d
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():  sys.exit(1)
  numpy_array = gdcm_to_numpy( r.GetImage() )

  subplot(111)# one plot, on left
  title(filename)

  imshow(numpy_array, interpolation='bilinear', cmap=cm.jet)

  subplots_adjust(bottom=0.1, right=0.8, top=0.9)
  cax = axes([0.85, 0.1, 0.075, 0.8])
  colorbar(cax=cax)
  title('values')
  get_current_fig_manager().window.title('plot')
  show()
```

12.115 ConvertNumpy.py

```


"""
This module add support for converting a gdcm.Image to a numpy array.

Caveats:
- Does not support UINT12/INT12

Removed:
- float16 is defined in GDCM API but no implementation exist for it ...
"""

import gdcm
import numpy

def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.uint8,
                gdcm.PixelFormat.INT8   :numpy.int8,
                #gdcm.PixelFormat.UINT12 :numpy.uint12,
                #gdcm.PixelFormat.INT12  :numpy.int12,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                #gdcm.PixelFormat.FLOAT16:numpy.float16,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
    """
    pf = image.GetPixelFormat()

```

```
    assert pf.GetScalarType() in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf

    shape = image.GetDimension(0) * image.GetDimension(1), pf.GetSamplesPerPixel()
    if image.GetNumberOfDimensions() == 3:
      shape = shape[0] * image.GetDimension(2), shape[1]

    dtype = get_numpy_array_type(pf.GetScalarType())
    gdcm_array = image.GetBuffer()
    result = numpy.frombuffer(gdcm_array, dtype=dtype)
    result.shape = shape
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():
    sys.exit(1)

  numpy_array = gdcm_to_numpy( r.GetImage() )
  print numpy_array
```

12.116 ConvertPIL.py

```

"""
save a DICOM image with PIL via numpy

Caveats:
- Does not support UINT12/INT12

Usage:

 python ConvertNumpy.py "IM000000"

Thanks:
  plotting example - Ray Schumacher 2009
"""

import gdcm
import numpy
from PIL import Image, ImageOps


def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
                gdcm.PixelFormat.INT8   :numpy.uint8,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
    """
    pf = image.GetPixelFormat().GetScalarType()
    print 'pf', pf
    print image.GetPixelFormat().GetScalarTypeAsString()
    assert pf in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf
    d = image.GetDimension(0), image.GetDimension(1)
    print 'Image Size: %d x %d' % (d[0], d[1])
    dtype = get_numpy_array_type(pf)
    gdcm_array = image.GetBuffer()
    result = numpy.frombuffer(gdcm_array, dtype=dtype)
    maxV = float(result[result.argmax()])
```

```

    result = numpy.log(result+50)
    maxV = float(result[result.argmax()])
    result = result*(2.**8/maxV)
    result.shape = d
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():  sys.exit(1)
  numpy_array = gdcm_to_numpy( r.GetImage() )

  pilImage = Image.frombuffer('L',
                            numpy_array.shape,
                            numpy_array.astype(numpy.uint8),
                            'raw','L',0,1)

  pilImage = ImageOps.autocontrast(pilImage, cutoff=.1)
  pilImage.save(sys.argv[1]+'.jpg')
```

12.117 CreateRAWStorage.py

```


"""
    <uid value="1.2.840.10008.5.1.4.1.1.66" name="Raw Data Storage" type="SOP Class" part="PS 3.4" retired="false"/>
"""

import gdcm
import sys,os

if __name__ == "__main__":
  r = gdcm.Reader()
  # Will require Testing...
  dataroot = gdcm.Testing.GetDataRoot()
  filename = os.path.join( dataroot, '012345.002.050.dcm' )
  r.SetFileName( filename )
  r.Read()
  f = r.GetFile()
  ds = f.GetDataSet()

  uid = "1.2.840.10008.5.1.4.1.1.66"
#  f = gdcm.File()
#  ds = f.GetDataSet()
  de = gdcm.DataElement( gdcm.Tag(0x0008,0x0016) )
  de.SetByteStringValue( uid )
  vr = gdcm.VR( gdcm.VR.UI )
  de.SetVR( vr )
  ds.Replace( de )

  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemovePrivateTags()
  ano.RemoveGroupLength()
  taglist = [
  gdcm.Tag(0x0008,0x0008),
  gdcm.Tag(0x0008,0x0022),
  gdcm.Tag(0x0008,0x0032),
  gdcm.Tag(0x0008,0x2111),
  gdcm.Tag(0x0008,0x1150),
  gdcm.Tag(0x0008,0x1155),
  gdcm.Tag(0x0008,0x0100),
  gdcm.Tag(0x0008,0x0102),
  gdcm.Tag(0x0008,0x0104),
  gdcm.Tag(0x0040,0xa170),
  gdcm.Tag(0x0008,0x2112),
  gdcm.Tag(0x0008,0x0100),
  gdcm.Tag(0x0008,0x0102),
  gdcm.Tag(0x0008,0x0104),
  gdcm.Tag(0x0008,0x9215),
  gdcm.Tag(0x0018,0x0010),
  gdcm.Tag(0x0018,0x0022),
  gdcm.Tag(0x0018,0x0050),
```

```
  gdcm.Tag(0x0018,0x0060),
  gdcm.Tag(0x0018,0x0088),
  gdcm.Tag(0x0018,0x0090),
  gdcm.Tag(0x0018,0x1040),
  gdcm.Tag(0x0018,0x1100),
  gdcm.Tag(0x0018,0x1110),
  gdcm.Tag(0x0018,0x1111),
  gdcm.Tag(0x0018,0x1120),
  gdcm.Tag(0x0018,0x1130),
  gdcm.Tag(0x0018,0x1150),
  gdcm.Tag(0x0018,0x1151),
  gdcm.Tag(0x0018,0x1152),
  gdcm.Tag(0x0018,0x1160),
  gdcm.Tag(0x0018,0x1190),
  gdcm.Tag(0x0018,0x1210),
  gdcm.Tag(0x0020,0x0012),
  gdcm.Tag(0x0020,0x0032),
  gdcm.Tag(0x0020,0x0037),
  gdcm.Tag(0x0020,0x1041),
  gdcm.Tag(0x0020,0x4000),
  gdcm.Tag(0x0028,0x0002),
  gdcm.Tag(0x0028,0x0004),
  gdcm.Tag(0x0028,0x0010),
  gdcm.Tag(0x0028,0x0011),
  gdcm.Tag(0x0028,0x0030),
  gdcm.Tag(0x0028,0x0100),
  gdcm.Tag(0x0028,0x0101),
  gdcm.Tag(0x0028,0x0102),
  gdcm.Tag(0x0028,0x0103),
  gdcm.Tag(0x0028,0x1052),
  gdcm.Tag(0x0028,0x1053),
  gdcm.Tag(0x0028,0x2110),
  gdcm.Tag(0x0028,0x2112),
  gdcm.Tag(0x7fe0,0x0010),
  gdcm.Tag(0x0018,0x0020),
  gdcm.Tag(0x0018,0x0021),
  gdcm.Tag(0x0018,0x0023),
  gdcm.Tag(0x0018,0x0025),
  gdcm.Tag(0x0018,0x0080),
  gdcm.Tag(0x0018,0x0081),
  gdcm.Tag(0x0018,0x0083),
  gdcm.Tag(0x0018,0x0084),
  gdcm.Tag(0x0018,0x0085),
  gdcm.Tag(0x0018,0x0086),
  gdcm.Tag(0x0018,0x0087),
  gdcm.Tag(0x0018,0x0091),
  gdcm.Tag(0x0018,0x0093),
  gdcm.Tag(0x0018,0x0094),
  gdcm.Tag(0x0018,0x0095),
  gdcm.Tag(0x0018,0x1088),
  gdcm.Tag(0x0018,0x1090),
  gdcm.Tag(0x0018,0x1094),
  gdcm.Tag(0x0018,0x1250),
  gdcm.Tag(0x0018,0x1251),
  gdcm.Tag(0x0018,0x1310),
  gdcm.Tag(0x0018,0x1312),
  gdcm.Tag(0x0018,0x1314),
  gdcm.Tag(0x0018,0x1315),
  gdcm.Tag(0x0018,0x1316),
  gdcm.Tag(0x0020,0x0110),
  gdcm.Tag(0x0028,0x0120),
  gdcm.Tag(0x0028,0x1050),
  gdcm.Tag(0x0028,0x1051)
  ]
  for tag in taglist:
    #print tag
    ano.Remove( tag )

  # special handling
  gen = gdcm.UIDGenerator()
  ano.Replace( gdcm.Tag(0x0008,0x9123), gen.Generate() )
  #ano.Empty( gdcm.Tag(0x0040,0x0555) )


#
#  uid = gen.Generate()
#  de.SetTag( gdcm.Tag(0x0008,0x0018) )
#  de.SetByteStringValue( uid )
#  ds.Insert( de )

  # init FMI now:
```

```
  #fmi = f.GetHeader()
  #ts = gdcm.TransferSyntax()
  #print ts
  #fmi.SetDataSetTransferSyntax( ts ) # default
  #print fmi.GetDataSetTransferSyntax()
  #de.SetTag( gdcm.Tag(0x0002,0x0010) )
  #uid = "1.2.840.10008.1.2"
  #de.SetByteStringValue( uid )
  #fmi.Insert( de )
#  f.SetHeader( r.GetFile().GetHeader() )

  writer = gdcm.Writer()
  writer.SetFile( ano.GetFile() )
  writer.SetFileName( "rawstorage.dcm" );
  writer.Write()
```

12.118 DecompressImage.py

```


"""
Usage:

 python DecompressImage.py gdcmData/012345.002.050.dcm decompress.dcm
"""

import gdcm
import sys

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.ImageReader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  # check GetFragment API:
  pd = r.GetFile().GetDataSet().GetDataElement(gdcm.Tag(0x7fe0, 0x0010))
  frags = pd.GetSequenceOfFragments();
  frags.GetFragment(0);

  ir = r.GetImage()
  w = gdcm.ImageWriter()
  image = w.GetImage()

  image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );
  dims = ir.GetDimensions();
  print ir.GetDimension(0);
  print ir.GetDimension(1);
  print "Dims:",dims

  #  Just for fun:
  dircos =  ir.GetDirectionCosines()
  t = gdcm.Orientation.GetType(tuple(dircos))
  l = gdcm.Orientation.GetLabel(t)
  print "Orientation label:",l

  image.SetDimension(0, ir.GetDimension(0) );
  image.SetDimension(1, ir.GetDimension(1) );

  pixeltype = ir.GetPixelFormat();
  image.SetPixelFormat( pixeltype );

  pi = ir.GetPhotometricInterpretation();
  image.SetPhotometricInterpretation( pi );

  pixeldata = gdcm.DataElement( gdcm.Tag(0x7fe0,0x0010) )
  str1 = ir.GetBuffer()
  #print ir.GetBufferLength()
  pixeldata.SetByteStringValue( str1 )
  image.SetDataElement( pixeldata )

  w.SetFileName( file2 )
  w.SetFile( r.GetFile() )
```

```
  w.SetImage( image )
  if not w.Write():
    sys.exit(1)
```

12.119 DumbAnonymizer.py

```

"""
This example shows how one can use the gdcm.Anonymizer in 'dumb' mode.
This class becomes really handy when one knows which particular tag to fill in.

Usage:

 python DumbAnonymizer.py gdcmData/012345.002.050.dcm out.dcm

"""

import gdcm

# http://www.oid-info.com/get/1.3.6.1.4.17434
THERALYS_ORG_ROOT = "1.3.6.1.4.17434"

tag_rules={
  # Value
  (0x0012,0x0010):("Value","MySponsorName"),
  (0x0012,0x0020):("Value","MyProtocolID"),
  (0x0012,0x0021):("Value","MyProtocolName"),
  (0x0012,0x0062):("Value","YES"),
  (0x0012,0x0063):("Value","MyDeidentificationMethod"),

  # Method
  #(0x0002,0x0003):("Method","GenerateMSOPId"),
  #(0x0008,0x1155):("Method","GenerateMSOPId"),
  (0x0008,0x0018):("Method","GenerateMSOPId"),
  (0x0010,0x0010):("Method","GetSponsorInitials"),
  (0x0010,0x0020):("Method","GetSponsorId"),
  (0x0012,0x0030):("Method","GetSiteId"),
  (0x0012,0x0031):("Method","GetSiteName"),
  (0x0012,0x0040):("Method","GetSponsorId"),
  (0x0012,0x0050):("Method","GetTPId"),
  (0x0018,0x0022):("Method","KeepIfExist"),
  (0x0018,0x1315):("Method","KeepIfExist"),
  (0x0020,0x000d):("Method","GenerateStudyId"),
  (0x0020,0x000e):("Method","GenerateSeriesId"),
  (0x0020,0x1002):("Method","GetNumberOfFrames"),
  (0x0020,0x0020):("Method","GetPatientOrientation"),
  # Other:
  (0x0012,0x0051):("Patient Field","Type Examen"),
  (0x0018,0x1250):("Sequence Field","Receive Coil"),
  (0x0018,0x0088):("Sequence Field","Spacing Between Slice"),
  (0x0018,0x0095):("Sequence Field","Pixel Bandwidth"),
  (0x0018,0x0082):("Sequence Field","Inversion Time"),
}

class MyAnon:
  def __init__(self):
    self.studyuid = None
    self.seriesuid = None
    generator = gdcm.UIDGenerator()
    if not self.studyuid:
      self.studyuid = generator.Generate()
    if not self.seriesuid:
      self.seriesuid = generator.Generate()
  def GetSponsorInitials(self):
    return "dummy^foobar"
  def GenerateStudyId(self):
    return self.studyuid
  def GenerateSeriesId(self):
    return self.seriesuid
  #def GenerateMSOPId(self):
  def GenerateMSOPId(self):
    generator = gdcm.UIDGenerator()
    return generator.Generate()
  def GetSiteId(self):
    return "MySiteId"
  def GetSiteName(self):
```

```
    return "MySiteName"
  def GetSponsorId(self):
    return "MySponsorId"
  def GetTPId(self):
    return "MyTP"

if __name__ == "__main__":
  import sys
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "DumbAnonymizer" )
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT )

  r = gdcm.Reader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read(): sys.exit(1)

  obj = MyAnon()

  w = gdcm.Writer()
  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemoveGroupLength()
  for tag,rule in tag_rules.items():
    if rule[0] == 'Value':
      print tag,rule
      ano.Replace( gdcm.Tag( tag[0], tag[1] ), rule[1] )
    elif rule[0] == 'Method':
      print tag,rule
      # result = locals()[rule[1]]()
      methodname = rule[1]
      if hasattr(obj, methodname):
        _member = getattr(obj, methodname)
        result = _member()
        ano.Replace( gdcm.Tag( tag[0], tag[1] ), result )
      else:
        print "Problem with: ", methodname

  outfilename = sys.argv[2]
  w.SetFileName( outfilename )
  w.SetFile( ano.GetFile() )
  if not w.Write(): sys.exit(1)
```

12.120 ExtractImageRegion.py

```

"""

 This small code shows how to use the gdcm.ImageRegionReader API
 In this example we are taking each frame by frame and dump them to
 /tmp/frame.raw.

 Usage:
 $ ExtractImageRegion.py input.dcm

 Example:
 $ ExtractImageRegion.py gdcmData/012345.002.050.dcm
 $ md5sum /tmp/frame.raw
 d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
 $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 [...]
 md5sum: d594a5e2fde12f32b6633ca859b4d4a6
"""

import gdcm

if __name__ == "__main__":
  import sys
  filename = sys.argv[1]

  file_size = gdcm.System.FileSize(filename);

  # instantiate the reader:
  reader = gdcm.ImageRegionReader();
  reader.SetFileName( filename );

  # pull DICOM info:
```

```
if not reader.ReadInformation():
  sys.exit(1)

# store current offset:
cur_pos = reader.GetStreamCurrentPosition();

remaining = file_size - cur_pos;

print("Remaining bytes to read (Pixel Data): %d" % remaining );

# Get file infos
f = reader.GetFile();

# get some info about image
dims = gdcm.ImageHelper.GetDimensionsValue(f);
print(dims)
pf = gdcm.ImageHelper.GetPixelFormatValue (f);
pixelsize = pf.GetPixelSize();
pi = gdcm.ImageHelper.GetPhotometricInterpretationValue(f);
print( pi );

# buffer to get the pixels
buffer = bytearray( dims[0] * dims[1] * pixelsize )

# define a simple box region.
box = gdcm.BoxRegion();
for z in range(0, dims[2]):
  # Define that I want the image 0, full size (dimx x dimy pixels)
  # and do that for each z:
  box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
  #print( box.toString() );
  reader.SetRegion( box );

  # reader will try to load the uncompressed image region into buffer.
  # the call returns an error when buffer.Length is too small. For instance
  # one can call:
  # uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
  # to get the exact size of minimum buffer
  if reader.ReadIntoBuffer(buffer):
    open('/tmp/frame.raw', 'wb').write(buffer)
  else:
    #throw new Exception("can't read pixels error");
    sys.exit(1)
```

12.121 FindAllPatientName.py

```

"""
This example shows how one can use the gdcm.CompositeNetworkFunctions class
for executing a C-FIND query
It will print the list of patient name found

Usage:

 python FindAllPatientName.py

"""

import gdcm

# Patient Name
tag = gdcm.Tag(0x10,0x10)
de = gdcm.DataElement(tag)

# Search all patient name where string match 'F*'
de.SetByteStringValue('F*')

ds = gdcm.DataSet()
ds.Insert(de)

cnf = gdcm.CompositeNetworkFunctions()
theQuery = cnf.ConstructQuery (gdcm.ePatientRootType,gdcm.ePatient,ds)

#print theQuery.ValidateQuery()

# prepare the variable for output
ret = gdcm.DataSetArrayType()
```

```

# Execute the C-FIND query
cnf.CFind('dicom.example.com',11112,theQuery,ret,'GDCM_PYTHON','ANY-SCP')

for i in range(0,ret.size()):
  print "Patient #",i
  print ret[i]
```

12.122 FixCommaBug.py

```


"""
Using LC_NUMERIC set to something not compatible with "C" it is possible to write out "," instead of
"." as required by the DICOM standard
Issue is still current (IMHO) with gdcm 2.0.9
"""

import gdcm
import sys

filename = sys.argv[1]
outname = sys.argv[2]

# read
r = gdcm.Reader()
r.SetFileName( filename )
if not r.Read():
  print "not valid"
  sys.exit(1)

file = r.GetFile()
dataset = file.GetDataSet()

ano = gdcm.Anonymizer()
ano.SetFile( file )

tags = [
gdcm.Tag(0x0018,0x1164),
gdcm.Tag(0x0018,0x0088),
gdcm.Tag(0x0018,0x0050),
gdcm.Tag(0x0028,0x0030),
]

for tag in tags:
  print tag
  if dataset.FindDataElement( tag ):
    pixelspacing = dataset.GetDataElement( tag )
    #print pixelspacing
    bv = pixelspacing.GetByteValue()
    str = bv.GetBuffer()
    #print bv.GetLength()
    #print len(str)
    new_str = str.replace(",",".")
    # Need to explicitly pass bv.GetLength() to remove any trailing garbage
    ano.Replace( tag, new_str, bv.GetLength() )

#print dataset

w = gdcm.Writer()
w.SetFile( file )
w.SetFileName( outname )
if not w.Write():
  print "Cannot write"
  sys.exit(1)

# paranoid:
image_reader = gdcm.ImageReader()
image_reader.SetFileName( outname )
if not image_reader.Read():
  print "there is still a comma"
  sys.exit(1)

print "Success!"
sys.exit(0) # success
```

12.123 GetPortionCSAHeader.py

```python

"""
Usage:

 python GetPortionCSAHeader.py input.dcm

Footnote:
  SIEMENS is not publishing any information on the CSA header. So any info extracted
  is at your own risk.
"""

import sys
import gdcm

if __name__ == "__main__":

  file = sys.argv[1]

  r = gdcm.Reader()
  r.SetFileName( file )
  if not r.Read():
    sys.exit(1)

  ds = r.GetFile().GetDataSet()
  csa_t1 = gdcm.CSAHeader()
  csa_t2 = gdcm.CSAHeader()
  #print csa
  t1 = csa_t1.GetCSAImageHeaderInfoTag();
  print t1
  t2 = csa_t2.GetCSASeriesHeaderInfoTag();
  print t2
  # Let's do it for t1:
  if ds.FindDataElement( t1 ):
    csa_t1.LoadFromDataElement( ds.GetDataElement( t1 ) )
    print csa_t1

  # Now let's pretend we are only interested in B_value and DiffusionGradientDirection entries:
  bvalues = csa_t1.GetCSAElementByName( "B_value" ) # WARNING: it is case sensitive !
  print bvalues

  diffgraddir = csa_t1.GetCSAElementByName( "DiffusionGradientDirection" ) # WARNING: it is case sensitive !
  print diffgraddir

  # repeat for t2 if you like it:
  if ds.FindDataElement( t2 ):
    csa_t2.LoadFromDataElement( ds.GetDataElement( t2 ) )
    # print csa_t2

  gdt = csa_t2.GetCSAElementByName( "GradientDelayTime" )
  print gdt

  bv = gdt.GetByteValue();
  #print bv
  str = bv.GetPointer()
  print str.split("\\")
```

12.124 HelloWorld.py

```python

"""
Hello World !
"""

import gdcm
import sys

if __name__ == "__main__":

  # verbosity:
  #gdcm.Trace.DebugOn()
  #gdcm.Trace.WarningOn()
  #gdcm.Trace.ErrorOn()
```

```

  # Get the filename from the command line
  filename = sys.argv[1]

  # Instantiate a gdcm.Reader
  # This is the main class to handle any type of DICOM object
  # You should check for gdcm.ImageReader for reading specifically DICOM Image file
  r = gdcm.Reader()
  r.SetFileName( filename )
  # If the reader fails to read the file, we should stop !
  if not r.Read():
    print "Not a valid DICOM file"
    sys.exit(1)

  # Get the DICOM File structure
  file = r.GetFile()

  # Get the DataSet part of the file
  dataset = file.GetDataSet()

  # Ok let's print it !
  print dataset

  # Use StringFilter to print a particular Tag:
  sf = gdcm.StringFilter()
  sf.SetFile(r.GetFile())

  # Check if Attribute exist
  print dataset.FindDataElement( gdcm.Tag(0x0028,0x0010))

  # Let's print it as string pair:
  print sf.ToStringPair(gdcm.Tag(0x0028,0x0010))
```

12.125 ManipulateFile.py

```

"""
Usage:

 python ManipulateFile.py input.dcm output.dcm

Footnote:
  GDCM 1.2.x would create incorrect Multiframes MR Image Storage file. Try to recover from
  the issues to recreate a MultiframeGrayscaleByteSecondaryCaptureImageStorage file.
  e.g:

  python ManipulateFile.py Insight/Testing/Temporary/itkGDCMImageIOTest5-j2k.dcm manipulated.dcm
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemovePrivateTags()
  ano.Remove( gdcm.Tag(0x0032,0x1030) )
  ano.Remove( gdcm.Tag(0x008,0x14) )
  ano.Remove( gdcm.Tag(0x008,0x1111) )
  ano.Remove( gdcm.Tag(0x008,0x1120) )
  ano.Remove( gdcm.Tag(0x008,0x1140) )
  ano.Remove( gdcm.Tag(0x10,0x21b0) )
  ano.Empty( gdcm.Tag(0x10,0x10) )
  ano.Empty( gdcm.Tag(0x10,0x20) )
  ano.Empty( gdcm.Tag(0x10,0x30) )
  ano.Empty( gdcm.Tag(0x20,0x10) )
  ano.Empty( gdcm.Tag(0x32,0x1032) )
```

```
  ano.Empty( gdcm.Tag(0x32,0x1033) )
  ano.Empty( gdcm.Tag(0x40,0x241) )
  ano.Empty( gdcm.Tag(0x40,0x254) )
  ano.Empty( gdcm.Tag(0x40,0x253) )
  ano.Empty( gdcm.Tag(0x40,0x1001) )
  ano.Empty( gdcm.Tag(0x8,0x80) )
  ano.Empty( gdcm.Tag(0x8,0x50) )
  ano.Empty( gdcm.Tag(0x8,0x1030) )
  ano.Empty( gdcm.Tag(0x8,0x103e) )
  ano.Empty( gdcm.Tag(0x18,0x1030) )
  ano.Empty( gdcm.Tag(0x38,0x300) )
  g = gdcm.UIDGenerator()
  ano.Replace( gdcm.Tag(0x0008,0x0018), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x00d), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x00e), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x052), g.Generate() )
  #ano.Replace( gdcm.Tag(0x0008,0x0016), "1.2.840.10008.5.1.4.1.1.7.2" )
  """
  ano.Remove( gdcm.Tag(0x0018,0x0020) ) # ScanningSequence
  ano.Remove( gdcm.Tag(0x0018,0x0021) ) # SequenceVariant
  ano.Remove( gdcm.Tag(0x0018,0x0022) ) # ScanOptions
  ano.Remove( gdcm.Tag(0x0018,0x0023) ) # MRAcquisitionType
  ano.Remove( gdcm.Tag(0x0018,0x0050) ) # SliceThickness
  ano.Remove( gdcm.Tag(0x0018,0x0080) ) # RepetitionTime
  ano.Remove( gdcm.Tag(0x0018,0x0081) ) # EchoTime
  ano.Remove( gdcm.Tag(0x0018,0x0088) ) # SpacingBetweenSlices
  ano.Remove( gdcm.Tag(0x0018,0x0091) ) # EchoTrainLength
  ano.Remove( gdcm.Tag(0x0018,0x1164) ) # ImagerPixelSpacing

  ano.Remove( gdcm.Tag(0x0020,0x0032) ) # Image Position (Patient)
  ano.Remove( gdcm.Tag(0x0020,0x0037) ) # Image Orientation (Patient)
  ano.Remove( gdcm.Tag(0x0020,0x0052) ) # Frame of Reference UID
  ano.Remove( gdcm.Tag(0x0020,0x1040) ) # Position Reference Indicator

  ano.Replace( gdcm.Tag(0x0028,0x0301), "NO" ) # Burned In Annotation

  ano.Empty( gdcm.Tag(0x0020,0x0020) )

  ano.Remove( gdcm.Tag(0x7fe0,0x0000) )

  #ano.Empty( gdcm.Tag(0x0028,0x0009) ) # Frame Increment Pointer

  #ano.Empty( gdcm.Tag(0x0028,0x1052) )  #<entry group="0028" element="1052" vr="DS" vm="1" name="Rescale Intercept"/>
  #ano.Empty( gdcm.Tag(0x0028,0x1053) )  #<entry group="0028" element="1053" vr="DS" vm="1" name="Rescale Slope"/>
  #ano.Replace( gdcm.Tag(0x0028,0x1054), "US" )  #<entry group="0028" element="1054" vr="LO" vm="1" name="Rescale Type"/>

  ano.Replace( gdcm.Tag(0x2050, 0x0020), "IDENTITY")
  """

  w = gdcm.Writer()
  w.SetFile( ano.GetFile() )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

12.126 ManipulateSequence.py

```


"""
Usage:

 python ManipulateSequence.py input.dcm output.dcm

This was tested using:

 python ManipulateSequence.py gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

This is a dummy example on how to modify a value set in a nested-nested dataset

WARNING:
Do not use as-is in production, this is just an example
This example works in an undefined length Item only (you need to explicitly recompute the length otherwise)
```

```
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()
  tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
  if ds.FindDataElement( tsis ):
    sis = ds.GetDataElement( tsis )
    #sqsis = sis.GetSequenceOfItems()
    # GetValueAsSQ handle more cases
    sqsis = sis.GetValueAsSQ()
    if sqsis.GetNumberOfItems():
      item1 = sqsis.GetItem(1)
      nestedds = item1.GetNestedDataSet()
      tprcs = gdcm.Tag(0x0040,0xa170) # PurposeOfReferenceCodeSequence
      if nestedds.FindDataElement( tprcs ):
        prcs = nestedds.GetDataElement( tprcs )
        sqprcs = prcs.GetSequenceOfItems()
        if sqprcs.GetNumberOfItems():
          item2 = sqprcs.GetItem(1)
          nestedds2 = item2.GetNestedDataSet()
          # (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
          tcm = gdcm.Tag(0x0008,0x0104)
          if nestedds2.FindDataElement( tcm ):
            cm = nestedds2.GetDataElement( tcm )
            mystr = "GDCM was here"
            cm.SetByteStringValue( mystr )

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

12.127 MergeFile.py

```

"""
Usage:

 python MergeFile.py input1.dcm input2.dcm

  It will produce a 'merge.dcm' output file, which contains all meta information from input1.dcm
  and copy the Stored Pixel values from input2.dcm
  This script even works when input2.dcm is a Secondary Capture and does not contains information
  such as IOP and IPP...
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r1 = gdcm.ImageReader()
  r1.SetFileName( file1 )
  if not r1.Read():
    sys.exit(1)

  r2 = gdcm.ImageReader()
  r2.SetFileName( file2 )
  if not r2.Read():
```

```
    sys.exit(1)

  # Image from r2 could be Secondary Capture and thus would not contains neither IPP nor IOP
  # Instead always prefer to only copy the Raw Data Element.
  # Warning ! Image need to be identical ! Only the value of Stored Pixel can be different.
  r1.GetImage().SetDataElement( r2.GetImage().GetDataElement() )

  w = gdcm.ImageWriter()
  w.SetFile( r1.GetFile() )
  #w.SetImage( r2.GetImage() )  # See comment above
  w.SetImage( r1.GetImage() )

  w.SetFileName( "merge.dcm" )
  if not w.Write():
    sys.exit(1)

  sys.exit(0)
```

12.128 NewSequence.py

```


"""
Usage:

  python NewSequence.py input.dcm output.dcm


Thanks to Robert Irie for code
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()
  #tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

  # Create a dataelement
  de = gdcm.DataElement(gdcm.Tag(0x0010, 0x2180))
  de.SetByteStringValue("Occupation")
  de.SetVR(gdcm.VR(gdcm.VR.SH))

  # Create an item
  it=gdcm.Item()
  it.SetVLToUndefined()      # Needed to not popup error message
  #it.InsertDataElement(de)
  nds=it.GetNestedDataSet()
  nds.Insert(de)

  # Create a Sequence
  sq=gdcm.SequenceOfItems().New()
  sq.SetLengthToUndefined()
  sq.AddItem(it)

  # Insert sequence into data set
  des=gdcm.DataElement(gdcm.Tag(0x0400,0x0550))
  des.SetVR(gdcm.VR(gdcm.VR.SQ))
  des.SetValue(sq.__ref__())
  des.SetVLToUndefined()

  ds.Insert(des)

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

12.129 PhilipsPrivateRescaleInterceptSlope.py

```

"""
Usage:

 python
"""

import gdcm
import sys

filename = sys.argv[1]
tmpfile = "/tmp/philips_rescaled.dcm"


# Need to access some private tags, read the file :
reader = gdcm.Reader()
reader.SetFileName( filename )
if not reader.Read():
  sys.exit(1)

ds = reader.GetFile().GetDataSet()

#print ds
# (2005,1409)     DS      4       0.0
# (2005,140a)     DS      16      1.52283272283272

# (2005,0014)     LO      26      Philips MR Imaging DD 005
tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
print tag1
print tag2

# make sure to do a copy, we want the private tag to remain
# otherwise gdcm gives us a reference
el1 = gdcm.DataElement( ds.GetDataElement( tag1 ) )
print el1
el2 = gdcm.DataElement( ds.GetDataElement( tag2 ) )
print el2

# (0028,1052) DS [-1000]                                    #   6, 1 RescaleIntercept
# (0028,1053) DS [1]                                        #   2, 1 RescaleSlope

el1.SetTag( gdcm.Tag(0x0028,0x1052) )
el2.SetTag( gdcm.Tag(0x0028,0x1053) )

ds.Insert( el1 )
ds.Insert( el2 )

w = gdcm.Writer()
w.SetCheckFileMetaInformation( False )
w.SetFileName( tmpfile )
w.SetFile( reader.GetFile() )
if not w.Write():
  sys.exit(1)

print "success"
```

12.130 PlaySound.py

```

"""
Usage:

 python PlaySound.py input.dcm
"""

import gdcm
import sys

#filename = "/home/mmalaterre/Creatis/gdcmDataExtra/gdcmNonImageData/audio_from_rafael_sanguinetti.dcm"
filename = sys.argv[1]
print filename

```

```
r = gdcm.Reader()
r.SetFileName( filename )
if not r.Read():
  sys.exit(1)

ds = r.GetFile().GetDataSet()

waveformtag = gdcm.Tag(0x5400,0x0100)
waveformsq = ds.GetDataElement( waveformtag )
#print waveformsq

#print dir(waveformsq)

items = waveformsq.GetSequenceOfItems()

if not items.GetNumberOfItems():
  sys.exit(1)

item = items.GetItem(1)
#print item

waveformds = item.GetNestedDataSet()
#print waveformds

waveformdatatag = gdcm.Tag(0x5400,0x1010)
waveformdata = waveformds.GetDataElement( waveformdatatag )

#print waveformdata.GetPointer()
bv = waveformdata.GetByteValue()
print dir(bv)

#print bv.GetPointer()
print bv.GetLength()
l = 116838

file='test.wav'
myfile = open(file, "wb")
s = bv.GetPointer()
for i in range(0, l):
  myfile.write(s[i])
myfile.close()

# http://mail.python.org/pipermail/python-list/2004-October/288905.html
if sys.platform.startswith('win'):
   from winsound import PlaySound, SND_FILENAME, SND_ASYNC
   PlaySound(file, SND_FILENAME|SND_ASYNC)
elif sys.platform.find('linux')>-1:
   from wave import open as waveOpen
   from ossaudiodev import open as ossOpen
   s = waveOpen(file,'rb')
   (nc,sw,fr,nf,comptype, compname) = s.getparams( )
   dsp = ossOpen('/dev/dsp','w')
   try:
     from ossaudiodev import AFMT_S16_NE
   except ImportError:
     if byteorder == "little":
       AFMT_S16_NE = ossaudiodev.AFMT_S16_LE
     else:
       AFMT_S16_NE = ossaudiodev.AFMT_S16_BE
   dsp.setparameters(AFMT_S16_NE, nc, fr)
   data = s.readframes(nf)
   s.close()
   dsp.write(data)
   dsp.close()
```

12.131 PrivateDict.py

```

"""
"""

import gdcm
import sys,os

if __name__ == "__main__":
  #gdcm.Trace.DebugOn()
```

```
  globInst = gdcm.Global.GetInstance()
  # Try to load Part3.xml file
  # This file is too big for being accessible directly at runtime.
  globInst.LoadResourcesFiles()


  # Get a private tag from the runtime dicts. LoadResourcesFiles could
  # have failed but this has no impact on the private dict

  d = globInst.GetDicts()
  print d.GetDictEntry( gdcm.Tag(0x0029,0x0010) ,"SIEMENS CSA HEADER" )
  pd = d.GetPrivateDict()
  print pd.GetDictEntry( gdcm.PrivateTag(0x0029,0x0010,"SIEMENS CSA HEADER") )
```

12.132 ReWriteSCAsMR.py

```


"""
GDCM 1.x would write out MR Image Storage as Secondary Capture Object while still setting Rescale Slope/Intercept
and saving the Pixel Spacing in (0028,0030)
"""

import gdcm
import sys,os

def CheckSecondaryCaptureObjectIsMRImageStorage(r):
  ds = r.GetFile().GetDataSet()
  # Check Source Image Sequence
  if ds.FindDataElement( gdcm.Tag(0x0008,0x2112) ):
    sis = ds.GetDataElement( gdcm.Tag(0x0008,0x2112) )
    sqsis = sis.GetSequenceOfItems()
    if sqsis.GetNumberOfItems():
      item1 = sqsis.GetItem(1)
      nestedds = item1.GetNestedDataSet()
      if nestedds.FindDataElement( gdcm.Tag(0x0008,0x1150) ):
        ReferencedSOPClassUID = nestedds.GetDataElement( gdcm.Tag(0x0008,0x1150) )
        raw = ReferencedSOPClassUID.GetByteValue().GetPointer()
        uids = gdcm.UIDs()
        # what is the actual object we are looking at ?
        ms = gdcm.MediaStorage()
        ms.SetFromDataSet(ds)
        msuid = ms.GetString()
        uids.SetFromUID( msuid )
        msuidname = uids.GetName() # real Media Storage Name
        uids.SetFromUID( raw )
        sqmsuidname = uids.GetName() # Source Image Sequence Media Storage Name
        # If object is SC and Source derivation is MRImageStorage then we can assume 'Pixel Spacing' is correct
        if( sqmsuidname == 'MR Image Storage' and msuidname == 'Secondary Capture Image Storage' ):
          return True
  # in all other case simply return the currentspacing:
  return False

if __name__ == "__main__":
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():
    sys.exit(1)
  f = r.GetFile()

  if( CheckSecondaryCaptureObjectIsMRImageStorage(r) ):
    # Special handling of the spacing:
    # GDCM 1.2.0 would not rewrite correctly DICOM Object and would always set them as 'Secondary Capture Image Storage'
    # while we would rather have 'MR Image Storage'
    gdcm.ImageHelper.SetForcePixelSpacing( True )
    mrspacing = gdcm.ImageHelper.GetSpacingValue( r.GetFile() )
    # TODO: I cannot do simply the following:
    #image.SetSpacing( mrspacing )
    image.SetSpacing(0, mrspacing[0] )
    image.SetSpacing(1, mrspacing[1] )
    image.SetSpacing(2, mrspacing[2] )
    gdcm.ImageHelper.SetForceRescaleInterceptSlope( True )
    ris = gdcm.ImageHelper.GetRescaleInterceptSlopeValue( r.GetFile() )
```

```
    image.SetIntercept( ris[0] )
    image.SetSlope( ris[1] )

  outfilename = sys.argv[2]
  w = gdcm.ImageWriter()
  w.SetFileName( outfilename )
  w.SetFile( r.GetFile() )
  w.SetImage( image )
  if not w.Write():
    sys.exit(1)

  sys.exit(0)
```

12.133 ReadAndDumpDICOMDIR.py

```
import sys
import gdcm

if __name__ == "__main__":
    # Check arguments
    if (len(sys.argv) < 2):
        # No filename passed
        print "No input filename found"
        quit()

    filename = sys.argv[1]


    # Read file
    reader = gdcm.Reader()
    reader.SetFileName(filename)
    if (not reader.Read()):
        print "Unable to read %s" % (filename)
        quit()

    file = reader.GetFile()

    # Retrieve header information
    fileMetaInformation = file.GetHeader()
    print fileMetaInformation

    # Retrieve data set
    dataSet = file.GetDataSet()
    #print dataSet

    # Check media storage
    mediaStorage = gdcm.MediaStorage()
    mediaStorage.SetFromFile(file)
    if (gdcm.MediaStorage.GetMSType(str(mediaStorage)) != gdcm.MediaStorage.MediaStorageDirectoryStorage):
        # File is not a DICOMDIR
        print "This file is not a DICOMDIR (Media storage type: %s)" % (str(mediaStorage))
        quit()

    # Check Media Storage SOP Class
    if (fileMetaInformation.FindDataElement(gdcm.Tag(0x0002, 0x0002))):
        sopClassUid = str(fileMetaInformation.GetDataElement(gdcm.Tag(0x0002, 0x0002)).GetValue())
        # Check SOP UID
        if (sopClassUid != "1.2.840.10008.1.3.10"):
            # File is not a DICOMDIR
            print "This file is not a DICOMDIR"
    else:
        # Not present
        print "Media Storage SOP Class not present"
        quit()

    # Iterate through the DICOMDIR data set
    iterator = dataSet.GetDES().begin()
    while (not iterator.equal(dataSet.GetDES().end())):
        dataElement = iterator.next()

        # Check the element tag
        if (dataElement.GetTag() == gdcm.Tag(0x004, 0x1220)):
            # The 'Directory Record Sequence' element
```

```
            sequence = dataElement.GetValueAsSQ()

            # Loop through the sequence items
            itemNr = 1
            while (itemNr < sequence.GetNumberOfItems()):
                item = sequence.GetItem(itemNr)

                # Check the element tag
                if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                    # The 'Directory Record Type' element
                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                    # PATIENT
                    while (value.strip() == "PATIENT"):
                        print value.strip()
                        # Print patient name
                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0010))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0010)).GetValue())
                            print value

                        # Print patient ID
                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0020))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0020)).GetValue())
                            print value

                        # Next
                        itemNr = itemNr + 1
                        item = sequence.GetItem(itemNr)
                        if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                        # STUDY
                        while (value.strip() == "STUDY"):
                            print value.strip()

                            # Print study UID
                            if (item.FindDataElement(gdcm.Tag(0x0020, 0x000d))):
                                value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000d)).GetValue())
                                print value

                            # Print study date
                            if (item.FindDataElement(gdcm.Tag(0x0008, 0x0020))):
                                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0020)).GetValue())
                                print value

                            # Print study description
                            if (item.FindDataElement(gdcm.Tag(0x0008, 0x1030))):
                                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x1030)).GetValue())
                                print value

                            # Next
                            itemNr = itemNr + 1
                            item = sequence.GetItem(itemNr)
                            if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                            # SERIES
                            while (value.strip() == "SERIES"):
                                print value.strip()

                                # Print series UID
                                if (item.FindDataElement(gdcm.Tag(0x0020, 0x000e))):
                                    value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000e)).GetValue())
                                    print value

                                # Print series modality
                                if (item.FindDataElement(gdcm.Tag(0x0008, 0x0060))):
                                    value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0060)).GetValue())
                                    print "Modality"
                                    print value

                                # Print series description
                                if (item.FindDataElement(gdcm.Tag(0x0008, 0x103e))):
                                    value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x103e)).GetValue())
                                    print "Description"
                                    print value

                                # Next
                                itemNr = itemNr + 1
                                item = sequence.GetItem(itemNr)
                                if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
```

```
                                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                                # IMAGE
                                while (value.strip() == "IMAGE"):
                                    print value.strip()

                                    # Print image UID
                                    if (item.FindDataElement(gdcm.Tag(0x0004, 0x1511))):
                                        value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1511)).GetValue())
                                        print value

                                    # Next
                                    if (itemNr < sequence.GetNumberOfItems()):
                                        itemNr = itemNr + 1
                                    else:
                                        break

                                    item = sequence.GetItem(itemNr)
                                    if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                                            value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                # Next
                itemNr = itemNr + 1
```

12.134 RemovePrivateTags.py

```

"""
Usage:

 python RemovePrivateTags.py input.dcm output.dcm
"""

import sys
import gdcm


if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  # Instantiate the reader.
  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  # Remove private tags
  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  if not ano.RemovePrivateTags():
    sys.exit(1)

  # Write DICOM file
  w = gdcm.Writer()
  w.SetFile( ano.GetFile() )
  #w.CheckFileMetaInformationOff() # Do not attempt to check meta header
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)

  # It is usually a good idea to exit the script with an error, as gdcm does not remove partial (incorrect) DICOM file
  # (application level)
```

12.135 ScanDirectory.py

```

```

```
import gdcm
import sys,os

class ProgressWatcher(gdcm.SimpleSubjectWatcher):
  def ShowProgress(self, sender, event):
    pe = gdcm.ProgressEvent.Cast(event)
    print pe.GetProgress()
  def EndFilter(self):
    print "Yay ! I am done"

if __name__ == "__main__":
  directory = sys.argv[1]

  # Define the set of tags we are interested in
  t1 = gdcm.Tag(0x8,0x8);
  t2 = gdcm.Tag(0x10,0x10);

  # Iterate over directory
  d = gdcm.Directory();
  nfiles = d.Load( directory );
  if(nfiles == 0): sys.exit(1);
  # System.Console.WriteLine( "Files:\n" + d.toString() );

  filenames = d.GetFilenames()

  #  Get rid of any Warning while parsing the DICOM files
  gdcm.Trace.WarningOff()

  # instantiate Scanner:
  sp = gdcm.Scanner.New();
  s = sp.__ref__()
  w = ProgressWatcher(s, 'Watcher')

  s.AddTag( t1 );
  s.AddTag( t2 );
  b = s.Scan( filenames );
  if(not b): sys.exit(1);

  print "success" ;
  #print s

  pttv = gdcm.PythonTagToValue( s.GetMapping( filenames[1] ) )
  pttv.Start()
  # iterate until the end:
  while( not pttv.IsAtEnd() ):
    # get current value for tag and associated value:
    # if tag was not found, then it was simply not added to the internal std::map
    # Warning value can be None
    tag = pttv.GetCurrentTag()
    value = pttv.GetCurrentValue()
    print tag,"->",value
    # increment iterator
    pttv.Next()

  sys.exit(0)
```

12.136 SortImage.py

```

"""
Usage:

 python SortImage.py dirname
"""

import gdcm
import sys

def PrintProgress(object, event):
  assert event == "ProgressEvent"
  print "Progress:", object.GetProgress()

def MySort(ds1, ds2):
  # compare ds1
  return False

```

```
if __name__ == "__main__":

  dirname = sys.argv[1]
  d = gdcm.Directory()
  d.Load( dirname )

  print d

  sorter = gdcm.Sorter()
  sorter.SetSortFunction( MySort )
  #sorter.AddObserver( "ProgressEvent", PrintProgress )
  sorter.Sort( d.GetFilenames() )

  print "Sorter:"
  print sorter
```

12.137 WriteBuffer.py

```


"""
Usage:

http://chuckhahm.com/Ischem/Zurich/XX_0134

(2005,1132) SQ (Sequence with undefined length #=8)     # u/l, 1 Unknown Tag & Data
  (fffe,e000) na (Item with undefined length #=9)         # u/l, 1 Item
    (2005,0011) LO [Philips MR Imaging DD 002]              #  26, 1 PrivateCreator
    (2005,1137) PN [PDF_CONTROL_GEN_PARS]                   #  20, 1 Unknown Tag & Data
    (2005,1138) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1139) PN [IEEE_PDF]                               #   8, 1 Unknown Tag & Data
    (2005,1140) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1141) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1143) SL 3103                                     #   4, 1 Unknown Tag & Data
    (2005,1144) OW 0566\0000\013b\0000\0a4a\0000\000e\0000\0a7a\0000\0195\0000\0008... # 3104, 1 Unknown Tag & Data
    (2005,1147) CS [Y]                                      #   2, 1 Unknown Tag & Data
  (fffe,e00d) na (ItemDelimitationItem)                   #   0, 0 ItemDelimitationItem
  (fffe,e000) na (Item with undefined length #=9)         # u/l, 1 Item
    (2005,0011) LO [Philips MR Imaging DD 002]              #  26, 1 PrivateCreator
    (2005,1137) PN [PDF_CONTROL_PREP_PARS]                  #  22, 1 Unknown Tag & Data
    (2005,1138) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1139) PN [IEEE_PDF]                               #   8, 1 Unknown Tag & Data
    (2005,1140) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1141) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1143) SL 7934                                     #   4, 1 Unknown Tag & Data
    (2005,1144) OW 19b6\0000\005f\0000\1b2a\0000\00f3\0000\1eee\0000\0000\0000\0008... # 7934, 1 Unknown Tag & Data
    (2005,1147) CS [Y]                                      #   2, 1 Unknown Tag & Data
  (fffe,e00d) na (ItemDelimitationItem)                   #   0, 0 ItemDelimitationItem
...
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  fg = gdcm.FilenameGenerator()
  f = r.GetFile()
  ds = f.GetDataSet()
  tsis = gdcm.Tag(0x2005,0x1132) #
  if ds.FindDataElement( tsis ):
    sis = ds.GetDataElement( tsis )
    #sqsis = sis.GetSequenceOfItems()
    # GetValueAsSQ handle more cases
    sqsis = sis.GetValueAsSQ()
    if sqsis.GetNumberOfItems():
      nitems = sqsis.GetNumberOfItems();
```

```
      fg.SetNumberOfFilenames( nitems )
      fg.SetPrefix( file2 )
      if not fg.Generate():
        print "problem"
        sys.exit(1)
      for i in range(0,nitems):
        item1 = sqsis.GetItem(i+1) # Item start at 1
        nestedds = item1.GetNestedDataSet()
        tprcs = gdcm.Tag(0x2005,0x1144) #
        if nestedds.FindDataElement( tprcs ):
          prcs = nestedds.GetDataElement( tprcs )
          bv = prcs.GetByteValue()
          print bv
          f = open( fg.GetFilename(i) , "w" )
          f.write( bv.WriteBuffer() )
```

12.138 HelloActiviz.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;
using Kitware.VTK;
using System;
using System.Runtime.InteropServices;

/*
 * This example shows how vtkgdcm can be connected to Kitware.VTK Activiz product.
 * Three (3) arguments are required:
 * 1. Input DICOM file                      (SWIG)
 * 2. Temporary PNG (intermediate) file     (Activiz)
 * 3. Final DICOM file                      (SWIG)
 *
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz.exe ~/Creatis/gdcmData/test.acr out.png toto.dcm
 *
 * Footnote:
 * this test originally used vtkBMPWriter / vtkBMPReader combination to store intermediate
 * image file, but BMP file are 24bits by default. Instead use PNG format which supports seems
 * to be closer to what was expected in this simple test.
 */
public class HelloActiviz
{
  // Does not work with ActiViz.NET-5.4.0.455-Linux-x86_64-Personal
/*
  static void ConnectSWIGToActiviz(Kitware.VTK.vtkImageExport imgin, Kitware.VTK.vtkImageImport imgout)
    {
    imgout.SetUpdateInformationCallback(imgin.GetUpdateInformationCallback());
    imgout.SetPipelineModifiedCallback(imgin.GetPipelineModifiedCallback());
    imgout.SetWholeExtentCallback(imgin.GetWholeExtentCallback());
    imgout.SetSpacingCallback(imgin.GetSpacingCallback());
    imgout.SetOriginCallback(imgin.GetOriginCallback());
    imgout.SetScalarTypeCallback(imgin.GetScalarTypeCallback());
    imgout.SetNumberOfComponentsCallback(imgin.GetNumberOfComponentsCallback());
    imgout.SetPropagateUpdateExtentCallback(imgin.GetPropagateUpdateExtentCallback());
    imgout.SetUpdateDataCallback(imgin.GetUpdateDataCallback());
    imgout.SetDataExtentCallback(imgin.GetDataExtentCallback());
    imgout.SetBufferPointerCallback(imgin.GetBufferPointerCallback());
    imgout.SetCallbackUserData(imgin.GetCallbackUserData());
    }
*/

  static Kitware.VTK.vtkImageData ConnectSWIGToActiviz(vtkgdcm.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    Kitware.VTK.vtkImageData imgout = new Kitware.VTK.vtkImageData( rawCppThis.Handle, false, false);
    return imgout;
```

```
    }

  static vtkgdcm.vtkImageData ConnectActivizToSWIG(Kitware.VTK.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    vtkgdcm.vtkImageData imgout = new vtkgdcm.vtkImageData( rawCppThis );
    return imgout;
    }


  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    // Step 1. Test SWIG -> Activiz
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
    //reader.Update(); // DO NOT call Update to check pipeline execution

    Kitware.VTK.vtkImageData imgout = ConnectSWIGToActiviz(reader.GetOutput());

    System.Console.WriteLine( imgout.ToString() ); // not initialized as expected

    vtkPNGWriter writer = new vtkPNGWriter();
    writer.SetInput( imgout );
    writer.SetFileName( outfilename );
    writer.Write();

    // Step 2. Test Activiz -> SWIG
    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );
    //bmpreader.Update(); // DO NOT update to check pipeline execution

    System.Console.WriteLine( bmpreader.GetOutput().ToString() ); // not initialized as expected

    vtkgdcm.vtkImageData imgout2 = ConnectActivizToSWIG(bmpreader.GetOutput());

    System.Console.WriteLine( imgout2.ToString() ); // not initialized as expected


    Kitware.VTK.vtkMedicalImageProperties prop = new Kitware.VTK.vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    string outfilename2 = args[2];
    vtkGDCMImageWriter writer2 = vtkGDCMImageWriter.New();
    writer2.SetMedicalImageProperties( prop.CastToActiviz() );
    writer2.SetFileName( outfilename2 );
    writer2.SetInput( imgout2 );
    writer2.Write();

    return 0;
    }
}
```

12.139 HelloActiviz2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * Usage:
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz2.exe gdcmData/test.acr bla.png bla2.dcm
```

```
 */

/*
 * From the outside view, no-one can detect that object pass to/from
 * vtkGDCMImageWriter/vtkGDCMImageReader are not Activiz object.
 *
 * TODO: Test Command/Observer
 */
public class HelloActiviz2
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string outfilename2 = args[2];

    vtkGDCMImageReader reader = new Kitware.VTK.GDCM.vtkGDCMImageReader();
    reader.SetFileName( filename );

    // When calling multiple times creation of C# object from the same C++ object it triggers a:
//error: potential refcounting error: Duplicate rawCppThis - weak reference that is still alive. Attempting to
      add '0x00b2dc10' again.
//       Allowing new wrapped object to take over table key...
//       Original object should *not* have been destroyed while we still had it in our table without notifying
      us...
    //reader.GetOutput();
    //reader.GetOutput();

    System.Console.WriteLine( reader.ToString() ); // Test the ToString compat with Activiz

    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetInput( reader.GetOutput() );
    writer.SetFileName( outfilename2 );
    writer.Write();

    System.Console.WriteLine( reader.GetOutput().ToString() ); // Test the ToString compat with Activiz

    System.Console.WriteLine( writer.ToString() ); // Test the ToString compat with Activiz

    vtkPNGWriter pngwriter = new vtkPNGWriter();
    pngwriter.SetInput( reader.GetOutput() );
    pngwriter.SetFileName( outfilename );
    pngwriter.Write();

    // at that point the .Write() should have triggered an Update() on the reader:
    if( reader.GetImageFormat() == vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );

    vtkMedicalImageProperties prop = new vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();
    writer2.SetFileName( outfilename2 );
    writer2.SetDirectionCosines( dircos );
    writer2.SetMedicalImageProperties( prop );
    writer2.SetInput( bmpreader.GetOutput() );
    writer2.Write();

    return 0;
    }
}
```

12.140 HelloActiviz3.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz3.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz3
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer2 viewer = vtkImageViewer2.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
    iren.Start();

    return 0;
    }
}
```

12.141 HelloActiviz4.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz4.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz4
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
```

```
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer viewer = vtkImageViewer.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
    iren.Start();

    return 0;
    }
}
```

12.142 HelloActiviz5.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

// The command line arguments are:
// -I        => run in interactive mode; unless this is used, the program will
//              not allow interaction and exit
// -D <path> => path to the data; the data should be in <path>/Data/

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz5.exe -I
 */
public class HelloActiviz5
{
  public static int Main(string[] args)
    {
    vtkTesting testHelper = vtkTesting.New();
    for ( int cc = 0; cc < args.Length; cc++ )
      {
      //testHelper.AddArguments(argc,const_cast<const char **>(argv));
      //System.Console.Write( "args: " + args[cc] + "\n" );
      testHelper.AddArgument( args[cc] );
      }
    if ( testHelper.IsFlagSpecified("-D") != 0 )
      {
      string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();
      if( VTK_DATA_ROOT != null )
        {
        //System.Console.Write( "VTK_DATA_ROOT: " + VTK_DATA_ROOT  + "\n" );
        testHelper.SetDataRoot(VTK_DATA_ROOT);
        testHelper.AddArgument("-D");
        testHelper.AddArgument(VTK_DATA_ROOT);
        }
      }

    string dataRoot = testHelper.GetDataRoot();
    string filename = dataRoot;
    filename += "/Data/mr.001";

    vtkDirectory dir = vtkDirectory.New();
    if( dir.FileIsDirectory( dataRoot ) == 0 )
      {
      filename = vtkGDCMTesting.GetGDCMDataRoot() + "/test.acr";
```

```
      }
    //System.Console.Write( "dataRoot: " + dataRoot + "\n" );
    System.Console.Write( "filename being used is: " + filename + "\n" );

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);
    reader.SetFileNames(array);
    reader.Update();

    System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkRenderer ren1 = vtkRenderer.New();
    vtkRenderWindow renWin = vtkRenderWindow.New();
    renWin.AddRenderer(ren1);

    vtkImageActor actor = vtkImageActor.New();

    vtkImageMapToWindowLevelColors coronalColors = vtkImageMapToWindowLevelColors.New();
    coronalColors.SetInput(reader.GetOutput());

    actor.SetInput(coronalColors.GetOutput());

    ren1.AddActor(actor);
    iren.SetRenderWindow(renWin);

    iren.Initialize();

    renWin.Render();

    int retVal = testHelper.IsInteractiveModeSpecified();

    if( retVal != 0 )
      {
      iren.Start();
      }

    return 0;
    }
}
```

12.143 HelloVTKWorld.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.Console.WriteLine( prop.GetPatientName() ); //

    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
```

```
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    // Just for fun, invert the direction cosines, output should reflect that:
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    string outfilename = args[1];
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.Write();

    return 0;
    }
}
```

12.144 HelloVTKWorld2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld2
{
  public static int Main(string[] args)
    {
    string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();

    vtkVolume16Reader reader = vtkVolume16Reader.New();
    reader.SetDataDimensions(64, 64);
    reader.SetDataByteOrderToLittleEndian();
    reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter");
    reader.SetImageRange(1, 93);
    reader.SetDataSpacing(3.2, 3.2, 1.5);

    vtkImageCast cast = vtkImageCast.New();
    cast.SetInputConnection( reader.GetOutputPort() );
    cast.SetOutputScalarTypeToUnsignedChar();

    // By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetFileName( "headsq.dcm" );
    writer.SetInputConnection( reader.GetOutputPort() );
    // cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
    // writer.SetInputConnection( cast.GetOutputPort() );
    writer.SetFileDimensionality( 3 );
    writer.Write();

    return 0;
    }
}
```

12.145 MetaImageMD5Activiz.cs

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;
using gdcm;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/MetaImageMD5Activiz.exe gdcmData/012345.002.050.dcm
 */
public class MetaImageMD5Activiz
{
  public static int ProcessOneMHDMD5(string filename)
    {
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.FileLowerLeftOn();
    reader.DebugOff();
    int canread = reader.CanReadFile( filename );
    if( canread == 0 )
      {
      string refms = gdcm.Testing.GetMediaStorageFromFile(filename);
      if( gdcm.MediaStorage.IsImage( gdcm.MediaStorage.GetMSType(refms) ) )
        {
        System.Console.Write( "Problem with file: " + filename + "\n" );
        return 1;
        }
      // not an image
      return 0;
      }

    reader.SetFileName( filename );
    reader.Update();

    // System.Console.Write(reader.GetOutput());

    vtkMetaImageWriter writer = vtkMetaImageWriter.New();
    writer.SetCompression( false );
    writer.SetInput( reader.GetOutput() );
    string subdir = "MetaImageMD5Activiz";
    string tmpdir = gdcm.Testing.GetTempDirectory( subdir );
    if( !gdcm.PosixEmulation.FileIsDirectory( tmpdir ) )
      {
      gdcm.PosixEmulation.MakeDirectory( tmpdir );
      }
    string mhdfile = gdcm.Testing.GetTempFilename( filename, subdir );

    string rawfile = mhdfile;
    mhdfile += ".mhd";
    rawfile += ".raw";
    writer.SetFileName( mhdfile );
    writer.Write();

    string digestmhd = gdcm.Testing.ComputeFileMD5( mhdfile );
    string digestraw = gdcm.Testing.ComputeFileMD5( rawfile );

    string mhdref = vtkGDCMTesting.GetMHDMD5FromFile(filename);
    string rawref = vtkGDCMTesting.GetRAWMD5FromFile(filename);

    if( mhdref != digestmhd )
      {
      System.Console.Write( "Problem with mhd file: " + filename + "\n" );
      System.Console.Write( digestmhd );
      System.Console.Write( "\n" );
      System.Console.Write( mhdref );
      System.Console.Write( "\n" );
      return 1;
      }
    if( rawref != digestraw )
      {
      System.Console.Write( "Problem with raw file: " + filename + "\n" );
      System.Console.Write( digestraw );
```

```
      System.Console.Write( "\n" );
      System.Console.Write( rawref );
      System.Console.Write( "\n" );
      return 1;
      }

    return 0;
    }
  public static int Main(string[] args)
    {
    if ( args.Length  == 1 )
      {
      string filename = args[0];
      return ProcessOneMHDMD5( filename );
      }
    // Loop over all gdcmData
    gdcm.Trace.DebugOff();
    gdcm.Trace.WarningOff();
    gdcm.Trace.ErrorOff();

    uint n = gdcm.Testing.GetNumberOfFileNames();
    int ret = 0;
    for( uint i = 0; i < n; ++i )
      {
      string filename = gdcm.Testing.GetFileName( i );
      ret += ProcessOneMHDMD5( filename );
      }
    return ret;
    }
}
```

12.146 RefCounting.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * this is not so much an example but simply a test to make sure cstor / dstor work as expected
 * and call the ::New and ->Delete() of VTK style.
 */
public class RefCounting
{
  public static int Main(string[] args)
    {
    vtkGDCMTesting testing1 = vtkGDCMTesting.New();
    vtkGDCMTesting testing2 = new vtkGDCMTesting(); // just in case people do not read STYLE documentation

    vtkGDCMImageReader reader1 = vtkGDCMImageReader.New();
    vtkGDCMImageReader reader2 = new vtkGDCMImageReader();

    vtkGDCMImageWriter writer1 = vtkGDCMImageWriter.New();
    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();

    using (vtkGDCMTesting testing3 = new vtkGDCMTesting())
      {
      System.Console.Write( "GetReferenceCount: " + testing1.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing2.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing3.GetReferenceCount() + "\n");
      }

    using (vtkGDCMImageReader reader3 = new vtkGDCMImageReader())
      {
      System.Console.Write( "GetReferenceCount: " + reader3.GetReferenceCount() + "\n");
```

```
      }

    using (vtkGDCMImageWriter writer3 = vtkGDCMImageWriter.New())
      {
      System.Console.Write( "GetReferenceCount: " + writer3.GetReferenceCount() + "\n");
      }

    // C# destructor will call ->Delete on all C++ object as expected.
    return 0;
    }
}
```

12.147 Compute3DSpacing.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader2.h"
#include "vtkImageChangeInformation.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

/*
 * Simple example to check computation of spacing within vtkGDCMImageReader2
 * This is a direct implementation of:
 *
 *
      http://gdcm.sourceforge.net/wiki/index.php/Using_GDCM_API#Automatic_ordering_of_slices_for_vtkGDCMImageReader.SetFileNames
 *
 * For more advanced information on how 3D spacing is being computed see:
 *
 *  - http://gdcm.sourceforge.net/html/classgdcm_1_1IPPSorter.html
 *
 * Usage:
 *
 * $ Compute3DSpacing SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm
 */

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;

  std::vector<std::string> filenames;
  for( int  i = 1; i < argc; ++i )
    {
    filenames.push_back( argv[i] );
    }

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( filenames );
  if( !b )
    {
    std::cerr « "Failed to sort files" « std::endl;
    return 1;
    }
  std::cout « "Sorting succeeded:" « std::endl;
```

```
  //s.Print( std::cout );

  std::cout « "Found z-spacing:" « std::endl;
  std::cout « s.GetZSpacing() « std::endl;
  const double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkGDCMImageReader2 * reader = vtkGDCMImageReader2::New();
  vtkStringArray *files = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    files->InsertNextValue( f.c_str() );
    }
  reader->SetFileNames( files );
  reader->Update();

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();
  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

  v16->GetOutput()->Print( std::cout );

  return 0;
}
```

12.148 Convert16BitsTo8Bits.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
// The following file is 16/16/15 but the scalar range of the image is [0,192]
// it could be safely stored as 8bits instead:
// gdcmData/012345.002.050.dcm

int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/012345.002.050.dcm";
  std::cout « file « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
  cast->SetInput( reader->GetOutput() );
#endif
```

```
  cast->SetOutputScalarTypeToUnsignedChar();


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/cast.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( cast->GetOutputPort() );
#else
  writer->SetInput( cast->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  reader->Delete();
  cast->Delete();
  writer->Delete();

  return 0;
}
```

12.149 ConvertMultiFrameToSingleFrame.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmFilenameGenerator.h"

int main(int argc, char *argv[])
{
  std::string filename;
  if( argc <= 1 )
    {
    const char *directory = gdcm::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/US-PAL-8-10x-echo.dcm";
    filename = file;
    }
  else
    {
    filename = argv[1];
    }
  std::cout « "file: " « filename « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  int dims[3];
  reader->GetOutput()->GetDimensions( dims );

  std::ostringstream os;
  os « "singleframe";
  os « "%04d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
```

```
  unsigned int nfiles = dims[2];
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  // By default write them as Secondary Capture (for portability)
  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }
  assert( filenames->GetNumberOfValues() == (int)fg.GetNumberOfFilenames() );
  writer->SetFileNames( filenames );
  filenames->Delete();
  writer->SetFileDimensionality( 2 );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->Write();

  reader->Delete();
  writer->Delete();

  return 0;
}
```

12.150 ConvertRGBToLuminance.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageLuminance.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"

// There is no such thing as MR Image Storage + Photometric Interpretation = RGB
// let's rewrite that into a proper single component image:
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/SIEMENS-MR-RGB-16Bits.dcm";
  std::cout « file « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageLuminance *luminance = vtkImageLuminance::New();
```

```
#if (VTK_MAJOR_VERSION >= 6)
  luminance->SetInputConnection( reader->GetOutputPort() );
#else
  luminance->SetInput( reader->GetOutput() );
#endif


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( luminance->GetOutputPort() );
#else
  writer->SetInput( luminance->GetOutput() );
#endif
  //writer->SetImageFormat( reader->GetImageFormat() ); // Do NOT pass image format
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  luminance->Delete();
  writer->Delete();

  return 0;
}
```

12.151 ConvertSingleBitTo8Bits.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkPointData.h"
#include "vtkBitArray.h"
#include "vtkUnsignedCharArray.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkDataArray* array = reader->GetOutput()->GetPointData()->GetScalars();
  vtkBitArray *barray = vtkBitArray::SafeDownCast( array );
  if( !barray ) return false;
  vtkIdType nvalues = array->GetNumberOfTuples();
  vtkUnsignedCharArray *uarray = vtkUnsignedCharArray::New();
  uarray->SetNumberOfTuples( nvalues );
  for(vtkIdType i = 0; i < nvalues; ++i)
    {
```

```
    uarray->SetValue( i, (unsigned char)barray->GetValue(i) );
    }

  vtkImageData *copy = vtkImageData::New();
  // http://www.vtk.org/Wiki/VTK/VTK_6_Migration/Changes_to_Scalars_Manipulation_Functions#AllocateScalars.28.29
  copy->SetExtent( reader->GetOutput()->GetExtent() );
#if (VTK_MAJOR_VERSION >= 6)
  copy->AllocateScalars(VTK_UNSIGNED_CHAR, 3);
#else
  copy->SetScalarType( VTK_UNSIGNED_CHAR );
  copy->AllocateScalars();
#endif

  //uarray->Print( std::cout );
  //copy->GetPointData()->GetScalars()->Print( std::cout );
  copy->GetPointData()->SetScalars( uarray );
  uarray->Delete();

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( outfilename );
  //writer->SetInput( cast->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( copy );
#else
  writer->SetInput( copy );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->SetFileDimensionality( reader->GetFileDimensionality( ) );
  writer->Write();

  reader->Delete();
  copy->Delete();
  writer->Delete();

  return 0;
}
```

12.152 CreateFakePET.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFilenameGenerator.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
```

```
 */
int main(int, char *[])
{
  gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  // Create the filenames in advance to supply to the vtkGDCMImageWriter
  std::ostringstream os;
  os « "PT";
  os « "%03d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
  unsigned int nfiles = zSize;
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
        pixel[0] = inval;
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 2 );
  writer->SetFileNames(filenames);
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->SetModality( "PT" );
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
```

```
  writer->Delete();

  return 0;
}
```

12.153 CreateFakeRTDOSE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */
int main(int, char *[])
{
  //gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
        pixel[0] = inval;
```

```
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 3 );
  writer->SetFileName( "rtdose.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Units", "GY");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Summation Type", "PLAN");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Type", "PHYSICAL");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Frame of Reference UID",
      "1.3.12.2.1107.5.6.1.68100.30270111041215391275000000001");
  writer->GetMedicalImageProperties()->SetModality( "RTDOSE" );
  //writer->GetMedicalImageProperties()->SetModality( "PT" ); // debug
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
  writer->Delete();


  // BEGIN HACK
  // In GDCM version 2.4.3 and before, the following tag was missing which caused issue with some RTDose
      software:

  // Open the DICOM file that was temporarily created. This will allows me to used
  // GDCM to append specific tags that allows the RTDOSE to be associated with the
  // relevant CT images.
  gdcm::Reader reader2;
  reader2.SetFileName("rtdose.dcm" );
  reader2.Read();
  gdcm::File &file = reader2.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Required by some software and not automagically added by GDCM in old version
  gdcm::Attribute<0x0028,0x0009> framePointer;
  framePointer.SetNumberOfValues(1);
  framePointer.SetValue( gdcm::Tag(0x3004,0x000C) );
  ds.Replace( framePointer.GetAsDataElement() );

  gdcm::Writer writer2;
  writer2.CheckFileMetaInformationOff();
  writer2.SetFileName("rtdose2.dcm");
  writer2.SetFile( file );
  writer2.Write();
  // END HACK

  return 0;
}
```

12.154 GenerateRTSTRUCT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataWriter.h"
#include "vtkGDCMPolyDataReader.h"
#include "vtkPolyData.h"
#include "vtkPolyDataReader.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRTStructSetProperties.h"
#include "vtkStringArray.h"
```

```
#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

#include <algorithm> //for std::find

#include "gdcmDirectoryHelper.h"

using namespace gdcm;

//view each organ independently of the others, to make sure that
//organ names correspond to actual segmentations.
void ShowOrgan(vtkPolyData* inData)
{
  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputData( inData );
#else
  cubeMapper->SetInput( inData );
#endif
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
}

/*
 * Full application which ... RTSTUCT
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " directory-with-rtstruct-and-ct-images\n";
    return 1;
    }
  std::string theDirName(argv[1]);
  Directory::FilenamesType theRTSeries =
    DirectoryHelper::GetRTStructSeriesUIDs(theDirName);

  gdcm::Directory theDir;
  theDir.Load(argv[1]);

  if (theRTSeries.empty())
    {
    std::cerr « "No RTStructs found for the test, ending." « std::endl;
```

```
    return 1;
    }

  for (size_t q = 0; q < theRTSeries.size(); q++)
    {
    Directory::FilenamesType theRTNames =
      DirectoryHelper::GetFilenamesFromSeriesUIDs(theDirName, theRTSeries[q]);

    if (theRTNames.empty()){
      std::cerr « "Unable to load RT Series " « theRTSeries[q] « ", continuing. " « std::endl;
      continue;
    }

    vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
    reader->SetFileName( theRTNames[0].c_str() );
    reader->Update();

    //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

    vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
    int numMasks = reader->GetNumberOfOutputPorts() + 1;//add a blank one in
    writer->SetNumberOfInputPorts( numMasks );
    std::string thePotentialName = theDirName + "/" + "GDCMTestRTStruct." +  theRTSeries[q] + ".dcm";
    gdcm::Directory::FilenamesType theFileNames = theDir.GetFilenames();
    //keep renaming the output until we get something that doesn't overwrite what was there already
    int count = 0;
    while (std::find(theFileNames.begin(), theFileNames.end(), thePotentialName) != theFileNames.end())
      {
        char buff[255];
        snprintf(buff,sizeof(buff),"%d",count);
        thePotentialName = theDirName + "/" + "GDCMTestRTStruct." + buff + "." + theRTSeries[q] + ".dcm";
      }
    writer->SetFileName( thePotentialName.c_str());
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    //this line is cheating, we won't have the same stuff, and may not have a struct
    //to start with.
    //have to go back to the original data to reconstruct the RTStructureSetProperties
    //writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
    //writer->Write();

    //loop through the outputs in order to write them out as if they had been created and appended
    vtkStringArray* roiNames = vtkStringArray::New();
    vtkStringArray* roiAlgorithms = vtkStringArray::New();
    vtkStringArray* roiTypes = vtkStringArray::New();
    roiNames->SetNumberOfValues(numMasks);
    roiAlgorithms->SetNumberOfValues(numMasks);
    roiTypes->SetNumberOfValues(numMasks);
    vtkAppendPolyData* append = vtkAppendPolyData::New();

    //ok, now we'll add a blank organ
    //the blank organ is to test to ensure that blank organs work; there have been crash reports
    //this code is added at the beginning to ensure that the blank organs are read
    //and preserved as individual organs.
    vtkPolyData* blank = vtkPolyData::New();
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputData(0, blank);
#else
    writer->SetInput(0, blank);
#endif
    roiNames->InsertValue(0, "blank");
    roiAlgorithms->InsertValue(0, "blank");
    roiTypes->InsertValue(0, "ORGAN");

    //note the offsets used to place the blank rtstruct at the beginning of the newly generated RT.
    //the idea is to run the program twice; first to generate an rtstruct with a blank mask (making
    //sure that that functionality works), and then a second time to make sure that everything is
    //being read properly.  Multiple organs with the same name could cause some strangenesses.
    for (int i = 1; i < numMasks; ++i)
      {
#if (VTK_MAJOR_VERSION >= 6)
      writer->SetInputConnection(i, reader->GetOutputPort(i-1));
      append->AddInputConnection(reader->GetOutputPort(i-1));
#else
      writer->SetInput(i, reader->GetOutput(i-1));
      append->AddInput(reader->GetOutput(i-1));
#endif
      std::string theString = reader->GetRTStructSetProperties()->GetStructureSetROIName(i-1);
      roiNames->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetROIGenerationAlgorithm(i-1);
      roiAlgorithms->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetRTROIInterpretedType(i-1);
```

```
      roiTypes->InsertValue(i, theString);

      ShowOrgan(reader->GetOutput(i-1));
      }

    vtkRTStructSetProperties* theProperties = vtkRTStructSetProperties::New();
    writer->SetRTStructSetProperties(theProperties);
    writer->InitializeRTStructSet(theDirName,
      reader->GetRTStructSetProperties()->GetStructureSetLabel(),
      reader->GetRTStructSetProperties()->GetStructureSetName(),
      roiNames, roiAlgorithms, roiTypes);

    writer->SetRTStructSetProperties(theProperties);
    writer->Write();

    // print reader output:
    reader->Print( std::cout );
    // print first output:
    reader->GetOutput()->Print( std::cout );

    reader->Delete();
    append->Delete();
    roiNames->Delete();
    roiTypes->Delete();
    theProperties->Delete();
    roiAlgorithms->Delete();
    blank->Delete();

    writer->Delete();
  }
  return 0;
}
```

12.155 MagnifyFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageMagnify.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmSystem.h"

// This is a simple test to magnify an image that is known to give excellent
// compression ratio. This will be our test for those large image
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/test.acr";
  std::cout « file « std::endl;
  if( !gdcm::System::FileExists( file.c_str() ) ) return 1;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
```

```
  cast->SetInput( reader->GetOutput() );
#endif
  cast->SetOutputScalarTypeToUnsignedShort();

  vtkImageMagnify *magnify = vtkImageMagnify::New();
#if (VTK_MAJOR_VERSION >= 6)
  magnify->SetInputConnection( cast->GetOutputPort() );
#else
  magnify->SetInput( cast->GetOutput() );
#endif
  magnify->SetInterpolate( 1 );
  magnify->SetInterpolate( 0 );
  int factor = 100;
  magnify->SetMagnificationFactors (factor, factor, 1);

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( magnify->GetOutputPort() );
#else
  writer->SetInput( magnify->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  magnify->Delete();
  writer->Delete();

  return 0;
}
```

12.156 gdcmorthoplanes.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#include "vtkActor.h"
#include "vtkCamera.h"
#include "vtkMatrix4x4.h"
#include "vtkTransform.h"
#include "vtkAssembly.h"
#include "vtkCellPicker.h"
#include "vtkCommand.h"
#include "vtkImageActor.h"
#include "vtkImageMapToColors.h"
#include "vtkImageOrthoPlanes.h"
#include "vtkImagePlaneWidget.h"
#include "vtkImageReader.h"
#include "vtkInteractorEventRecorder.h"
#include "vtkLookupTable.h"
#include "vtkOutlineFilter.h"
#include "vtkPolyDataMapper.h"
#include "vtkProperty.h"
#include "vtkRenderWindow.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderer.h"
#include "vtkVolume16Reader.h"
#include "vtkImageData.h"
```

```
#include "vtkImageChangeInformation.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkAxesActor.h"
#include "vtkCaptionActor2D.h"
#include "vtkTextProperty.h"
#include "vtkPropAssembly.h"

#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmSystem.h"
#include "gdcmDirectory.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

//------------------------------------------------------------------------------
class vtkOrthoPlanesCallback : public vtkCommand
{
public:
  static vtkOrthoPlanesCallback *New()
  { return new vtkOrthoPlanesCallback; }

  void Execute( vtkObject *caller, unsigned long vtkNotUsed( event ),
                void *callData )
  {
    vtkImagePlaneWidget* self =
      reinterpret_cast< vtkImagePlaneWidget* >( caller );
    if(!self) return;

    double* wl = static_cast<double*>( callData );

    if ( self == this->WidgetX )
      {
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if( self == this->WidgetY )
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if (self == this->WidgetZ)
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      }
  }

  vtkOrthoPlanesCallback():WidgetX( 0 ), WidgetY( 0 ), WidgetZ ( 0 ) {}

  vtkImagePlaneWidget* WidgetX;
  vtkImagePlaneWidget* WidgetY;
  vtkImagePlaneWidget* WidgetZ;
};

int main( int argc, char *argv[] )
{
  //char* fname = vtkTestUtilities::ExpandDataFileName(argc, argv, "Data/headsq/quarter");

  //vtkVolume16Reader* v16 =  vtkVolume16Reader::New();
  //  v16->SetDataDimensions( 64, 64);
  //  v16->SetDataByteOrderToLittleEndian();
  //  v16->SetImageRange( 1, 93);
  //  v16->SetDataSpacing( 3.2, 3.2, 1.5);
  //  v16->SetFilePrefix( fname );
  //  v16->SetDataMask( 0x7fff);
  //  v16->Update();
  std::vector<std::string> filenames;
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm [filename2.dcm ...]\n";
    return 1;
    }
  else
    {
```

```
  // Is it a single directory ? If so loop over all files contained in it:
  const char *filename = argv[1];
  if( argc == 2 && gdcm::System::FileIsDirectory( filename ) )
    {
    std::cout « "Loading directory: " « filename « std::endl;
    bool recursive = false;
    gdcm::Directory d;
    d.Load(filename, recursive);
    gdcm::Directory::FilenamesType const &files = d.GetFilenames();
    for( gdcm::Directory::FilenamesType::const_iterator it = files.begin(); it != files.end(); ++it )
      {
      filenames.push_back( it->c_str() );
      }
    }
  else // list of files passed directly on the cmd line:
      // discard non-existing or directory
    {
    for(int i=1; i < argc; ++i)
      {
      filename = argv[i];
      if( gdcm::System::FileExists( filename ) )
        {
        if( gdcm::System::FileIsDirectory( filename ) )
          {
          std::cerr « "Discarding directory: " « filename « std::endl;
          }
        else
          {
          filenames.push_back( filename );
          }
        }
      else
        {
        std::cerr « "Discarding non existing file: " « filename « std::endl;
        }
      }
    }
  //names->Print( std::cout );
  }

vtkGDCMImageReader * reader = vtkGDCMImageReader::New();
double ippzspacing;
if( filenames.size() > 1 )
  {
  //gdcm::Trace::DebugOn();
  //gdcm::Trace::WarningOn();
  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( filenames );
  if( !b )
    {
    std::cerr « "Failed to sort files" « std::endl;
    return 1;
    }
  std::cout « "Sorting succeeded:" « std::endl;
  s.Print( std::cout );

  std::cout « "Found z-spacing:" « std::endl;
  std::cout « s.GetZSpacing() « std::endl;
  ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkStringArray *files = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    files->InsertNextValue( f.c_str() );
    }
  reader->SetFileNames( files );
  //reader->SetFileLowerLeft( 1 );
  reader->Update(); // important
  files->Delete();
  }
else
  {
  reader->SetFileName( argv[1] );
  reader->Update(); // important
  ippzspacing = reader->GetOutput()->GetSpacing()[2];
  ippzspacing = 4;
```

```
    }

  //reader->GetOutput()->Print( std::cout );
  //vtkFloatingPointType range[2];
  //reader->GetOutput()->GetScalarRange(range);
  //std::cout « "Range: " « range[0] « " " « range[1] « std::endl;

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

#if 0
    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetInput( v16->GetOutput() );
    writer->SetFileLowerLeft( reader->GetFileLowerLeft() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetFileDimensionality( 3); //reader->GetFileDimensionality() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->SetFileName( "out.dcm" );
    writer->Write();
#endif


  vtkOutlineFilter* outline = vtkOutlineFilter::New();
    outline->SetInputConnection(v16->GetOutputPort());

  vtkPolyDataMapper* outlineMapper = vtkPolyDataMapper::New();
    outlineMapper->SetInputConnection(outline->GetOutputPort());

  vtkActor* outlineActor =  vtkActor::New();
    outlineActor->SetMapper( outlineMapper);

  vtkRenderer* ren1 = vtkRenderer::New();
  vtkRenderer* ren2 = vtkRenderer::New();

  vtkRenderWindow* renWin = vtkRenderWindow::New();
    renWin->AddRenderer(ren2);
    renWin->AddRenderer(ren1);

  vtkRenderWindowInteractor* iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  vtkCellPicker* picker = vtkCellPicker::New();
    picker->SetTolerance(0.005);

  vtkProperty* ipwProp = vtkProperty::New();
   //assign default props to the ipw's texture plane actor

  vtkImagePlaneWidget* planeWidgetX = vtkImagePlaneWidget::New();
    planeWidgetX->SetInteractor( iren);
    planeWidgetX->SetKeyPressActivationValue('x');
    planeWidgetX->SetPicker(picker);
    planeWidgetX->RestrictPlaneToVolumeOn();
    planeWidgetX->GetPlaneProperty()->SetColor(1,0,0);
    planeWidgetX->SetTexturePlaneProperty(ipwProp);
    planeWidgetX->TextureInterpolateOff();
    planeWidgetX->SetResliceInterpolateToNearestNeighbour();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetX->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetX->SetInput(v16->GetOutput());
#endif
    planeWidgetX->SetPlaneOrientationToXAxes();
    //planeWidgetX->SetSliceIndex(32);
    planeWidgetX->DisplayTextOn();
    planeWidgetX->On();
    planeWidgetX->InteractionOff();
    planeWidgetX->InteractionOn();

  vtkImagePlaneWidget* planeWidgetY = vtkImagePlaneWidget::New();
    planeWidgetY->SetInteractor( iren);
```

```
    planeWidgetY->SetKeyPressActivationValue('y');
    planeWidgetY->SetPicker(picker);
    planeWidgetY->GetPlaneProperty()->SetColor(1,1,0);
    planeWidgetY->SetTexturePlaneProperty(ipwProp);
    planeWidgetY->TextureInterpolateOn();
    planeWidgetY->SetResliceInterpolateToLinear();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetY->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetY->SetInput(v16->GetOutput());
#endif
    planeWidgetY->SetPlaneOrientationToYAxes();
    //planeWidgetY->SetSlicePosition(102.4);
    planeWidgetY->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetY->DisplayTextOn();
    planeWidgetY->UpdatePlacement();
    planeWidgetY->On();

  vtkImagePlaneWidget* planeWidgetZ = vtkImagePlaneWidget::New();
    planeWidgetZ->SetInteractor( iren);
    planeWidgetZ->SetKeyPressActivationValue('z');
    planeWidgetZ->SetPicker(picker);
    planeWidgetZ->GetPlaneProperty()->SetColor(0,0,1);
    planeWidgetZ->SetTexturePlaneProperty(ipwProp);
    planeWidgetZ->TextureInterpolateOn();
    planeWidgetZ->SetResliceInterpolateToCubic();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetZ->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetZ->SetInput(v16->GetOutput());
#endif
    planeWidgetZ->SetPlaneOrientationToZAxes();
    //planeWidgetZ->SetSliceIndex(25);
    planeWidgetZ->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetZ->DisplayTextOn();
    planeWidgetZ->On();

  vtkImageOrthoPlanes *orthoPlanes = vtkImageOrthoPlanes::New();
    orthoPlanes->SetPlane(0, planeWidgetX);
    orthoPlanes->SetPlane(1, planeWidgetY);
    orthoPlanes->SetPlane(2, planeWidgetZ);
    orthoPlanes->ResetPlanes();

   vtkOrthoPlanesCallback* cbk = vtkOrthoPlanesCallback::New();
   cbk->WidgetX = planeWidgetX;
   cbk->WidgetY = planeWidgetY;
   cbk->WidgetZ = planeWidgetZ;
   planeWidgetX->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetY->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetZ->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   cbk->Delete();

  double wl[2];
  planeWidgetZ->GetWindowLevel(wl);

  // Add a 2D image to test the GetReslice method
  //
  vtkImageMapToColors* colorMap = vtkImageMapToColors::New();
    colorMap->PassAlphaToOutputOff();
    colorMap->SetActiveComponent(0);
    colorMap->SetOutputFormatToLuminance();
#if (VTK_MAJOR_VERSION >= 6)
    colorMap->SetInputData(planeWidgetZ->GetResliceOutput());
#else
    colorMap->SetInput(planeWidgetZ->GetResliceOutput());
#endif
    colorMap->SetLookupTable(planeWidgetX->GetLookupTable());

  vtkImageActor* imageActor = vtkImageActor::New();
    imageActor->PickableOff();
#if (VTK_MAJOR_VERSION >= 6)
    imageActor->SetInputData(colorMap->GetOutput());
#else
    imageActor->SetInput(colorMap->GetOutput());
#endif

  // Add the actors
  //
  ren1->AddActor( outlineActor);
```

```
ren2->AddActor( imageActor);

ren1->SetBackground( 0.1, 0.1, 0.2);
ren2->SetBackground( 0.2, 0.1, 0.2);

renWin->SetSize( 600, 350);

ren1->SetViewport(0,0,0.58333,1);
ren2->SetViewport(0.58333,0,1,1);

// Set the actors' positions
//
renWin->Render();
//iren->SetEventPosition( 175,175);
//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//iren->SetEventPosition( 475,175);
//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//renWin->Render();

//ren1->GetActiveCamera()->Elevation(110);
//ren1->GetActiveCamera()->SetViewUp(0, 0, -1);
//ren1->GetActiveCamera()->Azimuth(45);
//ren1->GetActiveCamera()->Dolly(1.15);
ren1->ResetCameraClippingRange();

vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
cube->SetXPlusFaceText ( "R" );
cube->SetXMinusFaceText( "L" );
cube->SetYPlusFaceText ( "A" );
cube->SetYMinusFaceText( "P" );
cube->SetZPlusFaceText ( "H" );
cube->SetZMinusFaceText( "F" );
cube->SetFaceTextScale( 0.666667 );

vtkAxesActor* axes2 = vtkAxesActor::New();

vtkMatrix4x4 *invert = vtkMatrix4x4::New();
invert->DeepCopy( reader->GetDirectionCosines() );
invert->Invert();

// simulate a left-handed coordinate system
//
vtkTransform *transform = vtkTransform::New();
transform->Identity();
//transform->RotateY(90);
transform->Concatenate(invert);
axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
cube->GetAssembly()->SetUserTransform( transform );

axes2->SetTotalLength( 1.5, 1.5, 1.5 );
axes2->SetCylinderRadius( 0.500 * axes2->GetCylinderRadius() );
axes2->SetConeRadius    ( 1.025 * axes2->GetConeRadius() );
axes2->SetSphereRadius  ( 1.500 * axes2->GetSphereRadius() );

vtkTextProperty* tprop = axes2->GetXAxisCaptionActor2D()->
  GetCaptionTextProperty();
tprop->ItalicOn();
tprop->ShadowOn();
tprop->SetFontFamilyToTimes();

axes2->GetYAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );
axes2->GetZAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
widget->SetEnabled( 1 );
widget->InteractiveOff();
widget->InteractiveOn();

// Playback recorded events
//
```

```
  //vtkInteractorEventRecorder *recorder = vtkInteractorEventRecorder::New();
  //recorder->SetInteractor(iren);
  //recorder->ReadFromInputStringOn();
  //recorder->SetInputString(IOPeventLog);

  // Interact with data
  // Render the image
  //
  iren->Initialize();
  renWin->Render();

  // Test SetKeyPressActivationValue for one of the widgets
  //
  //iren->SetKeyCode('z');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);
  //iren->SetKeyCode('z');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);

  //int retVal = vtkRegressionTestImage( renWin );
  //
  //if ( retVal == vtkRegressionTester::DO_INTERACTOR)
    {
    iren->Start();
    }

  // Clean up
  //
  //recorder->Off();
  //recorder->Delete();

  ipwProp->Delete();
  orthoPlanes->Delete();
  planeWidgetX->Delete();
  planeWidgetY->Delete();
  planeWidgetZ->Delete();
  colorMap->Delete();
  imageActor->Delete();
  picker->Delete();
  outlineActor->Delete();
  outlineMapper->Delete();
  outline->Delete();
  iren->Delete();
  renWin->Delete();
  ren1->Delete();
  ren2->Delete();
  v16->Delete();
  reader->Delete();

  return 0;
}
```

12.157 gdcmreslice.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkImageFlip.h"
#include "vtkImageReslice.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
```

```
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  //reader->FileLowerLeftOn();
  reader->Update();

  vtkImageFlip *flip = vtkImageFlip::New();
#if (VTK_MAJOR_VERSION >= 6)
  flip->SetInputConnection(reader->GetOutputPort());
#else
  flip->SetInput(reader->GetOutput());
#endif
  flip->SetFilteredAxis(0);
  flip->Update();

  vtkImageReslice *reslice = vtkImageReslice::New();
  //reslice->SetInput(reader->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
  reslice->SetInputConnection(flip->GetOutputPort());
#else
  reslice->SetInput(flip->GetOutput());
#endif
  //reslice->SetResliceAxesDirectionCosines()
  reader->GetDirectionCosines()->Print(std::cout);
  vtkMatrix4x4 *invert = vtkMatrix4x4::New();
  invert->DeepCopy( reader->GetDirectionCosines() );
  invert->Invert();

  //reslice->SetResliceAxes( reader->GetDirectionCosines() );
  reslice->SetResliceAxes( invert );
  reslice->Update();
  vtkImageData* ima = reslice->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
```

```
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  // DICOM is RAH:
  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "R" );
  cube->SetXMinusFaceText( "L" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();

  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(invert);
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  widget->SetOrientationMarker( assembly );
  widget->SetInteractor( iren );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

12.158 gdcmrtionplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
```

```
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkXMLPolyDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a RT Ion Plan Storage and simply extracted the viz stuff for VTK

    RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  const char * outfilename2 = argv[3];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,03a2) SQ                                                  # u/l,1 Ion Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (0008,1040) LO [Test]                                       # 4,1 Institutional Department Name
    (300a,00b2) SH (no value)                                   # 0,1 Treatment Machine Name
    (300a,00b3) CS [MU]                                         # 2,1 Primary Dosimeter Unit
    (300a,00c0) IS [1 ]                                         # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                         # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                                     # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                                     # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                                 # 10,1 Treatment Delivery Type
    (300a,00d0) IS [0 ]                                         # 2,1 Number of Wedges
    (300a,00e0) IS [1 ]                                         # 2,1 Number of Compensators
    (300a,00ed) IS [0 ]                                         # 2,1 Number of Boli
    (300a,00f0) IS [1 ]                                         # 2,1 Number of Blocks
    (300a,0110) IS [2 ]                                         # 2,1 Number of Control Points
    (300a,02ea) SQ                                              # u/l,1 Ion Range Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                                 # 6,1 Material ID
        (300a,00e4) IS [1 ]                                     # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                               # 8,1 Compensator ID
        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]                     # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                           # 12,2 Compensator Position
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                                 # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ]                           # 12,1 Compensator Mounting Position
        (300a,02e4) FL 39.2                                     # 4,1 Isocenter to Compensator Tray Distance
        (300a,02e5) FL 2.12                                     # 4,1 Compensator Column Offset
        (300a,02e8) FL 4.76                                     # 4,1 Compensator Milling Tool Diameter
      (fffe,e00d)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
```

```
  gdcm::Tag tbeamsq(0x300a,0x03a2);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x02ea);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                       # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                             # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
```

```
    img->GetPointData()->SetScalars(d);

#if (VTK_MAJOR_VERSION >= 6)
#else
    img->Update();
#endif
    img->Print(std::cout);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
    (300a,03a6) SQ                                      # u/l,1 Ion Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                         # 6,1 Material ID
        (300a,00f7) FL 95.03                            # 4,1 Isocenter to Block Tray Distance
        (300a,00f8) CS [APERTURE]                       # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                         # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                   # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                             # 2,1 Block Number
        (300a,0100) DS [50.00 ]                         # 6,1 Block Thickness
        (300a,0104) IS [179 ]                           # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
2\37.4\43.0\37.1\44.7\36] # 1934,2-2n Block Data
      (fffe,e00d)
    (fffe,e0dd)

*/
    gdcm::Tag tblocksq(0x300a,0x03a6);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ]                                    # 4,1 Block Number
      of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    //std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
```

```
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout « x[0] « "," « x[1] « "," « x[2] « std::endl;
      ptIds[i ] = ptId;
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
#endif
    output->Print( std::cout );




  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->GetRenderer()->ResetCameraClippingRange();
   viewer->Render();
   viewer->GetRenderer()->ResetCameraClippingRange();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

viewer->GetRenderer()->AddActor( cubeActor );

    vtkXMLPolyDataWriter *writec= vtkXMLPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writec->SetInputData( output );
#else
    writec->SetInput( output );
#endif
    writec->SetFileName( outfilename2 );
    writec->Write( );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

12.159 gdcmrtplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a fake RT Ion Plan Storage and simply extracted the viz stuff for VTK
 but this is rather a RT Plan storage
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,00b0) SQ                                                  # u/l,1 Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (300a,00b2) SH (no value)                                   # 0,1 Treatment Machine Name
    (300a,00c0) IS [1 ]                                         # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                         # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                                     # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                                     # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                                 # 10,1 Treatment Delivery Type
    (300a,00e0) IS [1 ]                                         # 2,1 Number of Compensators
    (300a,00e3) SQ                                              # u/l,1 Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                                 # 6,1 Material ID
        (300a,00e4) IS [1 ]                                     # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                               # 8,1 Compensator ID
        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]                     # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                           # 12,2 Compensator Position
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                                 # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ]                           # 12,1 Compensator Mounting Position
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
```

```
      (fffe,e00d)
    (fffe,e0dd)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
  gdcm::Tag tbeamsq(0x300a,0x00b0);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(2); // Item start at #1
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x00e3);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                       # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                             # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
```

```
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
    img->GetPointData()->SetScalars(d);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
 (300a,00f4) SQ                                          # u/l,1 Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                             # 6,1 Material ID
        (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                                 # 2,1 Block Number
        (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
        (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
      # 1934,2-2n Block Data
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
      (fffe,e00d)
    (fffe,e0dd)
*/
    gdcm::Tag tblocksq(0x300a,0x00f4);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ] # 4,1 Block Number of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout « x[0] « "," « x[1] « "," « x[2] « std::endl;
      ptIds[i ] = ptId;
```

```
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
#endif
    output->Print( std::cout );



  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->Render();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  viewer->GetRenderer()->AddActor( cubeActor );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

12.160 gdcmscene.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
//#include "vtkGDCMPolyDataWriter.h"

#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
```

```
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkVersion.h"


// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm\n";
    return 1;
    }
  const char * filename = argv[1];

  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

//  vtkGDCMPolyDataWriter * writer2 = vtkGDCMPolyDataWriter::New();
//  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
//    writer2->SetInput( num, reader->GetOutput(num) );
//  writer2->SetFileName( "rtstruct.dcm" );
//  writer2->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

  vtkAppendPolyData *append = vtkAppendPolyData::New();
  int n = reader->GetNumberOfOutputPorts();
  for(int i = 0; i < n; ++i)
    {
#if (VTK_MAJOR_VERSION >= 6)
    append->AddInputConnection( reader->GetOutputPort(i) );
#else
    append->AddInput( reader->GetOutput(i) );
#endif
    }

  vtkPolyDataWriter * writer = vtkPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetFileName( "rtstruct.vtk" );
  //writer->Write();

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
      //cubeMapper->SetInput( reader->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputConnection( append->GetOutputPort() );
#else
      cubeMapper->SetInput( append->GetOutput() );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();
  //cubeActor->GetProperty()->SetColor(1, 0, 0);


  // The usual rendering stuff.
//  vtkCamera *camera = vtkCamera::New();
//      camera->SetPosition(1,1,1);
```

```
//      camera->SetFocalPoint(0,0,0);

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  //renderer->AddActor2D(cubeActor);
      //renderer->SetActiveCamera(camera);
      renderer->ResetCamera();
      renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  // interact with data
  renWin->Render();
  iren->Start();



  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
//  camera->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();

  writer->Delete();

  return 0;
}
```

12.161 gdcmtexture.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
```

```
  reader->SetFileName( argv[1] );

  reader->Update();
  vtkImageData* ima = reader->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();
  plane->SetOrigin( -0.5, -0.5, 0.0);
  plane->SetPoint1(  0.5, -0.5, 0.0);
  plane->SetPoint2( -0.5,  0.5, 0.0);

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "L" );
  cube->SetXMinusFaceText( "R" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();
  // simulate a left-handed coordinate system
  //
  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //transform->RotateY(180);
  reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(reader->GetDirectionCosines());
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  //cube->SetUserTransform( transform ); // can't get it to work
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  //widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
  widget->SetOrientationMarker( assembly );
```

```
  widget->SetInteractor( iren );
  //widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

12.162 gdcmvolume.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkVersion.h"
#include "vtkGDCMImageReader.h"
#include "vtkPiecewiseFunction.h"
#include "vtkColorTransferFunction.h"
#include "vtkVolume.h"
#include "vtkVolumeProperty.h"
#if VTK_MAJOR_VERSION < 7
#include "vtkVolumeTextureMapper3D.h"
#endif
#include "vtkFixedPointVolumeRayCastMapper.h"
#include "vtkInteractorStyleTrackballCamera.h"
#include "vtkRenderer.h"
#include "vtkRenderWindow.h"
#include "vtkImageClip.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkVersion.h"


// gdcmvolume gdcmData/GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  reader->Update();

  // Create the renderers, render window, and interactor
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);
  vtkRenderer *ren = vtkRenderer::New();
  renWin->AddRenderer(ren);

  // Create a transfer function mapping scalar value to opacity
  vtkPiecewiseFunction *oTFun = vtkPiecewiseFunction::New();
  //oTFun->AddSegment(0, 1.0, 256, 0.1);
  oTFun->AddSegment(0, 1.0, 240, 0.1);

  vtkColorTransferFunction *cTFun = vtkColorTransferFunction::New();
```

```
  cTFun->AddRGBPoint(   0, 1.0, 1.0, 1.0 );
  //cTFun->AddRGBPoint( 255, 1.0, 1.0, 1.0 );
  cTFun->AddRGBPoint( 240, 1.0, 1.0, 1.0 );

  // Need to crop to actually see minimum intensity
  vtkImageClip *clip = vtkImageClip::New();
  clip->SetInputConnection( reader->GetOutputPort() );
  clip->SetOutputWholeExtent(0,66,0,66,30,37);
  clip->ClipDataOn();

  vtkVolumeProperty *property = vtkVolumeProperty::New();
  property->SetScalarOpacity(oTFun);
  property->SetColor(cTFun);
  property->SetInterpolationTypeToLinear();

  vtkFixedPointVolumeRayCastMapper *mapper = vtkFixedPointVolumeRayCastMapper::New();
  mapper->SetBlendModeToMinimumIntensity();
  mapper->SetInputConnection( reader->GetOutputPort() );

  vtkVolume *volume = vtkVolume::New();
  volume->SetMapper(mapper);
  volume->SetProperty(property);


  ren->AddViewProp(volume);

  renWin->Render();
    {
    iren->Start();
    }

  volume->Delete();
  mapper->Delete();
  property->Delete();
  clip->Delete();
  cTFun->Delete();
  oTFun->Delete();
  reader->Delete();
  renWin->Delete();
  iren->Delete();
  ren->Delete();


 return 0;
}
```

12.163 offscreenimage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkImageMapToWindowLevelColors.h"
#include "vtkImageActor.h"
#include "vtkPNGWriter.h"
#include "vtkWindowToImageFilter.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
```

```
  const char *filename = argv[1];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update(); // important to read the window/level info

  vtkMedicalImageProperties *prop = reader->GetMedicalImageProperties();

  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->OffScreenRenderingOn();

  vtkRenderer *renderer = vtkRenderer::New();
  renWin->AddRenderer(renderer);

  vtkImageMapToWindowLevelColors *windowlevel = vtkImageMapToWindowLevelColors::New();
#if (VTK_MAJOR_VERSION >= 6)
  windowlevel->SetInputConnection( reader->GetOutputPort() );
#else
  windowlevel->SetInput( reader->GetOutput() );
#endif
  unsigned int n = prop->GetNumberOfWindowLevelPresets();
  if( n )
    {
    // Take the first one by default:
    const double *wl = prop->GetNthWindowLevelPreset(0);
    windowlevel->SetWindow( wl[0] );
    windowlevel->SetLevel( wl[1] );
    }

  vtkImageActor *actor = vtkImageActor::New();
#if (VTK_MAJOR_VERSION >= 6)
  actor->SetInputData( windowlevel->GetOutput() );
#else
  actor->SetInput( windowlevel->GetOutput() );
#endif

  renderer->AddActor( actor );

  renWin->Render();

  vtkWindowToImageFilter *w2if = vtkWindowToImageFilter::New();
  w2if->SetInput ( renWin );

  vtkPNGWriter *wr = vtkPNGWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  wr->SetInputConnection( w2if->GetOutputPort() );
#else
  wr->SetInput( w2if->GetOutput() );
#endif
  wr->SetFileName ( "offscreenimage.png" );
  wr->Write();

  reader->Delete();
  renWin->Delete();
  renderer->Delete();
  windowlevel->Delete();
  actor->Delete();
  w2if->Delete();
  wr->Delete();

  return 0;
}
```

12.164 reslicesphere.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
//
// Load a DICOM series.
// Position a sphere within the volume.
// Allow the user to change between Axial, Sagittal, Coronal, and
//     Oblique view of the images and move through the slices.
// The display should show the resliced image and the cross section
// of the sphere intersecting that plane.
//


/*
from  Scott Johnson /Scott Johnson neuwave com/
to  VTK /vtkusers vtk.org/
date  Tue, May 11, 2010 at 7:01 PM
*/
#include <string>

#include <vtkDICOMImageReader.h>
#include <vtkStringArray.h>
#include <vtkDirectory.h>
#include <vtkImageThreshold.h>
#include <vtkImageShiftScale.h>
#include <vtkImageReslice.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageViewer2.h>
#include <vtkSphereSource.h>
#include <vtkPolyDataMapper.h>
#include <vtkPlane.h>
#include <vtkCutter.h>
#include <vtkActor.h>
#include <vtkCommand.h>
#include <vtkSmartPointer.h>
#include <vtkMatrix4x4.h>
#include <vtkInteractorObserver.h>
#include <vtkProperty.h>
#include <vtkRenderer.h>
#include <vtkImageData.h>
#include <vtkImageActor.h>
#include "vtkTransformPolyDataFilter.h"
#include <vtkCamera.h>
#include <vtkMath.h>
#include <vtkTransform.h>
#include <vtkTextActor.h>
#include <vtkActor2D.h>
#include <vtkPolyDataMapper2D.h>
#include <vtkProperty2D.h>
#include <vtkGDCMImageReader.h>
#include <vtkImageChangeInformation.h>
#include <vtkVersion.h>

#include "gdcmDirectory.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"

// Change to match the path to find Raw_0.vti or provide
// the parameter when starting ResliceSphere.

const double sphereCenter[3]={74, 219, 70};

// Angles (0, 0, 0)
const double AxialMatrix[]    = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 0)
const double SagittalMatrix[] = { 0.0,  0.0,  1.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                 -1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (-90, 0, 0)
const double CoronalMatrix[]  = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0, -1.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 31)
const double ObliqueMatrix[] =  { 0.0, -0.515038, 0.857167, 0.0,
                                  0.0,  0.857167, 0.515038, 0.0,
                                 -1.0,  0.0,      0.0,      0.0,
```

```
                                0.0,  0.0,      0.0,      1.0 };

class ResliceRender;

// Class to handle key press events.
class KeyCallback : public vtkCommand
{
public:
    static KeyCallback* New()
    {
        return new KeyCallback();
    }

    void Execute(vtkObject* caller, unsigned long eventId, void *calldata);
    void SetCallbackData(ResliceRender* reslice);

protected:
    ResliceRender* _reslice;
};

class ResliceRender
{
public:
    typedef enum _ORIENTATION
    {
        AXIAL = 0,
        SAGITTAL = 1,
        CORONAL = 2,
        OBLIQUE = 3
    } ORIENTATION;

    ResliceRender()
    {
        _orientation=AXIAL;
    }

    ~ResliceRender()
    {
        _transform->Delete();
        _reader->Delete();
        _reslice->Delete();
        _interactor->Delete();
        _imageViewer->Delete();

        _sphere->Delete();
        _sphereMapper->Delete();
        _sphereActor->Delete();

        _plane->Delete();
        _cutter->Delete();
        _polyTransform->Delete();
        _ROIMapper->Delete();
        _ROIActor->Delete();

        _annotation->Delete();
    }

    void CreatePipeline(const char* fileName)
    {
        vtkProperty2D* props;

        //_reader=vtkXMLImageDataReader::New();
        //_reader->SetFileName(fileName);
        //_reader->Update();

        //_reader=qzDICOMImageReader::New();
        _reader=vtkGDCMImageReader::New();

      //vtkDirectory *d = vtkDirectory::New();
      //d->Open(fileName);
      //d->Print( std::cout );
      gdcm::Directory d;
      d.Load(fileName);
      gdcm::Directory::FilenamesType const &files = d.GetFilenames();

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( files );
  if( !b )
    {
```

```
    std::cerr « "Failed to sort:" « fileName « std::endl;
    //return ;
    }
  //std::cout « "Sorting succeeded:" « std::endl;
  //s.Print( std::cout );

  //std::cout « "Found z-spacing:" « std::endl;
  //std::cout « s.GetZSpacing() « std::endl;
  double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkStringArray *vtkfiles = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    vtkfiles->InsertNextValue( f.c_str() );
    }

        //_reader->SetDirectoryName(fileName);
        //_reader->SetFileNames( d->GetFiles() );
        _reader->SetFileNames( vtkfiles );
        _reader->Update();

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif
  const vtkFloatingPointType *spacing = _reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( _reader->GetOutputPort() );
#else
  v16->SetInput( _reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();


        _threshold=vtkImageThreshold::New();
        _threshold->ThresholdByUpper(-3024.0);
        _threshold->ReplaceOutOn();
        _threshold->SetOutValue(0.0);
        _threshold->SetInputConnection(v16->GetOutputPort());

        _shift=vtkImageShiftScale::New();
        _shift->SetShift(0);
        _shift->SetScale(1);
        _shift->SetInputConnection(_threshold->GetOutputPort());

        // Initialize the reslice with an axial orientation.
        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        _transform = vtkTransform::New();
        _transform->SetMatrix(matrix);

        _reslice = vtkImageReslice::New();
        _reslice->SetOutputDimensionality(3);

        // PROBLEM:
        // The original intent was to connect the same transform
        // to the vtkImageReslice and vtkTransformPolyDataFilter,
        // but the resulting reslices appear different using the
        // vtkTransform as opposed to explicitly setting the
        // reslice axes via SetResliceAxes.  Also, if the vtkTransform
        // is connected and orientated other than axial, the extents
        // don't seem to update resulting in VTK believing the slice
        // is out of range.

        //_reslice->SetResliceTransform(_transform);
        _reslice->SetResliceAxes(matrix);
        //_reslice->SetInputConnection(_reader->GetOutputPort());
        _reslice->SetInputConnection(_shift->GetOutputPort());

        // Create the sphere target shape.
        _sphere=vtkSphereSource::New();
        _sphere->SetRadius(7.0);
        _sphere->SetThetaResolution(16);
        _sphere->SetPhiResolution(16);
```

```
        _sphere->SetCenter(sphereCenter[0], sphereCenter[1], sphereCenter[2]);

        _sphereMapper=vtkPolyDataMapper::New();
        _sphereMapper->SetInputConnection(_sphere->GetOutputPort());

        _sphereActor=vtkActor::New();
        _sphereActor->SetMapper(_sphereMapper);
        _sphereActor->PickableOff();
        _sphereActor->GetProperty()->SetColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetEdgeColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetDiffuseColor(1.0, 0.0, 0.0);
        _sphereActor->SetVisibility(true);

        // Create the cutting pipeline.
        // This plane will be positioned in the original image coordinate system.
        _plane = vtkPlane::New();
        _plane->SetNormal(0.0, 0.0, 1.0);

        _cutter = vtkCutter::New();
        _cutter->SetInputConnection(_sphere->GetOutputPort());
        _cutter->SetCutFunction(_plane);
        _cutter->GenerateCutScalarsOn();
        _cutter->SetValue(0, 0.5);

        // The transform attached to _polyTransform should move the cut
        // ROI into the resliced coordinate system, which should be the
        // same as the coordinate system of the resliced images.
        // PROBLEM:  It doesn't.
        _polyTransform = vtkTransformPolyDataFilter::New();
        _polyTransform->SetTransform(_transform);
        _polyTransform->SetInputConnection(_cutter->GetOutputPort());

        _ROIMapper = vtkPolyDataMapper2D::New();
        _ROIMapper->SetInputConnection(_polyTransform->GetOutputPort());

    vtkCoordinate* coordinate = vtkCoordinate::New();
    coordinate->SetCoordinateSystemToWorld();
    _ROIMapper->SetTransformCoordinate(coordinate);

        _ROIActor = vtkActor2D::New();
        _ROIActor->SetMapper(_ROIMapper);

        // Make sure the cut can be seen, especially the edges.
        props=_ROIActor->GetProperty();
        props->SetLineWidth(2);
        props->SetOpacity(1.0);
//        props->EdgeVisibilityOn();
//        props->SetDiffuse(0.8);
//        props->SetSpecular(0.3);
//        props->SetSpecularPower(20);
//        props->SetRepresentationToSurface();
//        props->SetDiffuseColor(1.0, 0.0, 0.0);
//        props->SetEdgeColor(1.0, 0.0, 0.0);
        props->SetColor(1.0, 0.0, 0.0);

        _interactor = vtkRenderWindowInteractor::New();

        // Create the image viewer and add the actor with the cut ROI.
        _imageViewer = vtkImageViewer2::New();
        _imageViewer->SetupInteractor(_interactor);
        _imageViewer->SetSize(400, 400);
        _imageViewer->SetColorWindow(1024);
        _imageViewer->SetColorLevel(800);
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());
        _imageViewer->GetImageActor()->SetOpacity(0.5);

        _annotation = vtkTextActor::New();
        _annotation->SetTextScaleModeToViewport();
        _imageViewer->GetRenderer()->AddActor(_annotation);

        // Add the cut shape actor to the renderer.
        _imageViewer->GetRenderer()->AddActor(_ROIActor);

        // Set up the key handler.
        vtkSmartPointer<KeyCallback> callback = vtkSmartPointer<KeyCallback>::New();
        callback->SetCallbackData(this);
        _interactor->AddObserver(vtkCommand::KeyPressEvent, callback);

        _interactor->Initialize();
```

```
    }

    void Start()
    {
        _interactor->Start();
    }

    void ResetOrientation()
    {
        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        SetOrientation(matrix);
    }

    // Make sure the orientation of the vtkImageReslice and
    // vtkTransform are in sync.
    void SetOrientation(vtkMatrix4x4* matrix)
    {
        _reslice->SetResliceAxes(matrix);
        _reslice->Update();

    vtkMatrix4x4* inverse = vtkMatrix4x4::New();
    vtkMatrix4x4::Invert(matrix, inverse);

        _transform->SetMatrix(inverse);
        _transform->Update();
    }

    // Set the current slice of the current view.
    void SetSlice(int slice)
    {
        std::stringstream posString;

        double    center[3];
        double    spacing[3];
        double    origin[3];
        double    point[4];
        double    newPoint[4];

        vtkImageData* imageData;
        int newSlice;

        // Try to make sure the extents of the reslice are updated.
        // PROBLEM:  It doesn't seem to work when changing the orientation.
        imageData=vtkImageData::SafeDownCast(_reslice->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif

        // Let vtkImageViewer2 handle the slice limits.
        _imageViewer->SetSlice(slice);
        newSlice=GetSlice();

        imageData->GetCenter(center);
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        // Compute the position of the center of the slice based on the
        // spacing of the slices.  The resliced axis will always
        // be the "Z" axis.
        point[0]=center[0];
        point[1]=center[1];
        point[2]=(newSlice * spacing[2]) + origin[2];
        point[3]=1.0;

        // Convert the coordinate from the reslice coordinate system to the
        // original image coordinate system.
        // PROBLEM:  Logically this seems like it should have been multiplied
        // by the inverse to translate from the resliced coordinate system to
        // the original coordinate system.  However, multiplying by the inverse
        // sticks the plane in the wrong place completely.  Using the original
        // matrix at least gets the Z coordinate right.
        vtkMatrix4x4* matrix=_reslice->GetResliceAxes();
        vtkSmartPointer<vtkMatrix4x4> inverse =
            vtkSmartPointer<vtkMatrix4x4>::New();
```

```
        vtkMatrix4x4::Invert(matrix, inverse);

        matrix->MultiplyPoint(point, newPoint);
        _plane->SetOrigin(newPoint[0], newPoint[1], newPoint[2]);

        // Annotate the image.
        posString « "Position: (" « newPoint[0] « ", " « newPoint[1]
                  « ", " « newPoint[2] « ")  Slice: " « newSlice;
        _annotation->SetInput(posString.str().c_str());

        _imageViewer->Render();
    }

    int GetSlice()
    {
        return _imageViewer->GetSlice();
    }

    // Set the orientation of the view.
    void SetOrientation(ResliceRender::ORIENTATION orientation)
    {
        vtkCamera* camera=_imageViewer->GetRenderer()->GetActiveCamera();

        double spacing[3];
        double origin[3];
        double point[4];
        double newPoint[4];
        double initialPosition;
        double xDirCosine[3];
        double yDirCosine[3];
        double zDirCosine[3];
        double normal[3];

        vtkImageData* imageData;

        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();

        _orientation=orientation;

        // Reset ViewUp
        camera->SetViewUp(0.0, 1.0, 0.0);

        // Compute the cut plane position to the input coordinate system.
        imageData=vtkImageData::SafeDownCast(_reslice->GetInput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        point[0]=origin[0];
        point[1]=origin[1];
        point[2]=origin[2];
        point[3]=1.0;

        switch (_orientation)
        {
        case AXIAL:
            matrix->DeepCopy(AxialMatrix);
            initialPosition=sphereCenter[2];
            break;

        case CORONAL:
            matrix->DeepCopy(CoronalMatrix);
            initialPosition=sphereCenter[1];
            break;

        case SAGITTAL:
            matrix->DeepCopy(SagittalMatrix);
            initialPosition=sphereCenter[0];
            break;

        case OBLIQUE:
            matrix->DeepCopy(ObliqueMatrix);
            initialPosition=sphereCenter[2];
            break;
```

```
        }

        // Move the origin from the original image coordinate system to the
        // resliced image coordinate system.
        matrix->MultiplyPoint(point, newPoint);
        matrix->SetElement(0, 3, newPoint[0]);
        matrix->SetElement(1, 3, newPoint[1]);
        matrix->SetElement(2, 3, newPoint[2]);

        ResetOrientation();
        SetOrientation(matrix);

        // Compute the cutting plane normal and set it.
        // PROBLEM:  If the transformation is connected rather than
        // using SetResliceAxes, the Direction Cosines do not reflect
        // the orientation of the vtkImageReslice.
        _reslice->GetResliceAxesDirectionCosines(xDirCosine, yDirCosine,
                                                 zDirCosine);
        vtkMath::Cross(xDirCosine, yDirCosine, normal);
        _plane->SetNormal(normal);

        // Set the extents and spacing of the reslice to account for
        // all of the data.
        _reslice->SetOutputExtentToDefault();
        _reslice->SetOutputSpacing(spacing[0], spacing[0], spacing[0]);

        // Force the vtkImageViewer2 to update.
        // PROBLEM:  The whole extent does not seem to be set in time
        // for the first render.  This results in an error because the
        // slice is positioned outside the old bounds.
#if (VTK_MAJOR_VERSION >= 6)
        _imageViewer->SetInputData(NULL);
#else
        _imageViewer->SetInput(NULL);
#endif
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());

        _imageViewer->GetRenderer()->ResetCameraClippingRange();
        _imageViewer->GetRenderer()->ResetCamera();

        // Set the initial slice to be at the center of the sphere.
        // Divide by the spacing because this will be undone in SetSlice.
        SetSlice( (int)(initialPosition / spacing[0]));
    }

    vtkRenderWindowInteractor* GetInteractor()
    {
        return _interactor;
    }

protected:
    ORIENTATION                 _orientation;

    //qzDICOMImageReader*        _reader;
    vtkGDCMImageReader*        _reader;
    vtkImageThreshold*          _threshold;
    vtkImageShiftScale*         _shift;
    vtkImageReslice*            _reslice;
    vtkRenderWindowInteractor*  _interactor;
    vtkImageViewer2*            _imageViewer;

    vtkSphereSource*            _sphere;
    vtkPolyDataMapper*          _sphereMapper;
    vtkActor*                   _sphereActor;

    vtkPlane*                   _plane;
    vtkCutter*                  _cutter;
    vtkTransform*               _transform;
    vtkTransformPolyDataFilter* _polyTransform;
    vtkPolyDataMapper2D*          _ROIMapper;
    vtkActor2D*                   _ROIActor;

    vtkTextActor*               _annotation;
};


// Catch KeyPress events.
// Up Arrow   - increases the slice
// Down Arrow - decreases the slice
// 'A'        - sets the view to Axial
// 'S'        - sets the view to Sagittal
```

```
// 'C'         - sets the view to Coronal
// 'O'         - set the view to Oblique

void KeyCallback::Execute(vtkObject* caller, unsigned long eventId, void *calldata)
{
  (void)caller;
  (void)eventId;
  (void)calldata;
    std::string sym=_reslice->GetInteractor()->GetKeySym();

    if (!sym.compare("Up"))
    {
        _reslice->SetSlice(_reslice->GetSlice() + 1);
    }
    else if (!sym.compare("Down"))
    {
        _reslice->SetSlice(_reslice->GetSlice() - 1);
    }
    else if ((!sym.compare("A")) || (!sym.compare("a")))
    {
        _reslice->SetOrientation(ResliceRender::AXIAL);
    }
    else if ((!sym.compare("C")) || (!sym.compare("c")))
    {
        _reslice->SetOrientation(ResliceRender::CORONAL);
    }
    else if ((!sym.compare("S")) || (!sym.compare("s")))
    {
        _reslice->SetOrientation(ResliceRender::SAGITTAL);
    }
    else if ((!sym.compare("O")) || (!sym.compare("o")))
    {
        _reslice->SetOrientation(ResliceRender::OBLIQUE);
    }
}

void KeyCallback::SetCallbackData(ResliceRender* reslice)
{
    _reslice=reslice;
}

// Usage:  ResliceSphere [fileName]
int main(int argc, char *argv[])
{
    ResliceRender render;

    if (argc == 1)
      {
      const char *root = gdcm::Testing::GetDataExtraRoot();
      std::string dir3 = root;
      dir3 += "/gdcmSampleData/ForSeriesTesting/Dentist/images/";
      render.CreatePipeline(dir3.c_str());
      }
    else
      {
      render.CreatePipeline(argv[1]);
      }

    render.SetOrientation(ResliceRender::AXIAL);
    render.Start();

    return EXIT_SUCCESS;
}
```

12.165 rtstructapp.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
#include "vtkGDCMPolyDataWriter.h"

#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkAppendPolyData.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

/*
 * Small example to read in a RTSTUCT and write it out (displays it too).
 */

// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

  //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

  vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
  writer->SetNumberOfInputPorts( reader->GetNumberOfOutputPorts() );
  writer->SetFileName( outfilename );
  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( num, reader->GetOutputPort(num) );
#else
    writer->SetInput( num, reader->GetOutput(num) );
#endif
  //doesn't look like the medical properties are actually written out
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
  writer->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

 vtkAppendPolyData *append = vtkAppendPolyData::New();

 int n = reader->GetNumberOfOutputPorts();
 for(int i = 0; i < n; ++i)
   {
#if (VTK_MAJOR_VERSION >= 6)
   append->AddInputConnection( reader->GetOutputPort(i) );
#else
   append->AddInput( reader->GetOutput(i) );
#endif
   }

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputConnection( append->GetOutputPort());
#else
  cubeMapper->SetInput( append->GetOutput());
#endif
```

```
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
  writer->Delete();

  return 0;
}
```

12.166 threadgdcm.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmDirectory.h"
#include "gdcmSystem.h"

#include "vtkImageData.h"
#include "vtkStructuredPointsWriter.h"
#include "vtkVersion.h"

#include <pthread.h>

struct threadparams
{
  const char **filenames;
  size_t nfiles;
  char *scalarpointer;
// TODO I should also pass in the dim of the reference image just in case
};

void *ReadFilesThread(void *voidparams)
{
  const threadparams *params = static_cast<const threadparams *> (voidparams);

  const size_t nfiles = params->nfiles;
  for(unsigned int file = 0; file < nfiles; ++file)
    {
    /*
    // TODO: update progress
```

```
    pthread_mutex_lock(&params->lock);
    //section critique
    ReadingProgress+=params->stepProgress;
    pthread_mutex_unlock(&params->lock);
    */
    const char *filename = params->filenames[file];
    //std::cerr « filename « std::endl;

    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    try
      {
      if( !reader.Read() )
        {
        std::cerr « "Failed to read: " « filename « std::endl;
        break;
        }
      }
    catch( ... )
      {
      std::cerr « "Failed to read: " « filename « std::endl;
      break;
      }

    const gdcm::Image &image = reader.GetImage();
    unsigned long len = image.GetBufferLength();
    char * pointer = params->scalarpointer;
#if 0
    char *tempimage = new char[len];
    image.GetBuffer(tempimage);

    memcpy(pointer + file*len, tempimage, len);
    delete[] tempimage;
#else
    char *tempimage = pointer + file * len;
    image.GetBuffer(tempimage);
#endif
    }

  return voidparams;
}

void ShowFilenames(const threadparams &params)
{
  std::cout « "start" « std::endl;
  for(unsigned int i = 0; i < params.nfiles; ++i)
    {
    const char *filename = params.filenames[i];
    std::cout « filename « std::endl;
    }
  std::cout « "end" « std::endl;
}

void ReadFiles(size_t nfiles, const char *filenames[])
{
  // \precondition: nfiles > 0
  assert( nfiles > 0 );
  const char *reference= filenames[0]; // take the first image as reference

  gdcm::ImageReader reader;
  reader.SetFileName( reference );
  if( !reader.Read() )
    {
    // That would be very bad...
    assert(0);
    }

  const gdcm::Image &image = reader.GetImage();
  gdcm::PixelFormat pixeltype = image.GetPixelFormat();
  unsigned long len = image.GetBufferLength();
  const unsigned int *dims = image.GetDimensions();
  unsigned short pixelsize = pixeltype.GetPixelSize();
  (void)pixelsize;
  assert( image.GetNumberOfDimensions() == 2 );

  vtkImageData *output = vtkImageData::New();
  output->SetDimensions(dims[0], dims[1], (int)nfiles);

#if (VTK_MAJOR_VERSION >= 6)
  int numscal = pixeltype.GetSamplesPerPixel();
  switch( pixeltype )
```

```
    {
  case gdcm::PixelFormat::INT8:
    output->AllocateScalars( VTK_SIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::UINT8:
    output->AllocateScalars( VTK_UNSIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::INT16:
    output->AllocateScalars( VTK_SHORT, numscal );
    break;
  case gdcm::PixelFormat::UINT16:
    output->AllocateScalars( VTK_UNSIGNED_SHORT, numscal );
    break;
  case gdcm::PixelFormat::INT32:
    output->AllocateScalars( VTK_INT, numscal );
    break;
  case gdcm::PixelFormat::UINT32:
    output->AllocateScalars( VTK_UNSIGNED_INT, numscal );
    break;
  default:
    assert(0);
    }
#else
  switch( pixeltype )
    {
  case gdcm::PixelFormat::INT8:
#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
    output->SetScalarType ( VTK_SIGNED_CHAR );
#else
    output->SetScalarType ( VTK_CHAR );
#endif
    break;
  case gdcm::PixelFormat::UINT8:
    output->SetScalarType ( VTK_UNSIGNED_CHAR );
    break;
  case gdcm::PixelFormat::INT16:
    output->SetScalarType ( VTK_SHORT );
    break;
  case gdcm::PixelFormat::UINT16:
    output->SetScalarType ( VTK_UNSIGNED_SHORT );
    break;
  case gdcm::PixelFormat::INT32:
    output->SetScalarType ( VTK_INT );
    break;
  case gdcm::PixelFormat::UINT32:
    output->SetScalarType ( VTK_UNSIGNED_INT );
    break;
  default:
    assert(0);
    }
  output->SetNumberOfScalarComponents ( pixeltype.GetSamplesPerPixel() );
  output->AllocateScalars();
#endif
  char * scalarpointer = static_cast<char*>(output->GetScalarPointer());

  const unsigned int nthreads = 4;
  threadparams params[nthreads];

  //pthread_mutex_t lock;
  //pthread_mutex_init(&lock, NULL);

  pthread_t *pthread = new pthread_t[nthreads];

  // There is nfiles, and nThreads
  assert( nfiles > nthreads );
  const size_t partition = nfiles / nthreads;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
    params[thread].filenames = filenames + thread * partition;
    params[thread].nfiles = partition;
    if( thread == nthreads - 1 )
      {
      // There is slightly more files to process in this thread:
      params[thread].nfiles += nfiles % nthreads;
      }
    assert( thread * partition < nfiles );
    params[thread].scalarpointer = scalarpointer + thread * partition * len;
    //assert( params[thread].scalarpointer < scalarpointer + 2 * dims[0] * dims[1] * dims[2] );
    // start thread:
    int res = pthread_create( &pthread[thread], NULL, ReadFilesThread, &params[thread]);
    if( res )
```

```
      {
      std::cerr « "Unable to start a new thread, pthread returned: " « res « std::endl;
      assert(0);
      }
    //ShowFilenames(params[thread]);
    }
// DEBUG
  size_t total = 0;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
    total += params[thread].nfiles;
    }
  assert( total == nfiles );
// END DEBUG

  for (unsigned int thread=0;thread<nthreads;thread++)
    {
    pthread_join( pthread[thread], NULL);
    }
  delete[] pthread;

  //pthread_mutex_destroy(&lock);

  // For some reason writing down the file is painfully slow...
  vtkStructuredPointsWriter *writer = vtkStructuredPointsWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( output );
#else
  writer->SetInput( output );
#endif
  writer->SetFileName( "/tmp/threadgdcm.vtk" );
  writer->SetFileTypeToBinary();
  //writer->Write();
  writer->Delete();

  //output->Print( std::cout );
  output->Delete();
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " [directory|list of filenames]\n";
    return 1;
    }

  // Check if user pass in a single directory
  if( argc == 2 && gdcm::System::FileIsDirectory( argv[1] ) )
    {
    gdcm::Directory d;
    d.Load( argv[1] );
    gdcm::Directory::FilenamesType l = d.GetFilenames();
    const size_t nfiles = l.size();
    const char **filenames = new const char* [ nfiles ];
    for(unsigned int i = 0; i < nfiles; ++i)
      {
      filenames[i] = l[i].c_str();
      }
    ReadFiles(nfiles, filenames);
    delete[] filenames;
    }
  else
    {
    // Simply copy all filenames into the vector:
    const char **filenames = const_cast<const char**>(argv+1);
    const size_t nfiles = argc - 1;
    ReadFiles(nfiles, filenames);
    }


  return 0;
}
```

12.167 AWTMedical3.java

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
package examples;

import vtk.*;
//import gdcm.*;

import vtk.util.VtkPanelContainer;
import vtk.util.VtkPanelUtil;
import vtk.util.VtkUtil;

import java.util.ArrayList;


import javax.swing.*;
import java.awt.*;
import java.io.File;

public class AWTMedical3  extends JComponent implements VtkPanelContainer {

  private vtkPanel renWin;

    vtkImageData ReadDataFile(File inSelectedFile){

        vtkImageData outImageData = null;
        Directory theDir = new Directory();

        String theInputDirectory = inSelectedFile.getPath();
        theDir.Load(theInputDirectory);

        Scanner theScanner = new Scanner();
        Tag theStudyTag = new Tag(0x0020,0x000d);
        Tag theSeriesTag = new Tag(0x0020,0x000e);
        theScanner.AddTag(theStudyTag);//get studies,
        theScanner.AddTag(theSeriesTag);//get studies,
        theScanner.Scan(theDir.GetFilenames());

        FilenamesType theStudyValues = theScanner.GetOrderedValues(theStudyTag);
        long theNumStudies = theStudyValues.size();
        //for now, take the first study, and nothing else.
        //and the return is actually not FilenamesType, just a
        //vector of strings
        if (theNumStudies != 1)
            return outImageData;
        String theStudyVal = theStudyValues.get(0);
        //now, get all the values from the scanner that are in that
        //study, then from that get their different series
        FilenamesType theFilenames =
                theScanner.GetAllFilenamesFromTagToValue(theStudyTag, theStudyVal);

        //from that set of filenames, isolate individual series
        //conclude that singleton series = RT struct (can do further
        //checking for things like MIPs and the like)
        //and multiple series entries = volumetric data
        theScanner.Scan(theFilenames);
        FilenamesType theSeriesValues = theScanner.GetOrderedValues(theSeriesTag);
        String studyUID = theScanner.GetValue(theScanner.GetFilenames().get(0), theStudyTag);
        long theNumSeries = theSeriesValues.size();
        for (int i = 0; i < theNumSeries; i++) {
            FilenamesType theSeriesFiles =
                theScanner.GetAllFilenamesFromTagToValue(theSeriesTag, theSeriesValues.get(i));
            long theNumFilesInSeries = theSeriesFiles.size();
            if (theNumFilesInSeries > 1) {//assume it's CT or volumetric data
                //for now, assume a single volume
                //could have multiples, like PET and CT

                IPPSorter sorter = new IPPSorter();
                sorter.SetComputeZSpacing(true);
                sorter.SetZSpacingTolerance(0.001);
                Boolean sorted = sorter.Sort(theSeriesFiles);
                if (!sorted){
```

```
                    //need some better way to handle failures here
                    return outImageData;
                }

                FilenamesType sortedFT = sorter.GetFilenames();
                long theSize = sortedFT.size();
                vtkStringArray sa = new vtkStringArray();
                ArrayList<String> theStrings = new ArrayList<String>();

                vtkGDCMImageReader gdcmReader = new vtkGDCMImageReader();
                for (int j = 0; j < theSize; j++) {
                    String theFileName = sortedFT.get(j);
                    if (gdcmReader.CanReadFile(theFileName) > 0){
                        theStrings.add(theFileName);
                        sa.InsertNextValue(theFileName);
                    } else {
                        //this is a busted series
                        //need some more appropriate error here
                        return outImageData;
                    }
                }

                gdcmReader.SetFileNames(sa);

                gdcmReader.Update();

                outImageData = gdcmReader.GetOutput();//the zeroth output should be the image
            }
        }
        String theImageInfo = "";
        if (outImageData != null){
            theImageInfo = outImageData.Print();
        }
        return outImageData;
    }

    //this function is a rewrite of Medical3 to see if data can
    //be loaded via gdcm easily
  public AWTMedical3(File inFile) {
    // Create the buttons.
    renWin = new vtkPanel();

    vtkImageData theImageData = ReadDataFile(inFile);

    // An isosurface, or contour value of 500 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the
    // isosurface these render much faster on some systems.
    vtkContourFilter skinExtractor = new vtkContourFilter();
    skinExtractor.SetInput(theImageData);
    skinExtractor.SetValue(0, 500);
    vtkPolyDataNormals skinNormals = new vtkPolyDataNormals();
    skinNormals.SetInput(skinExtractor.GetOutput());
    skinNormals.SetFeatureAngle(60.0);
//        vtkStripper skinStripper = new vtkStripper();
//        skinStripper.SetInput(skinNormals.GetOutput());
    vtkPolyDataMapper skinMapper = new vtkPolyDataMapper();
    skinMapper.SetInput(skinNormals.GetOutput());
    skinMapper.ScalarVisibilityOff();
    vtkActor skin = new vtkActor();
    skin.SetMapper(skinMapper);
    skin.GetProperty().SetDiffuseColor(1, .49, .25);
    skin.GetProperty().SetSpecular(.3);
    skin.GetProperty().SetSpecularPower(20);

    // An isosurface, or contour value of 1150 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the
    // isosurface these render much faster on some systems.
    vtkContourFilter boneExtractor = new vtkContourFilter();
    boneExtractor.SetInput(theImageData);
    boneExtractor.SetValue(0, 1150);
    vtkPolyDataNormals boneNormals = new vtkPolyDataNormals();
    boneNormals.SetInput(boneExtractor.GetOutput());
    boneNormals.SetFeatureAngle(60.0);
    vtkStripper boneStripper = new vtkStripper();
    boneStripper.SetInput(boneNormals.GetOutput());
    vtkPolyDataMapper boneMapper = new vtkPolyDataMapper();
    boneMapper.SetInput(boneStripper.GetOutput());
```

```
boneMapper.ScalarVisibilityOff();
vtkActor bone = new vtkActor();
bone.SetMapper(boneMapper);
bone.GetProperty().SetDiffuseColor(1, 1, .9412);

// An outline provides context around the data.
vtkOutlineFilter outlineData = new vtkOutlineFilter();
outlineData.SetInput(theImageData);
vtkPolyDataMapper mapOutline = new vtkPolyDataMapper();
mapOutline.SetInput(outlineData.GetOutput());
vtkActor outline = new vtkActor();
outline.SetMapper(mapOutline);
outline.GetProperty().SetColor(0, 0, 0);

// Now we are creating three orthogonal planes passing through the
// volume. Each plane uses a different texture map and therefore has
// different coloration.

// Start by creating a black/white lookup table.
vtkLookupTable bwLut = new vtkLookupTable();
bwLut.SetTableRange(0, 2000);
bwLut.SetSaturationRange(0, 0);
bwLut.SetHueRange(0, 0);
bwLut.SetValueRange(0, 1);
bwLut.Build();

// Now create a lookup table that consists of the full hue circle (from
// HSV);.
vtkLookupTable hueLut = new vtkLookupTable();
hueLut.SetTableRange(0, 2000);
hueLut.SetHueRange(0, 1);
hueLut.SetSaturationRange(1, 1);
hueLut.SetValueRange(1, 1);
hueLut.Build();

// Finally, create a lookup table with a single hue but having a range
// in the saturation of the hue.
vtkLookupTable satLut = new vtkLookupTable();
satLut.SetTableRange(0, 2000);
satLut.SetHueRange(.6, .6);
satLut.SetSaturationRange(0, 1);
satLut.SetValueRange(1, 1);
satLut.Build();

// Create the first of the three planes. The filter vtkImageMapToColors
// maps the data through the corresponding lookup table created above.
// The vtkImageActor is a type of vtkProp and conveniently displays an
// image on a single quadrilateral plane. It does this using texture
// mapping and as a result is quite fast. (Note: the input image has to
// be unsigned char values, which the vtkImageMapToColors produces.);
// Note also that by specifying the DisplayExtent, the pipeline
// requests data of this extent and the vtkImageMapToColors only
// processes a slice of data.
vtkImageMapToColors sagittalColors = new vtkImageMapToColors();
sagittalColors.SetInput(theImageData);
sagittalColors.SetLookupTable(bwLut);
vtkImageActor sagittal = new vtkImageActor();
sagittal.SetInput(sagittalColors.GetOutput());
sagittal.SetDisplayExtent(32, 32, 0, 63, 0, 92);

// Create the second (axial); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors axialColors = new vtkImageMapToColors();
axialColors.SetInput(theImageData);
axialColors.SetLookupTable(hueLut);
vtkImageActor axial = new vtkImageActor();
axial.SetInput(axialColors.GetOutput());
axial.SetDisplayExtent(0, 63, 0, 63, 46, 46);

// Create the third (coronal); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors coronalColors = new vtkImageMapToColors();
coronalColors.SetInput(theImageData);
coronalColors.SetLookupTable(satLut);
vtkImageActor coronal = new vtkImageActor();
coronal.SetInput(coronalColors.GetOutput());
coronal.SetDisplayExtent(0, 63, 32, 32, 0, 92);

// It is convenient to create an initial view of the data. The FocalPoint
// and Position form a vector direction. Later on (ResetCamera() method)
// this vector is used to position the camera to look at the data in
```

```
    // this direction.
    vtkCamera aCamera = new vtkCamera();
    aCamera.SetViewUp(0, 0, -1);
    aCamera.SetPosition(0, 1, 0);
    aCamera.SetFocalPoint(0, 0, 0);
    aCamera.ComputeViewPlaneNormal();

    // Actors are added to the renderer. An initial camera view is created.
    // The Dolly() method moves the camera towards the FocalPoint,
    // thereby enlarging the image.
    renWin.GetRenderer().AddActor(sagittal);
    renWin.GetRenderer().AddActor(axial);
    renWin.GetRenderer().AddActor(coronal);
    renWin.GetRenderer().AddActor(outline);
    renWin.GetRenderer().AddActor(skin);
    renWin.GetRenderer().AddActor(bone);

    // Turn off bone for this example.
    bone.VisibilityOff();

    // Set skin to semi-transparent.
    skin.GetProperty().SetOpacity(0.5);

    // An initial camera view is created.  The Dolly() method moves
    // the camera towards the FocalPoint, thereby enlarging the image.
    renWin.GetRenderer().SetActiveCamera(aCamera);
    renWin.GetRenderer().ResetCamera();
    aCamera.Dolly(1.5);

    // Set a background color for the renderer and set the size of the
    // render window (expressed in pixels).
    renWin.GetRenderer().SetBackground(1, 1, 1);
    VtkPanelUtil.setSize(renWin, 640, 480);

    // Note that when camera movement occurs (as it does in the Dolly()
    // method), the clipping planes often need adjusting. Clipping planes
    // consist of two planes: near and far along the view direction. The
    // near plane clips out objects in front of the plane the far plane
    // clips out objects behind the plane. This way only what is drawn
    // between the planes is actually rendered.
    renWin.GetRenderer().ResetCameraClippingRange();

    // Setup panel
    setLayout(new BorderLayout());
    add(renWin, BorderLayout.CENTER);
  }



  public vtkPanel getRenWin() {
    return renWin;
  }


  public static void main(String s[]) {
    if (s.length == 0){
      return; //need a filename here
    }
    File theFile = new File(s[0]);
    //File theFile = new
      File("/Users/mmroden/Documents/MVSDownloadDirectory/Documents/1.2.840.113704.1.111.3384.1271766367.5/");
    AWTMedical3 panel = new AWTMedical3(theFile);

    JFrame frame = new JFrame("AWTMedical3");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.getContentPane().add("Center", panel);
    frame.pack();
    frame.setVisible(true);
  }

}
```

12.168 HelloVTKWorld.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac HelloVTKWorld.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java HelloVTKWorld gdcmData/012345.002.050.dcm
      bla.dcm
 *
 */
public class HelloVTKWorld
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    String filename = args[0];
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.out.println( prop.GetPatientName() ); //

//    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
//      {
//      System.out.println( "Image is MONOCHROME2" ); //
//      }

    // Just for fun, invert the direction cosines, output should reflect that:
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    // We need to maintain in sync information stored in vtkMedicalImageProperties:
    double[] cosines = new double[6];
    cosines[0] = dircos.GetElement(0,0);
    cosines[1] = dircos.GetElement(1,0);
    cosines[2] = dircos.GetElement(2,0);
    cosines[3] = dircos.GetElement(0,1);
    cosines[4] = dircos.GetElement(1,1);
    cosines[5] = dircos.GetElement(2,1);
    reader.GetMedicalImageProperties().SetDirectionCosine( cosines );

    String outfilename = args[1];
```

```
    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() ); // new
    //writer.SetInput( reader.GetOutput() ); // old
    writer.Write();

    System.out.println("Success reading: " + filename );
    }
}
```

12.169 MIPViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;
import java.awt.Canvas;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MIPViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MIPViewer BRAINX
 *
 */
public class MIPViewer extends Canvas
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkVolumeRenderingJava"); // vtkSmartVolumeMapper
    System.loadLibrary("vtkWidgetsJava"); // vtkBoxWidget
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  protected native int Lock();

  protected native int UnLock();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
```

```
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // Create our volume and mapper
    vtkVolume volume = new vtkVolume();
    vtkSmartVolumeMapper mapper = new vtkSmartVolumeMapper();

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();

    // Add a box widget if the clip option was selected
    vtkBoxWidget box = new vtkBoxWidget();
    box.SetInteractor(iren);
    box.SetPlaceFactor(1.01);
    box.SetInputConnection(change.GetOutputPort());

    //box.SetDefaultRenderer(renderer);
    box.InsideOutOn();
    box.PlaceWidget();
    //vtkBoxWidgetCallback callback = vtkBoxWidgetCallback::New();
    //callback.SetMapper(mapper);
    //box.AddObserver(vtkCommand::InteractionEvent, callback);
    //callback.Delete();
//    Lock();
//    box.EnabledOn();
//    UnLock();
    box.GetSelectedFaceProperty().SetOpacity(0.0);

    mapper.SetInputConnection( change.GetOutputPort() );

    // Create our transfer function
    vtkColorTransferFunction colorFun = new vtkColorTransferFunction();
    vtkPiecewiseFunction opacityFun = new vtkPiecewiseFunction();

    // Create the property and attach the transfer functions
```

```
    vtkVolumeProperty property = new vtkVolumeProperty();
    property.IndependentComponentsOn();
    property.SetColor( colorFun );
    property.SetScalarOpacity( opacityFun );
    property.SetInterpolationTypeToLinear();

    // connect up the volume to the property and the mapper
    volume.SetProperty( property );
    volume.SetMapper( mapper );

    vtkMedicalImageProperties medprop = reader.GetMedicalImageProperties();
    int n = medprop.GetNumberOfWindowLevelPresets();
    double opacityWindow = 4096;
    double opacityLevel = 2048;

    // Override default with value from DICOM files:
    for( int i = 0; i < n; ++i )
      {
      double wl[] = medprop.GetNthWindowLevelPreset(i);
      //System.out.println( "W/L: " + wl[0] + " " + wl[1] );
      opacityWindow = wl[0];
      opacityLevel  = wl[1];
      }

    colorFun.AddRGBSegment(0.0, 1.0, 1.0, 1.0, 255.0, 1.0, 1.0, 1.0 );
    opacityFun.AddSegment( opacityLevel - 0.5*opacityWindow, 0.0,
      opacityLevel + 0.5*opacityWindow, 1.0 );
    mapper.SetBlendModeToMaximumIntensity();

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    // Set the default window size
    renWin.SetSize(600,600);

    // Add the volume to the scene
    ren1.AddVolume( volume );
    ren1.ResetCamera();

    iren.SetRenderWindow( renWin );

    // interact with data
    renWin.Render();

    iren.Start();
    }
}
```

12.170 MPRViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer BRAINX
 *
```

```
 */
public class MPRViewer
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // A simple vtkInteractorStyleImage example for
    // 3D image viewing with the vtkImageResliceMapper.
    //
```

```
    // Drag Left mouse button to window/level
    // Shift-Left drag to rotate (oblique slice)
    // Shift-Middle drag to slice through image
    // OR Ctrl-Right drag to slice through image

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    vtkImageResliceMapper im = new vtkImageResliceMapper();
    im.SetInputConnection(change.GetOutputPort());
    im.SliceFacesCameraOn();
    im.SliceAtFocalPointOn();
    im.BorderOff();

    vtkImageProperty ip = new vtkImageProperty();
    ip.SetColorWindow(2000);
    ip.SetColorLevel(1000);
    ip.SetAmbient(0.0);
    ip.SetDiffuse(1.0);
    ip.SetOpacity(1.0);
    ip.SetInterpolationTypeToLinear();

    vtkImageSlice ia = new vtkImageSlice();
    ia.SetMapper(im);
    ia.SetProperty(ip);

    ren1.AddViewProp(ia);
    ren1.SetBackground(0.1,0.2,0.4);
    renWin.SetSize(300,300);

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
    vtkInteractorStyleImage style = new vtkInteractorStyleImage();
    style.SetInteractionModeToImage3D();
    iren.SetInteractorStyle(style);
    renWin.SetInteractor(iren);

    // render the image
    renWin.Render();
    vtkCamera cam1 = ren1.GetActiveCamera();
    cam1.ParallelProjectionOn();
    ren1.ResetCameraClippingRange();
    renWin.Render();

    iren.Start();
    }
}
```

12.171 MPRViewer2.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer2.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer2 BRAINX
 *
 */
```

```
public class MPRViewer2
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkHybridJava");
    System.loadLibrary("vtkWidgetsJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public void dointer(vtkImagePlaneWidget  current_widget)
    {
    int cstat = current_widget.GetCursorDataStatus();
    double[] v = current_widget.GetCurrentCursorPosition();
    //System.out.println( cstat );
    //System.out.println( v[0] );
    //System.out.println( v[1] );
    //System.out.println( v[2] );
    planeWidgetX.SetSliceIndex( (int)v[0] );
    planeWidgetY.SetSliceIndex( (int)v[1] );
    planeWidgetZ.SetSliceIndex( (int)v[2] );
    planeWidgetX.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetY.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetZ.GetCurrentRenderer().ResetCameraClippingRange();
    }
  public void startinterX()
    {
    dointer( planeWidgetX );
    }
  public void interX()
    {
    dointer( planeWidgetX );
    }
  public void endinterX()
    {
    }
  public void startinterY()
    {
    dointer( planeWidgetY );
    }
  public void interY()
    {
    dointer( planeWidgetY );
    }
  public void endinterY()
    {
    }
  public void startinterZ()
    {
    dointer( planeWidgetZ );
    }
```

```
public void interZ()
  {
  dointer( planeWidgetZ );
  }
public void endinterZ()
  {
  //System.out.println( "endinter" );
  }

public static void AlignCamera(int slice_number, vtkImagePlaneWidget current_widget)
  {
  vtkImageData image = (vtkImageData)current_widget.GetInput();
  vtkRenderer ren = current_widget.GetCurrentRenderer();
  double[] origin = image.GetOrigin();
  double ox = origin[0];
  double oy = origin[1];
  double oz = origin[2];

  int dims[] = image.GetDimensions();
  int xMin = 0;
  int xMax = 1;
  int yMin = 2;
  int yMax = dims[0]-1;
  int zMin = dims[1]-1;
  int zMax = dims[2]-1;

  double[] spacing = image.GetSpacing();
  double sx = spacing[0];
  double sy = spacing[1];
  double sz = spacing[2];

  double cx = ox+(0.5*(xMax-xMin))*sx;
  double cy = oy+(0.5*(yMax-yMin))*sy;
  double cz = oy+(0.5*(zMax-zMin))*sz;
  double vx = 0, vy = 0, vz = 0;
  double nx = 0, ny = 0, nz = 0;
  int iaxis = current_widget.GetPlaneOrientation();
  if ( iaxis == 0 ) {
    vz = -1;
    nx = ox + xMax*sx;
    cx = ox + slice_number*sx;
    }
  else if ( iaxis == 1 ) {
    vz = -1;
    ny = oy+yMax*sy;
    cy = oy+slice_number*sy;
    }
  else {
    vy = 1;
    nz = oz+zMax*sz;
    cz = oz+slice_number*sz;
  }
  double px = cx+nx*2;
  double py = cy+ny*2;
  double pz = cz+nz*3;

  vtkCamera camera = ren.GetActiveCamera();
  camera.SetViewUp(vx, vy, vz);
  camera.SetFocalPoint(cx, cy, cz);
  camera.SetPosition(px, py, pz);
  camera.OrthogonalizeViewUp();
  ren.ResetCameraClippingRange();
  }

private vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
private vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
private vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();

public void config()
  {
  //System.out.println( "config" );
  planeWidgetX.GetCurrentRenderer().ResetCamera();
  planeWidgetY.GetCurrentRenderer().ResetCamera();
  planeWidgetZ.GetCurrentRenderer().ResetCamera();
  }

public void Run(String dirname)
  {
  File dir = new File(dirname);
```

```
visitAllFiles(dir);

IPPSorter ipp = new IPPSorter();
ipp.SetComputeZSpacing( true );
ipp.SetZSpacingTolerance( 1e-3 );
boolean b = ipp.Sort( fns );
if(!b)
  {
  //throw new Exception("Could not scan");
  }
double ippzspacing = ipp.GetZSpacing();

FilenamesType sorted = ipp.GetFilenames();
vtkStringArray files = new vtkStringArray();
long nfiles = sorted.size();
//for( String f : sorted )
for (int i = 0; i < nfiles; i++) {
  String f = sorted.get(i);
  files.InsertNextValue( f );
  }
vtkGDCMImageReader reader = new vtkGDCMImageReader();
reader.SetFileNames( files );
reader.Update(); // get spacing value

double[] spacing = reader.GetOutput().GetSpacing();

vtkImageChangeInformation change = new vtkImageChangeInformation();
change.SetInputConnection( reader.GetOutputPort() );
change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
change.Update();

System.out.println( change.GetOutput().toString() );

vtkRenderer ren1 = new vtkRenderer();
ren1.SetViewport(0., 0., 0.333, 1);
ren1.SetBackground(0.1,0.2,0.4);
vtkRenderer ren2 = new vtkRenderer();
ren2.SetViewport(0.333, 0., 0.667, 1);
ren2.SetBackground(0.1,0.2,0.4);
vtkRenderer ren3 = new vtkRenderer();
ren3.SetViewport(0.667, 0., 1., 1.);
ren3.SetBackground(0.1,0.2,0.4);

vtkRenderWindow renWin = new vtkRenderWindow();
renWin.AddRenderer(ren1);
renWin.AddRenderer(ren2);
renWin.AddRenderer(ren3);

vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
iren.SetRenderWindow(renWin);

vtkInteractorStyleImage style = new vtkInteractorStyleImage();
iren.SetInteractorStyle( style );

vtkCellPicker picker = new vtkCellPicker();
picker.SetTolerance(0.005);

vtkProperty ipwProp = new vtkProperty();

//vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
planeWidgetX.SetInteractor(iren);
planeWidgetX.SetCurrentRenderer(ren1);
planeWidgetX.SetDefaultRenderer(ren1);
planeWidgetX.RestrictPlaneToVolumeOn();
planeWidgetX.SetTexturePlaneProperty(ipwProp);
//planeWidgetX.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetX.TextureInterpolateOff();
//planeWidgetX.SetResliceInterpolateToNearestNeighbour();
planeWidgetX.SetInputConnection(change.GetOutputPort());
planeWidgetX.SetPlaneOrientationToXAxes();
planeWidgetX.SetSliceIndex(62);
planeWidgetX.SetPicker(picker);
planeWidgetX.SetKeyPressActivationValue('x');
planeWidgetX.On();
planeWidgetX.InteractionOn();

//vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
planeWidgetY.SetInteractor(iren);
planeWidgetY.SetCurrentRenderer(ren2);
planeWidgetY.SetDefaultRenderer(ren2);
planeWidgetY.RestrictPlaneToVolumeOn();
```

```
    planeWidgetY.SetTexturePlaneProperty(ipwProp);
    //planeWidgetY.GetPlaneProperty().SetColor(1,0,0);
    //planeWidgetY.TextureInterpolateOff();
    //planeWidgetY.SetResliceInterpolateToNearestNeighbour();
    planeWidgetY.SetInputConnection(change.GetOutputPort());
    planeWidgetY.SetLookupTable( planeWidgetX.GetLookupTable() );
    planeWidgetY.SetPlaneOrientationToYAxes();
    planeWidgetY.SetSliceIndex(32);
    planeWidgetY.SetPicker(picker);
    planeWidgetY.SetKeyPressActivationValue('y');
    planeWidgetY.On();


    //vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();
    planeWidgetZ.SetInteractor(iren);
    planeWidgetZ.SetCurrentRenderer(ren3);
    planeWidgetZ.SetDefaultRenderer(ren3);
    planeWidgetZ.RestrictPlaneToVolumeOn();
    planeWidgetZ.SetTexturePlaneProperty(ipwProp);
    //planeWidgetZ.GetPlaneProperty().SetColor(1,0,0);
    //planeWidgetZ.TextureInterpolateOff();
    //planeWidgetZ.SetResliceInterpolateToNearestNeighbour();
    planeWidgetZ.SetInputConnection(change.GetOutputPort());
    planeWidgetZ.SetLookupTable( planeWidgetX.GetLookupTable() );
    planeWidgetZ.SetPlaneOrientationToZAxes();
    planeWidgetZ.SetSliceIndex(32);
    planeWidgetZ.SetPicker(picker);
    planeWidgetZ.SetKeyPressActivationValue('z');
    planeWidgetZ.On();

    iren.Initialize();

    renWin.Render();
    AlignCamera(52, planeWidgetX);
    AlignCamera(32, planeWidgetY);
    AlignCamera(32, planeWidgetZ);

    planeWidgetX.GetCurrentRenderer().ResetCamera();
    planeWidgetY.GetCurrentRenderer().ResetCamera();
    planeWidgetZ.GetCurrentRenderer().ResetCamera();

    renWin.Render();

    planeWidgetX.AddObserver("StartInteractionEvent", this,"startinterX");
    planeWidgetX.AddObserver("InteractionEvent", this,"interX");
    planeWidgetX.AddObserver("EndInteractionEvent", this,"endinterX");
    planeWidgetY.AddObserver("StartInteractionEvent", this,"startinterY");
    planeWidgetY.AddObserver("InteractionEvent", this,"interY");
    planeWidgetY.AddObserver("EndInteractionEvent", this,"endinterY");
    planeWidgetZ.AddObserver("StartInteractionEvent", this,"startinterZ");
    planeWidgetZ.AddObserver("InteractionEvent", this,"interZ");
    planeWidgetZ.AddObserver("EndInteractionEvent", this,"endinterZ");

    iren.AddObserver("ConfigureEvent", this,"config");

    iren.Start();
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    MPRViewer2 me = new MPRViewer2();
    me.Run( dirname );
    }
}
```

12.172 ReadSeriesIntoVTK.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Usage:
 * export LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:.
 * java -classpath `pwd`/vtkgdcm.jar:/usr/share/java/vtk.jar:. ReadSeriesIntoVTK
 */
public class ReadSeriesIntoVTK
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    vtkFileOutputWindow outWin = new vtkFileOutputWindow();
    outWin.SetInstance(outWin);
    outWin.SetFileName("MVSVTKViewer.log");

    // See: http://review.source.kitware.com/#change,888
    // vtkWrapJava does not handle static keyword
    // String directory = vtkGDCMTesting.GetGDCMDataRoot();
    vtkGDCMTesting t = new vtkGDCMTesting();
    String directory = t.GetGDCMDataRoot();
    String file0 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm";
    String file1 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm";
    String file2 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm";
    String file3 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm";

    vtkStringArray s = new vtkStringArray();
    System.out.println("adding : " + file0 );
    s.InsertNextValue( file0 );
    s.InsertNextValue( file1 );
    s.InsertNextValue( file2 );
    s.InsertNextValue( file3 );

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( s );
    reader.Update();

    System.out.println("Success reading: " + file0 );

    vtkMetaImageWriter writer = new vtkMetaImageWriter();
    writer.DebugOn();
    writer.SetCompression( false );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.SetFileName( "ReadSeriesIntoVTK.mhd" );
```

```
    writer.Write();

    System.out.println("Success writing: " + writer.GetFileName() );
    }
}
```

12.173 CastConvertPhilips.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python --public /path/to/directory/
00019 or
00020  python --private /path/to/directory/
00021
00022  python --public --extension bak /path/to/directory/
00023
00024 rename -f 's/\.bak$//' *.bak
00025
00026 TODO:
00027 http://docs.python.org/library/optparse.html#module-optparse
00028 """
00029
00030 import vtkgdcm
00031 import vtk
00032 import sys
00033 import gdcm
00034
00035 def ProcessOneFilePublic(filename, outfilename, tmpfile):
00036   gdcm.ImageHelper.SetForceRescaleInterceptSlope(True)
00037   vtkreader = vtkgdcm.vtkGDCMImageReader()
00038   vtkreader.SetFileName( filename )
00039   vtkreader.Update()
00040
00041   cast = vtk.vtkImageCast()
00042   cast.SetInput( vtkreader.GetOutput() )
00043   cast.SetOutputScalarTypeToUnsignedShort()
00044
00045   # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
00046   # Some operation will actually be discarded (we simply need a temp storage)
00047   vtkwriter = vtkgdcm.vtkGDCMImageWriter()
00048   vtkwriter.SetFileName( tmpfile )
00049   vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
00050   vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
00051   print "Format:",vtkreader.GetImageFormat()
00052   vtkwriter.SetImageFormat( vtkreader.GetImageFormat() )
00053   vtkwriter.SetInput( cast.GetOutput() )
00054   #vtkwriter.Update()
00055   vtkwriter.Write()
00056
00057   # ok now rewrite the exact same file as the original (keep all info)
00058   # but use the Pixel Data Element from the written file
00059   tmpreader = gdcm.ImageReader()
00060   tmpreader.SetFileName( tmpfile )
00061   if not tmpreader.Read():
00062     sys.exit(1)
00063
00064   reader = gdcm.Reader()
00065   reader.SetFileName( filename )
00066   if not reader.Read():
00067     sys.exit(1)
00068
00069   # Make sure to remove Slope/Rescale to avoid re-execution
00070   ds = reader.GetFile().GetDataSet()
00071   tags = [
00072     gdcm.Tag(0x0028,0x1052),
00073     gdcm.Tag(0x0028,0x1053),
00074     gdcm.Tag(0x0028,0x1053),
00075   ]
00076   for tag in tags:
00077     ds.Remove( tag )
00078
00079   writer = gdcm.ImageWriter()
00080   writer.SetFileName( outfilename )
00081   # Pass image from vtk written file
```

```
  writer.SetImage( tmpreader.GetImage() )
  # pass dataset from initial 'reader'
  writer.SetFile( reader.GetFile() )
  if not writer.Write():
    sys.exit(1)

def ProcessOneFilePrivate(filename, outfilename, tmpfile):
  vtkreader = vtkgdcm.vtkGDCMImageReader()
  vtkreader.SetFileName( filename )
  vtkreader.Update()


  # (2005,1409)     DS      4       0.0
  # (2005,140a)     DS      16      1.52283272283272

  # (2005,0014)     LO      26      Philips MR Imaging DD 005
  tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
  tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")



  # Need to access some private tags, reread the file (for now):
  reader = gdcm.Reader()
  reader.SetFileName( filename )
  if not reader.Read():
    sys.exit(1)

  ds = reader.GetFile().GetDataSet()

  el1 = ds.GetDataElement( tag1 )
  el2 = ds.GetDataElement( tag2 )


  #pf = gdcm.PythonFilter()
  #pf.SetFile( reader.GetFile() )
  #print el1.GetTag()

  print el1.GetByteValue()
  v1 = eval(el1.GetByteValue().GetBuffer())
  print el2.GetByteValue()
  v2 = eval(el2.GetByteValue().GetBuffer())

  print v1
  shift = v1
  print v2
  scale = v2

  ss = vtk.vtkImageShiftScale()
  ss.SetInput( vtkreader.GetOutput() )
  # because VTK image shift / scale convention is inverted from DICOM make sure shift is 0
  assert shift == 0
  ss.SetShift( shift )
  ss.SetScale( scale )
  ss.SetOutputScalarTypeToUnsignedShort ()
  ss.Update()

  # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
  # Some operation will actually be discarded (we simply need a temp storage)
  vtkwriter = vtkgdcm.vtkGDCMImageWriter()
  vtkwriter.SetFileName( tmpfile )
  vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
  vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
  vtkwriter.SetImageFormat( reader.GetImageFormat() )
  # do not pass shift/scale again
  vtkwriter.SetInput( ss.GetOutput() )
  #vtkwriter.Update()
  vtkwriter.Write()

  # ok now rewrite the exact same file as the original (keep all info)
  # but use the Pixel Data Element from the written file
  tmpreader = gdcm.ImageReader()
  tmpreader.SetFileName( tmpfile )
  if not tmpreader.Read():
    sys.exit(1)

  writer = gdcm.ImageWriter()
  writer.SetFileName( outfilename )
  # Pass image from vtk written file
  writer.SetImage( tmpreader.GetImage() )
  # pass dataset from initial 'reader'
  writer.SetFile( reader.GetFile() )
```

```
  if not writer.Write():
    sys.exit(1)

if __name__ == "__main__":

  gdcm.Trace.DebugOff()
  gdcm.Trace.WarningOff()
  #filename = sys.argv[1]
  #outfilename = sys.argv[2]
  tmpfile = "/tmp/philips_rescaled.dcm"
  #ProcessOneFile( filename, outfilename, tmpfile )
  rescaletype = sys.argv[1]
  assert rescaletype == "--public" or rescaletype == "--private"
  dirname = sys.argv[2]
  d = gdcm.Directory()
  d.Load( dirname )

  for f in d.GetFilenames():
    #print f
    ProcessOneFilePublic( f, f + ".bak", tmpfile )


print "success"
```

12.174 headsq2dcm.py

```

"""
Usage:
 python headsq2dcm.py -D /path/to/VTKData
"""

import vtk
import vtkgdcm
from vtk.util.misc import vtkGetDataRoot
VTK_DATA_ROOT = vtkGetDataRoot()

reader = vtk.vtkVolume16Reader()
reader.SetDataDimensions(64, 64)
reader.SetDataByteOrderToLittleEndian()
reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter")
reader.SetImageRange(1, 93)
reader.SetDataSpacing(3.2, 3.2, 1.5)

cast = vtk.vtkImageCast()
cast.SetInput( reader.GetOutput() )
cast.SetOutputScalarTypeToUnsignedChar()

# By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
writer = vtkgdcm.vtkGDCMImageWriter()
writer.SetFileName( "headsq.dcm" )
writer.SetInput( reader.GetOutput() )
# cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
#writer.SetInput( cast.GetOutput() )
writer.SetFileDimensionality( 3 )
writer.Write()
```

Index

~ASN1
gdcm::ASN1, 127
~AnonymizeEvent
gdcm::AnonymizeEvent, 105
~Anonymizer
gdcm::Anonymizer, 110
~Attribute
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 149
~AudioCodec
gdcm::AudioCodec, 165
~BaseCompositeMessage
gdcm::network::BaseCompositeMessage, 170
~BaseNormalizedMessage
gdcm::network::BaseNormalizedMessage, 172
~BasePDU
gdcm::network::BasePDU, 174
~BaseQuery
gdcm::BaseQuery, 177
~BaseRootQuery
gdcm::BaseRootQuery, 182
~Bitmap
gdcm::Bitmap, 195
~BitmapToBitmapFilter
gdcm::BitmapToBitmapFilter, 207
~BoxRegion
gdcm::BoxRegion, 210
~ByteSwapFilter
gdcm::ByteSwapFilter, 217
~ByteValue
gdcm::ByteValue, 220
~CAPICryptographicMessageSyntax
gdcm::CAPICryptographicMessageSyntax, 229
~CSAHeader
gdcm::CSAHeader, 290
~Cleaner
gdcm::Cleaner, 241
~Coder
gdcm::Coder, 252
~Command
gdcm::Command, 259
~CommandDataSet
gdcm::CommandDataSet, 263
~CryptoFactory
gdcm::CryptoFactory, 277
~CryptographicMessageSyntax
gdcm::CryptographicMessageSyntax, 279
~Curve
gdcm::Curve, 305
~DICOMDIRGenerator
gdcm::DICOMDIRGenerator, 354
~DPath
gdcm::DPath, 386
~DataEvent
gdcm::DataEvent, 323
~DataSetEvent
gdcm::DataSetEvent, 339
~Decoder
gdcm::Decoder, 342
~Defs
gdcm::Defs, 345
~DeltaEncodingCodec
gdcm::DeltaEncodingCodec, 351
~DictConverter
gdcm::DictConverter, 361
~DictPrinter
gdcm::DictPrinter, 370
~Dicts
gdcm::Dicts, 373
~DirectionCosines
gdcm::DirectionCosines, 378
~Directory
gdcm::Directory, 381
~Dumper
gdcm::Dumper, 391
~Element
gdcm::Element< TVR, VM::VM1_n >, 400
~EmptyMaskGenerator
gdcm::EmptyMaskGenerator, 424
~Event
gdcm::Event, 434
~Exception
gdcm::Exception, 437
~File
gdcm::File, 450
~FileAnonymizer
gdcm::FileAnonymizer, 455
~FileChangeTransferSyntax
gdcm::FileChangeTransferSyntax, 459
~FileDecompressLookupTable

gdcm::FileDecompressLookupTable, 463
~FileDerivation
gdcm::FileDerivation, 465
~FileExplicitFilter
gdcm::FileExplicitFilter, 469
~FileMetaInformation
gdcm::FileMetaInformation, 475
~FileNameEvent
gdcm::FileNameEvent, 486
~FileStreamer
gdcm::FileStreamer, 496
~FilenameGenerator
gdcm::FilenameGenerator, 489
~Global
gdcm::Global, 515
~GroupDict
gdcm::GroupDict, 519
~IconImageFilter
gdcm::IconImageFilter, 521
~IconImageGenerator
gdcm::IconImageGenerator, 524
~Image
gdcm::Image, 532
~ImageApplyLookupTable
gdcm::ImageApplyLookupTable, 538
~ImageChangePhotometricInterpretation
gdcm::ImageChangePhotometricInterpretation, 542
~ImageChangePlanarConfiguration
gdcm::ImageChangePlanarConfiguration, 547
~ImageChangeTransferSyntax
gdcm::ImageChangeTransferSyntax, 551
~ImageCodec
gdcm::ImageCodec, 557
~ImageConverter
gdcm::ImageConverter, 566
~ImageFragmentSplitter
gdcm::ImageFragmentSplitter, 569
~ImageReader
gdcm::ImageReader, 580
~ImageRegionReader
gdcm::ImageRegionReader, 585
~ImageToImageFilter
gdcm::ImageToImageFilter, 589
~ImageWriter
gdcm::ImageWriter, 593
~JPEG12Codec
gdcm::JPEG12Codec, 627
~JPEG16Codec
gdcm::JPEG16Codec, 632
~JPEG2000Codec
gdcm::JPEG2000Codec, 636
~JPEG8Codec
gdcm::JPEG8Codec, 644
~JPEGCodec
gdcm::JPEGCodec, 649
~JPEGLSCodec
gdcm::JPEGLSCodec, 658
~JSON
gdcm::JSON, 662
~KAKADUCodec
gdcm::KAKADUCodec, 667
~LookupTable
gdcm::LookupTable, 674
~MemberCommand
gdcm::MemberCommand< T >, 702
~MeshPrimitive
gdcm::MeshPrimitive, 708
~ModuleEntry
gdcm::ModuleEntry, 723
~MrProtocol
gdcm::MrProtocol, 735
~Object
gdcm::Object, 764
~OpenSSLCryptographicMessageSyntax
gdcm::OpenSSLCryptographicMessageSyntax, 769
~OpenSSLP7CryptographicMessageSyntax
gdcm::OpenSSLP7CryptographicMessageSyntax, 774
~Orientation
gdcm::Orientation, 777
~Overlay
gdcm::Overlay, 782
~PDBHeader
gdcm::PDBHeader, 802
~PDFCodec
gdcm::PDFCodec, 805
~PGXCodec
gdcm::PGXCodec, 815
~PNMCodec
gdcm::PNMCodec, 850
~PVRGCodec
gdcm::PVRGCodec, 889
~ParseException
gdcm::ParseException, 789
~Parser
gdcm::Parser, 792
~Pixmap
gdcm::Pixmap, 832
~PixmapReader
gdcm::PixmapReader, 838
~PixmapToPixmapFilter
gdcm::PixmapToPixmapFilter, 841
~PixmapWriter
gdcm::PixmapWriter, 845
~Preamble
gdcm::Preamble, 853
~Printer
gdcm::Printer, 873

~PrivateDict
gdcm::PrivateDict, 876
~ProgressEvent
gdcm::ProgressEvent, 885
~PythonFilter
gdcm::PythonFilter, 891
~QueryBase
gdcm::QueryBase, 893
~RAWCodec
gdcm::RAWCodec, 909
~RLECodec
gdcm::RLECodec, 929
~Reader
gdcm::Reader, 914
~Region
gdcm::Region, 920
~Rescaler
gdcm::Rescaler, 923
~SHA1
gdcm::SHA1, 1006
~Scanner
gdcm::Scanner, 938
~Scanner2
gdcm::Scanner2, 948
~Segment
gdcm::Segment, 957
~SegmentReader
gdcm::SegmentReader, 969
~SegmentWriter
gdcm::SegmentWriter, 972
~SegmentedPaletteColorLookupTable
gdcm::SegmentedPaletteColorLookupTable, 965
~SerieHelper
gdcm::SerieHelper, 992
~ServiceClassUser
gdcm::ServiceClassUser, 1000
~SimpleMemberCommand
gdcm::SimpleMemberCommand< T >, 1010
~SimpleSubjectWatcher
gdcm::SimpleSubjectWatcher, 1013
~SmartPointer
gdcm::SmartPointer< ObjectType >, 1019
~Sorter
gdcm::Sorter, 1026
~Spacing
gdcm::Spacing, 1030
~SplitMosaicFilter
gdcm::SplitMosaicFilter, 1033
~StreamImageReader
gdcm::StreamImageReader, 1038
~StreamImageWriter
gdcm::StreamImageWriter, 1043
~StrictScanner
gdcm::StrictScanner, 1052
~StrictScanner2
gdcm::StrictScanner2, 1061
~StringFilter
gdcm::StringFilter, 1073
~Subject
gdcm::Subject, 1078
~Surface
gdcm::Surface, 1084
~SurfaceReader
gdcm::SurfaceReader, 1099
~SurfaceWriter
gdcm::SurfaceWriter, 1103
~Table
gdcm::Table, 1116
~TableEntry
gdcm::TableEntry, 1118
~TableReader
gdcm::TableReader, 1119
~TableRow
gdcm::network::TableRow, 1122
~TagPath
gdcm::TagPath, 1133
~Testing
gdcm::Testing, 1136
~Trace
gdcm::Trace, 1143
~Transition
gdcm::network::Transition, 1154
~ULAction
gdcm::network::ULAction, 1199
~ULBasicCallback
gdcm::network::ULBasicCallback, 1239
~ULConnection
gdcm::network::ULConnection, 1241
~ULConnectionCallback
gdcm::network::ULConnectionCallback, 1246
~ULConnectionManager
gdcm::network::ULConnectionManager, 1252
~ULEvent
gdcm::network::ULEvent, 1257
~ULWritingCallback
gdcm::network::ULWritingCallback, 1261
~UserInformation
gdcm::network::UserInformation, 1275
~Validate
gdcm::Validate, 1278
~Value
gdcm::Value, 1280
~Version
gdcm::Version, 1284
~Writer
gdcm::Writer, 1414
~XMLDictReader
gdcm::XMLDictReader, 1418

~XMLPrinter
gdcm::XMLPrinter, 1421
~XMLPrivateDictReader
gdcm::XMLPrivateDictReader, 1424
~vtkGDCMImageReader
vtkGDCMImageReader, 1310
~vtkGDCMImageReader2
vtkGDCMImageReader2, 1322
~vtkGDCMImageWriter
vtkGDCMImageWriter, 1334
~vtkGDCMMedicalImageProperties
vtkGDCMMedicalImageProperties, 1341
~vtkGDCMPolyDataReader
vtkGDCMPolyDataReader, 1344
~vtkGDCMPolyDataWriter
vtkGDCMPolyDataWriter, 1348
~vtkGDCMTesting
vtkGDCMTesting, 1352
~vtkGDCMThreadedImageReader
vtkGDCMThreadedImageReader, 1357
~vtkGDCMThreadedImageReader2
vtkGDCMThreadedImageReader2, 1361
~vtkImageColorViewer
vtkImageColorViewer, 1369
~vtkImageMapToColors16
vtkImageMapToColors16, 1380
~vtkImageMapToWindowLevelColors2
vtkImageMapToWindowLevelColors2, 1385
~vtkImagePlanarComponentsToComponents
vtkImagePlanarComponentsToComponents, 1388
~vtkImageRGBToYBR
vtkImageRGBToYBR, 1390
~vtkImageYBRToRGB
vtkImageYBRToRGB, 1392
~vtkLookupTable16
vtkLookupTable16, 1394
~vtkRTStructSetProperties
vtkRTStructSetProperties, 1398

AAbortPDU
gdcm::network::AAbortPDU, 86
AAssociateACPDU
gdcm::network::AAssociateACPDU, 89
gdcm::network::AAssociateRQPDU, 99
AAssociateRJPDU
gdcm::network::AAssociateRJPDU, 93
AAssociateRQPDU
gdcm::network::AAssociateACPDU, 91
gdcm::network::AAssociateRQPDU, 96
AbstractMultiDimensionalImageModel
gdcm::UIDs, 1186
AbstractSyntax
gdcm::network::AbstractSyntax, 101
gdcm::PresentationContext, 858
AcquisitionContextSRStorage
gdcm::UIDs, 1185
ActiveComponent
vtkImageMapToColors16, 1383
Add
gdcm::GroupDict, 519
add1
gdcm, 63
AddAcceptedPresentationContext
gdcm::network::ULConnection, 1242
AddContourReferencedFrameOfReference
vtkRTStructSetProperties, 1399
AddCSAHeaderDictEntry
gdcm::CSAHeaderDict, 294
AddDerivationDescription
gdcm::FileDerivation, 466
AddDictEntry
gdcm::Dict, 358
gdcm::PrivateDict, 876
AddFile
gdcm::FileSet, 492
gdcm::SerieHelper, 992
AddFileName
gdcm::SerieHelper, 992
AddFragment
gdcm::SequenceOfFragments, 978
AddFromFile
gdcm::PresentationContextGenerator, 863
AddGroupLength
gdcm::DictConverter, 362
AddImageDirectoryRecord
gdcm::DICOMDIRGenerator, 354
AddInput
vtkImageColorViewer, 1370
AddInputConnection
vtkImageColorViewer, 1370
AddIOD
gdcm::IODs, 610
AddIODEntry
gdcm::IOD, 605
AddItem
gdcm::SequenceOfItems, 985
AddMacro
gdcm::Macros, 685
gdcm::Module, 720
AddMacroEntry
gdcm::Macro, 682
AddModule
gdcm::Modules, 726
AddModuleEntry
gdcm::Module, 720
gdcm::NestedModuleEntries, 748
AddNewUndefinedLengthItem
gdcm::SequenceOfItems, 985

AddObserver
gdcm::Subject, 1079
AddPatientDirectoryRecord
gdcm::DICOMDIRGenerator, 354
AddPresentationContext
gdcm::network::AAssociateRQPDU, 96
gdcm::PresentationContextGenerator, 863
AddPresentationContextAC
gdcm::network::AAssociateACPDU, 90
AddPresentationDataValue
gdcm::network::PDataTFPDU, 796
AddPrimitiveData
gdcm::MeshPrimitive, 708
AddPrivateTag
gdcm::Scanner, 938
gdcm::Scanner2, 948
gdcm::StrictScanner, 1052
gdcm::StrictScanner2, 1062
AddPublicTag
gdcm::Scanner2, 948
gdcm::StrictScanner2, 1062
AddPurposeOfReferenceCodeSequence
gdcm::FileDerivation, 466
AddQueryDataSet
gdcm::BaseQuery, 177
AddReference
gdcm::FileDerivation, 466
AddReferencedFrameOfReference
vtkRTStructSetProperties, 1399
AddRestriction
gdcm::SerieHelper, 992, 993
AddRoleSelectionSub
gdcm::network::UserInformation, 1275
AddSegment
gdcm::SegmentWriter, 973
AddSelect
gdcm::Sorter, 1026
AddSeriesDirectoryRecord
gdcm::DICOMDIRGenerator, 354
AddSkipTag
gdcm::Scanner, 938
gdcm::Scanner2, 948
gdcm::StrictScanner, 1052
gdcm::StrictScanner2, 1062
AddSOPClassExtendedNegociationSub
gdcm::network::UserInformation, 1275
AddSourceImageSequence
gdcm::FileDerivation, 466
AddStructureSetROI
vtkRTStructSetProperties, 1399
AddStructureSetROIObservation
vtkRTStructSetProperties, 1399
AddStudyDirectoryRecord
gdcm::DICOMDIRGenerator, 354
AddSurface
gdcm::Segment, 957
AddTag
gdcm::Scanner, 939
gdcm::StrictScanner, 1052
AddTransferSyntax
gdcm::network::PresentationContextRQ, 865
gdcm::PresentationContext, 857
AdultMouseAnatomyOntology
gdcm::UIDs, 1183
AdvancedBlendingPresentationStateStorage
gdcm::UIDs, 1184
AE
gdcm::VR, 1296
AEComp
gdcm, 58
AES128_CIPHER
gdcm::CryptographicMessageSyntax, 279
AES192_CIPHER
gdcm::CryptographicMessageSyntax, 279
AES256_CIPHER
gdcm::CryptographicMessageSyntax, 279
AffectedSOPClassUID
gdcm::network::CEchoRQ, 232
AGFA
gdcm::EquipmentManufacturer, 431
ALGOType
gdcm::Segment, 956
ALGOType_END
gdcm::Segment, 957
Allocate
gdcm::LookupTable, 675
AmbulatoryECGWaveformStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
AnatomicRegion
gdcm::Segment, 961
AnatomicRegionModifiers
gdcm::Segment, 961
AnonymizeEvent
gdcm::AnonymizeEvent, 105
Anonymizer
gdcm::Anonymizer, 110
Append
gdcm::ByteValue, 221
gdcm::Global, 516
AppendFrameEncode
gdcm::ImageCodec, 557
gdcm::JPEG2000Codec, 636
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 658
gdcm::RLECodec, 930
AppendImplementationClassUID
gdcm::FileMetaInformation, 475

AppendRowEncode
gdcm::ImageCodec, 557
gdcm::JPEG2000Codec, 636
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 658
gdcm::RLECodec, 930
AppendToDataElement
gdcm::FileStreamer, 496
AppendToGroupDataElement
gdcm::FileStreamer, 496
ApplicationContext
gdcm::network::ApplicationContext, 117
Apply
gdcm::ImageApplyLookupTable, 539
ApplyInverseVideo
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
ApplyLookupTable
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
ApplyPlanarConfiguration
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
ApplyShiftScale
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
ApplyYBRToRGB
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
Area
gdcm::BoxRegion, 210
gdcm::Region, 920
AReleaseRPPDU
gdcm::network::AReleaseRPPDU, 121
AReleaseRQPDU
gdcm::network::AReleaseRQPDU, 124
AreOverlaysInPixelData
gdcm::Bitmap, 196
gdcm::Pixmap, 832
ARGB
gdcm::PhotometricInterpretation, 818
ArrayIncludeMacrosType
gdcm::Macro, 682
gdcm::Module, 719
ArrayType
gdcm::Attribute< Group, Element, TVR, TVM >, 132
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 139
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 149
ArterialPulseWaveformStorage
gdcm::UIDs, 1184
ARTIMTimer
gdcm::network::ARTIMTimer, 125
AS
gdcm::VR, 1296
ASComp
gdcm, 58
ASN1
gdcm::ASN1, 127
AsynchronousOperationsWindowSub
gdcm::network::AsynchronousOperationsWindowSub, 129
AT
gdcm::VR, 1296
Attribute
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 149
gdcm::terminal, 82
Audio
gdcm::MediaStorage, 695
AudioCodec
gdcm::AudioCodec, 165
AudioSRStorageTrialRetired
gdcm::UIDs, 1181
AUTOMATIC
gdcm::Segment, 957
AutoPixelMinMax
gdcm::IconImageGenerator, 524
AutorefractionMeasurementsStorage
gdcm::UIDs, 1184
AXIAL
gdcm::Orientation, 777

backslash
gdcm, 63
BadBigEndian
gdcm::SwapCode, 1105
BadLittleEndian
gdcm::SwapCode, 1105
BALCPProtect
gdcm::Anonymizer, 110
Base64
gdcm::Base64, 167
BaseQuery
gdcm::BaseQuery, 177
BaseRootQuery
gdcm::BaseRootQuery, 182
BasicAnnotationBoxSOPClass
gdcm::UIDs, 1179
BasicApplicationLevelConfidentialityProfile
gdcm::Anonymizer, 110
BasicCodedEntry
gdcm::SegmentHelper::BasicCodedEntry, 186
BasicCodedEntryVector
gdcm::Segment, 956
BasicColorImageBoxSOPClass
gdcm::UIDs, 1179

BasicColorPrintManagementMetaSOPClass
gdcm::UIDs, 1179
BasicFilmBoxSOPClass
gdcm::UIDs, 1179
BasicFilmSessionSOPClass
gdcm::UIDs, 1179
BasicGrayscaleImageBoxSOPClass
gdcm::UIDs, 1179
BasicGrayscalePrintManagementMetaSOPClass
gdcm::UIDs, 1179
BasicOffsetTable
gdcm::BasicOffsetTable, 191
BasicPrintImageOverlayBoxSOPClassRetired
gdcm::UIDs, 1179
BasicStructuredDisplayStorage
gdcm::UIDs, 1185
BasicStudyContentNotificationSOPClassRetired
gdcm::UIDs, 1178
BasicTextSR
gdcm::MediaStorage, 694
BasicTextSRStorage
gdcm::UIDs, 1181
BasicVoiceAudioWaveformStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
Begin
gdcm::CSAHeaderDict, 294
gdcm::DataSet, 328
gdcm::Dict, 358
gdcm::IODs, 610
gdcm::Scanner, 939
gdcm::Scanner2, 948
gdcm::SequenceOfFragments, 978
gdcm::SequenceOfItems, 986
gdcm::StrictScanner, 1052
gdcm::StrictScanner2, 1062
BigEndian
gdcm::SwapCode, 1105
Bitmap
gdcm::Bitmap, 195
gdcm::JPEG2000Codec, 640
gdcm::PixelFormat, 827
BitmapToBitmapFilter
gdcm::BitmapToBitmapFilter, 207
BitSample
gdcm::JPEGCodec, 654
gdcm::LookupTable, 679
black
gdcm::terminal, 82
BlendingSoftcopyPresentationStateStorageSOPClass
gdcm::UIDs, 1180
blink
gdcm::terminal, 82
BLUE
gdcm::LookupTable, 674
blue
gdcm::terminal, 82
BOOL_FUNCTION_PFILE_PFILE_POINTER
gdcm, 58
BoundingBox
gdcm::BoxRegion, 210
BoxRegion
gdcm::BoxRegion, 210
BreakConnection
gdcm::network::ULConnectionManager, 1252
BreakConnectionNow
gdcm::network::ULConnectionManager, 1252
BreastImagingRelevantPatientInformationQuery
gdcm::UIDs, 1182
BreastProjectionXRayImageStorageForPresentation
gdcm::MediaStorage, 695
gdcm::UIDs, 1184
BreastProjectionXRayImageStorageForProcessing
gdcm::MediaStorage, 695
gdcm::UIDs, 1184
BreastTomosynthesisImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1183
bright
gdcm::terminal, 82
Bug List, 7
Build
vtkLookupTable16, 1395
ByteBuffer
gdcm::ByteBuffer, 214
bytes
gdcm::Tag, 1132
ByteSwap
gdcm::ByteSwapFilter, 217
ByteSwapFilter
gdcm::ByteSwapFilter, 217
ByteValue
gdcm::ByteValue, 220

C_CANCEL_RQ
gdcm::network::DIMSE, 376
C_ECHO_RQ
gdcm::network::DIMSE, 376
C_ECHO_RSP
gdcm::network::DIMSE, 376
C_FIND_RQ
gdcm::network::DIMSE, 376
C_FIND_RSP
gdcm::network::DIMSE, 376
C_GET_RQ
gdcm::network::DIMSE, 376
C_GET_RSP
gdcm::network::DIMSE, 376

C_MOVE_RQ
gdcm::network::DIMSE, 376
C_MOVE_RSP
gdcm::network::DIMSE, 376
C_STORE_RQ
gdcm::network::DIMSE, 376
C_STORE_RSP
gdcm::network::DIMSE, 376
CALIBRATED
gdcm::Spacing, 1030
CanCode
gdcm::AudioCodec, 165
gdcm::Coder, 252
gdcm::ImageCodec, 558
gdcm::JPEG2000Codec, 637
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 659
gdcm::KAKADUCodec, 667
gdcm::PDFCodec, 805
gdcm::PGXCodec, 815
gdcm::PNMCodec, 850
gdcm::PVRGCodec, 889
gdcm::RAWCodec, 909
gdcm::RLECodec, 930
CanDecode
gdcm::AudioCodec, 165
gdcm::Decoder, 342
gdcm::DeltaEncodingCodec, 351
gdcm::ImageCodec, 558
gdcm::JPEG2000Codec, 637
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 659
gdcm::KAKADUCodec, 667
gdcm::PDFCodec, 805
gdcm::PGXCodec, 815
gdcm::PNMCodec, 850
gdcm::PVRGCodec, 889
gdcm::RAWCodec, 909
gdcm::RLECodec, 930
CanDisplay
gdcm::VR, 1297
CanEmptyTag
gdcm::Anonymizer, 110
CanRead
gdcm::Reader, 914
CanReadFile
vtkGDCMImageReader, 1310
vtkGDCMImageReader2, 1322
CanReadImage
gdcm::StreamImageReader, 1039
CanStoreLossy
gdcm::TransferSyntax, 1150
CanWriteFile
gdcm::StreamImageWriter, 1044
CAPI
gdcm::CryptoFactory, 277
CAPICryptoFactory
gdcm::CAPICryptoFactory, 227
CAPICryptographicMessageSyntax
gdcm::CAPICryptographicMessageSyntax, 229
CardiacElectrophysiologyWaveformStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
CardiacRelevantPatientInformationQuery
gdcm::UIDs, 1182
CEcho
gdcm::CompositeNetworkFunctions, 267
CFind
gdcm::CompositeNetworkFunctions, 268
Change
gdcm::FileChangeTransferSyntax, 460
gdcm::FileDecompressLookupTable, 463
gdcm::FileExplicitFilter, 469
gdcm::ImageChangePhotometricInterpretation, 542
gdcm::ImageChangePlanarConfiguration, 547
gdcm::ImageChangeTransferSyntax, 551
ChangeFMI
gdcm::FileExplicitFilter, 469
ChangeMonochrome
gdcm::ImageChangePhotometricInterpretation, 542
ChangeRGB2YBR
gdcm::ImageChangePhotometricInterpretation, 542
ChangeYBR2RGB
gdcm::ImageChangePhotometricInterpretation, 542
CharacterDataHandler
gdcm::TableReader, 1119
gdcm::XMLDictReader, 1419
gdcm::XMLPrivateDictReader, 1425
CheckDataElement
gdcm::FileStreamer, 496
CheckEvent
gdcm::AnonymizeEvent, 105
gdcm::DataEvent, 324
gdcm::DataSetEvent, 339
gdcm::Event, 434
gdcm::FileNameEvent, 486
gdcm::ProgressEvent, 885
CheckFileMetaInformationOff
gdcm::Writer, 1414
CheckFileMetaInformationOn
gdcm::Writer, 1414
CheckTemplateFileName
gdcm::FileStreamer, 496
ChestCADSRStorage
gdcm::UIDs, 1181
CipherTypes
gdcm::CryptographicMessageSyntax, 279
Clamp

gdcm, 63
Clean
gdcm::Cleaner, 242
clean
gdcm, 64
Cleaner
gdcm::Cleaner, 241
CleanupUnusedBits
gdcm::ImageCodec, 558
Clear
gdcm::Anonymizer, 110
gdcm::Bitmap, 196
gdcm::ByteValue, 221
gdcm::DataElement, 312
gdcm::DataSet, 329
gdcm::IOD, 605
gdcm::IODs, 610
gdcm::Item, 620
gdcm::LookupTable, 675
gdcm::Macro, 682
gdcm::Macros, 685
gdcm::Module, 720
gdcm::Modules, 726
gdcm::Preamble, 853
gdcm::SequenceOfFragments, 978
gdcm::SequenceOfItems, 986
gdcm::SerieHelper, 993
gdcm::Value, 1281
vtkGDCMMedicalImageProperties, 1341
vtkRTStructSetProperties, 1399
ClearInternalUIDs
gdcm::Anonymizer, 111
ClearPrivateTags
gdcm::Scanner2, 948
gdcm::StrictScanner2, 1062
ClearPublicTags
gdcm::Scanner2, 949
gdcm::StrictScanner2, 1062
ClearSkipTags
gdcm::Scanner, 939
gdcm::Scanner2, 949
gdcm::StrictScanner, 1053
gdcm::StrictScanner2, 1062
ClearTags
gdcm::Scanner, 939
gdcm::StrictScanner, 1053
Clone
gdcm::BoxRegion, 211
gdcm::ImageCodec, 558
gdcm::JPEG2000Codec, 637
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 659
gdcm::KAKADUCodec, 667
gdcm::PGXCodec, 815
gdcm::PNMCodec, 850
gdcm::PVRGCodec, 889
gdcm::RAWCodec, 909
gdcm::Region, 920
gdcm::RLECodec, 930
CM
gdcm::SegmentHelper::BasicCodedEntry, 187
cMaxEventID
gdcm::network, 80
cMaxStateID
gdcm::network, 80
CMove
gdcm::CompositeNetworkFunctions, 268
CMYK
gdcm::PhotometricInterpretation, 818
Code
gdcm::Coder, 252
gdcm::JPEG2000Codec, 637
gdcm::JPEGCodec, 650
gdcm::JPEGLSCodec, 659
gdcm::JSON, 663
gdcm::KAKADUCodec, 667
gdcm::PVRGCodec, 890
gdcm::RAWCodec, 910
gdcm::RLECodec, 930
CodeMeaning
gdcm::RealWorldValueMappingContent, 918
CodeString
gdcm::CodeString, 255, 256
CodeValue
gdcm::RealWorldValueMappingContent, 918
ColonCADSRStorage
gdcm::UIDs, 1185
Color
gdcm::terminal, 82
ColorArray
gdcm::SurfaceHelper, 1094
ColorPaletteQueryRetrieveInformationModelFIND
gdcm::UIDs, 1186
ColorPaletteQueryRetrieveInformationModelGET
gdcm::UIDs, 1186
ColorPaletteQueryRetrieveInformationModelMOVE
gdcm::UIDs, 1186
ColorPaletteStorage
gdcm::UIDs, 1186
ColorSoftcopyPresentationStateStorageSOPClass
gdcm::UIDs, 1180
Command
gdcm::Command, 259
CommandDataSet
gdcm::CommandDataSet, 263
CommandTypes
gdcm::network::DIMSE, 376
Compatible

gdcm::VM, 1292
gdcm::VR, 1297
Component
gdcm::PersonName, 811
CompOperators
gdcm, 60
CompositeInstanceRetrieveWithoutBulkDataGET
gdcm::UIDs, 1185
CompositeInstanceRootRetrieveGET
gdcm::UIDs, 1185
CompositeInstanceRootRetrieveMOVE
gdcm::UIDs, 1185
CompositingPlanarMPRVolumetricPresentationStateStorage
gdcm::UIDs, 1184
Comprehensive3DSRStorage
gdcm::UIDs, 1185
ComprehensiveSR
gdcm::MediaStorage, 694
ComprehensiveSRStorage
gdcm::UIDs, 1181
ComprehensiveSRStorageTrialRetired
gdcm::UIDs, 1181
CompressionTypes
vtkGDCMImageWriter, 1334
Compute
gdcm::EquipmentManufacturer, 432
gdcm::MD5, 688
gdcm::SHA1, 1006
ComputeBoundingBox
gdcm::BoxRegion, 211
gdcm::Region, 920
ComputeBufferLength
gdcm::ImageRegionReader, 586
ComputeByteLength
gdcm::SequenceOfFragments, 978
ComputeDataElement
gdcm::DataSet, 329
ComputeDataSetMediaStorageSOPClass
gdcm::FileMetaInformation, 475
ComputeDataSetTransferSyntax
gdcm::FileMetaInformation, 476
ComputeDistAlongNormal
gdcm::DirectionCosines, 378
ComputedRadiographyImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
ComputeFile
gdcm::MD5, 688
gdcm::SHA1, 1006
ComputeFileMD5
gdcm::Testing, 1136
ComputeGroupLength
gdcm::DataSet, 329
ComputeInterceptSlopePixelType
gdcm::Rescaler, 923
ComputeLength
gdcm::ByteValue, 221
gdcm::Fragment, 513
gdcm::SequenceOfFragments, 978
gdcm::SequenceOfItems, 986
ComputeLossyFlag
gdcm::Bitmap, 196
ComputeMD5
gdcm::Testing, 1136
ComputeMediaStorageFromModality
gdcm::ImageHelper, 572
ComputeMOSAICDimensions
gdcm::SplitMosaicFilter, 1033
ComputeMOSAICImagePositionPatient
gdcm::SplitMosaicFilter, 1033
ComputeMOSAICSliceNormal
gdcm::SplitMosaicFilter, 1033
ComputeMOSAICSlicePosition
gdcm::SplitMosaicFilter, 1033
ComputeNumberOfSurfaces
gdcm::SurfaceWriter, 1103
ComputeOffsetTable
gdcm::JPEGCodec, 651
ComputePixelAspectRatioFromPixelSpacing
gdcm::Spacing, 1031
ComputePixelTypeFromMinMax
gdcm::Rescaler, 923
ComputeSpacingFromImagePositionPatient
gdcm::ImageHelper, 572
ComputeTargetMediaStorage
gdcm::ImageWriter, 593
ComputeVR
gdcm::DataSetHelper, 341
ComputeZSpacing
gdcm::IPPSorter, 615
ConcatenatePDVBlobs
gdcm::network::PresentationDataValue, 868
ConcatenatePDVBlobsAsExplicit
gdcm::network::PresentationDataValue, 868
CONDENSED_STYLE
gdcm::Printer, 873
Conditional
gdcm::Usage, 1271
CONSOLE
gdcm::terminal, 82
const
gdcm::SOPClassUIDToIOD, 1023
const_iterator
gdcm::CodeString, 254
gdcm::LO, 669
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1069
const_reference

gdcm::CodeString, 254
gdcm::LO, 669
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1069
const_reverse_iterator
gdcm::CodeString, 254
gdcm::LO, 669
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1069
ConstCharWrapper
gdcm::ConstCharWrapper, 271
ConstIterator
gdcm::CSAHeaderDict, 294
gdcm::DataSet, 328
gdcm::Dict, 357
gdcm::Scanner, 938
gdcm::SequenceOfFragments, 977
gdcm::SequenceOfItems, 985
gdcm::StrictScanner, 1051
Construct
gdcm::BaseRootQuery, 183
ConstructAbortPDU
gdcm::network::PDUFactory, 807
ConstructCEchoRQ
gdcm::network::CompositeMessageFactory, 265
ConstructCFindRQ
gdcm::network::CompositeMessageFactory, 265
ConstructCMoveRQ
gdcm::network::CompositeMessageFactory, 265
ConstructCStoreRQ
gdcm::network::CompositeMessageFactory, 265
ConstructCStoreRSP
gdcm::network::CompositeMessageFactory, 266
ConstructFromString
gdcm::DPath, 387
gdcm::TagPath, 1133
ConstructFromTagList
gdcm::TagPath, 1133
ConstructNAction
gdcm::network::NormalizedMessageFactory, 756
ConstructNCreate
gdcm::network::NormalizedMessageFactory, 756
ConstructNDelete
gdcm::network::NormalizedMessageFactory, 757
ConstructNEventReport
gdcm::network::NormalizedMessageFactory, 757
ConstructNGet
gdcm::network::NormalizedMessageFactory, 757
ConstructNSet
gdcm::network::NormalizedMessageFactory, 757
ConstructorType
gdcm::Dicts, 372
ConstructPDU
gdcm::network::PDUFactory, 807
ConstructPDV
gdcm::network::BaseCompositeMessage, 170
gdcm::network::BaseNormalizedMessage, 172
gdcm::network::CEchoRQ, 232
gdcm::network::CFindRQ, 237
gdcm::network::CMoveRQ, 248
gdcm::network::CStoreRQ, 301
gdcm::network::CStoreRSP, 302
gdcm::network::NActionRQ, 738
gdcm::network::NCreateRQ, 741
gdcm::network::NDeleteRQ, 744
gdcm::network::NEventReportRQ, 750
gdcm::network::NGetRQ, 753
gdcm::network::NSetRQ, 761
ConstructPDVByDataSet
gdcm::network::CEchoRSP, 234
gdcm::network::CFindCancelRQ, 235
gdcm::network::CFindRSP, 238
gdcm::network::CMoveCancelRq, 247
gdcm::network::CMoveRSP, 249
gdcm::network::NActionRSP, 739
gdcm::network::NCreateRSP, 742
gdcm::network::NDeleteRSP, 745
gdcm::network::NEventReportRSP, 752
gdcm::network::NGetRSP, 755
gdcm::network::NSetRSP, 762
ConstructQuery
gdcm::CompositeNetworkFunctions, 269
gdcm::NormalizedNetworkFunctions, 758
ConstructReleasePDU
gdcm::network::PDUFactory, 807
ContentAssessmentResultsStorage
gdcm::UIDs, 1185
Convert
gdcm::DictConverter, 362
gdcm::ImageConverter, 566
ConvertRGBToPaletteColor
gdcm::IconImageGenerator, 524
ConvertToCXX
gdcm::DictConverter, 362
ConvertToUNC
gdcm::System, 1109
ConvertToXML
gdcm::DictConverter, 362
CornealTopographyMapStorage
gdcm::UIDs, 1185
CORONAL
gdcm::Orientation, 777
Create
gdcm::Preamble, 853
CreateCEchoPDU
gdcm::network::PDUFactory, 807
CreateCFindPDU
gdcm::network::PDUFactory, 807

CreateCMovePDU
gdcm::network::PDUFactory, 807
CreateCMSProvider
gdcm::CAPICryptoFactory, 227
gdcm::CryptoFactory, 277
gdcm::OpenSSLCryptoFactory, 767
gdcm::OpenSSLP7CryptoFactory, 772
CreateCStoreRQPDU
gdcm::network::PDUFactory, 807
CreateCStoreRSPPDU
gdcm::network::PDUFactory, 808
CreateDefaultUniqueSeriesIdentifier
gdcm::SerieHelper, 993
CreateNActionPDU
gdcm::network::PDUFactory, 808
CreateNCreatePDU
gdcm::network::PDUFactory, 808
CreateNDeletePDU
gdcm::network::PDUFactory, 808
CreateNEventReportPDU
gdcm::network::PDUFactory, 808
CreateNGetPDU
gdcm::network::PDUFactory, 808
CreateNSetPDU
gdcm::network::PDUFactory, 808
CreateUniqueSeriesIdentifier
gdcm::SerieHelper, 993
Cross
gdcm::DirectionCosines, 378
CrossDot
gdcm::DirectionCosines, 378
CryptoFactory
gdcm::CryptoFactory, 277
CryptographicMessageSyntax
gdcm::CryptographicMessageSyntax, 279
CryptoLib
gdcm::CryptoFactory, 276
CS
gdcm::VR, 1296
CSAElement
gdcm::CSAElement, 283
CSAHeader
gdcm::CSAHeader, 290
gdcm::DataSet, 336
CSAHeaderDict
gdcm::CSAHeaderDict, 294
CSAHeaderDictEntry
gdcm::CSAHeaderDictEntry, 297
CSAHeaderType
gdcm::CSAHeader, 289
CSANonImageStorage
gdcm::MediaStorage, 694
CSComp
gdcm, 58
CSD
gdcm::SegmentHelper::BasicCodedEntry, 187
CStore
gdcm::CompositeNetworkFunctions, 270
CSV
gdcm::SegmentHelper::BasicCodedEntry, 187
CT_private_ELE
gdcm::TransferSyntax, 1149
CTDefinedProcedureProtocolStorage
gdcm::UIDs, 1185
CTImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
CTPerformedProcedureProtocolStorage
gdcm::UIDs, 1185
Curve
gdcm::Curve, 305
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
Curves
gdcm::Pixmap, 834
CV
gdcm::SegmentHelper::BasicCodedEntry, 187
CXX
gdcm::Printer, 873
cyan
gdcm::terminal, 82

DA
gdcm::VR, 1296
DAComp
gdcm, 58
DataElement
gdcm::DataElement, 311
gdcm::Value, 1282
DataElementSet
gdcm::DataSet, 328
DataElementType
gdcm::ModuleEntry, 724
DataEvent
gdcm::DataEvent, 323, 324
DataField
gdcm::CSAElement, 287
DataPtr
gdcm::CSAElement, 283
DATASET_FORMAT
gdcm::CSAHeader, 290
DataSetEvent
gdcm::DataSetEvent, 339
DataSetHandled
gdcm::network::ULConnectionCallback, 1246
DataSetHandles
gdcm::network::ULConnectionCallback, 1246
DataSetMS

gdcm::FileMetaInformation, 480
DataSetTS
gdcm::FileMetaInformation, 480
DataWasPassed
vtkImageMapToColors16, 1383
dCor
gdcm::MrProtocol::Vector3, 1283
DebugOff
gdcm::Trace, 1143
DebugOn
gdcm::Trace, 1143
Decode
gdcm::AudioCodec, 166
gdcm::Base64, 167
gdcm::Curve, 305
gdcm::Decoder, 342
gdcm::DeltaEncodingCodec, 351
gdcm::ImageCodec, 558
gdcm::JPEG2000Codec, 637
gdcm::JPEGCodec, 651
gdcm::JPEGLSCodec, 659, 660
gdcm::JSON, 663
gdcm::KAKADUCodec, 667
gdcm::LookupTable, 675
gdcm::PDFCodec, 805
gdcm::PVRGCodec, 890
gdcm::RAWCodec, 910
gdcm::RLECodec, 931
Decode8
gdcm::LookupTable, 675
DecodeByStreams
gdcm::Decoder, 342
gdcm::ImageCodec, 559
gdcm::JPEG12Codec, 627
gdcm::JPEG16Codec, 632
gdcm::JPEG2000Codec, 638
gdcm::JPEG8Codec, 644
gdcm::JPEGCodec, 651
gdcm::RAWCodec, 910
gdcm::RLECodec, 931
DecodeBytes
gdcm::RAWCodec, 910
DecodeExtent
gdcm::JPEG2000Codec, 638
gdcm::JPEGCodec, 651
gdcm::JPEGLSCodec, 660
gdcm::RLECodec, 931
Decompress
gdcm::Overlay, 783
Decrypt
gdcm::CAPICryptographicMessageSyntax, 229
gdcm::CryptographicMessageSyntax, 279
gdcm::OpenSSLCryptographicMessageSyntax, 769
gdcm::OpenSSLP7CryptographicMessageSyntax, 774
DeepCopy
vtkRTStructSetProperties, 1399
DEFAULT
gdcm::CryptoFactory, 277
Default
gdcm::FileMetaInformation, 476
DefinedProcedureProtocolInformationModelFIND
gdcm::UIDs, 1185
DefinedProcedureProtocolInformationModelGET
gdcm::UIDs, 1185
DefinedProcedureProtocolInformationModelMOVE
gdcm::UIDs, 1185
DefinedTerms
gdcm::DefinedTerms, 343
DefinePixelExtent
gdcm::StreamImageReader, 1039
gdcm::StreamImageWriter, 1044
DefineProperBufferLength
gdcm::StreamImageReader, 1039
gdcm::StreamImageWriter, 1044
DeflatedExplicitVRLittleEndian
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1177
DeformableSpatialRegistrationStorage
gdcm::UIDs, 1180
Defs
gdcm::Defs, 345
DeleteDirectory
gdcm::System, 1109
DeltaEncodingCodec
gdcm::DeltaEncodingCodec, 351
Deprecated List, 5
Derive
gdcm::FileDerivation, 466
DES3_CIPHER
gdcm::CryptographicMessageSyntax, 279
Description
gdcm::ModuleEntry, 723
DescriptionField
gdcm::ModuleEntry, 724
DetachedInterpretationManagementSOPClassRetired
gdcm::UIDs, 1179
DetachedPatientManagementMetaSOPClassRetired
gdcm::UIDs, 1178
DetachedPatientManagementSOPClass
gdcm::MediaStorage, 694
DetachedPatientManagementSOPClassRetired
gdcm::UIDs, 1178
DetachedResultsManagementMetaSOPClassRetired
gdcm::UIDs, 1179
DetachedResultsManagementSOPClassRetired
gdcm::UIDs, 1179

DetachedStudyManagementMetaSOPClassRetired
gdcm::UIDs, 1179
DetachedStudyManagementSOPClass
gdcm::MediaStorage, 694
DetachedStudyManagementSOPClassRetired
gdcm::UIDs, 1178
DetachedVisitManagementSOPClass
gdcm::MediaStorage, 694
DetachedVisitManagementSOPClassRetired
gdcm::UIDs, 1178
DetailSRStorageTrialRetired
gdcm::UIDs, 1181
DETECTOR
gdcm::Spacing, 1030
DetermineEventByPDU
gdcm::network::PDUFactory, 809
dicomAETitle
gdcm::UIDs, 1182
dicomApplicationCluster
gdcm::UIDs, 1182
DICOMApplicationContextName
gdcm::UIDs, 1178
dicomAssociationAcceptor
gdcm::UIDs, 1182
dicomAssociationInitiator
gdcm::UIDs, 1182
dicomAuthorizedNodeCertificateReference
gdcm::UIDs, 1183
dicomConfigurationRoot
gdcm::UIDs, 1183
DICOMContentMappingResource
gdcm::UIDs, 1186
DICOMControlledTerminology
gdcm::UIDs, 1178
dicomDescription
gdcm::UIDs, 1182
dicomDevice
gdcm::UIDs, 1183
dicomDeviceName
gdcm::UIDs, 1182
dicomDeviceSerialNumber
gdcm::UIDs, 1183
dicomDevicesRoot
gdcm::UIDs, 1183
DICOMDIR
gdcm::DICOMDIR, 352
DICOMDIRGenerator
gdcm::DICOMDIRGenerator, 354
dicomHostname
gdcm::UIDs, 1182
dicomInstalled
gdcm::UIDs, 1183
dicomInstitutionAddress
gdcm::UIDs, 1183
dicomInstitutionDepartmentName
gdcm::UIDs, 1183
dicomInstitutionName
gdcm::UIDs, 1183
dicomIssuerOfPatientID
gdcm::UIDs, 1183
dicomManufacturer
gdcm::UIDs, 1182
dicomManufacturerModelName
gdcm::UIDs, 1182
dicomNetworkAE
gdcm::UIDs, 1183
dicomNetworkConnection
gdcm::UIDs, 1183
dicomNetworkConnectionReference
gdcm::UIDs, 1182
dicomPort
gdcm::UIDs, 1182
dicomPreferredCalledAETitle
gdcm::UIDs, 1182
dicomPreferredCallingAETitle
gdcm::UIDs, 1183
dicomPrimaryDeviceType
gdcm::UIDs, 1182
dicomRelatedDeviceReference
gdcm::UIDs, 1182
dicomSoftwareVersion
gdcm::UIDs, 1182
dicomSOPClass
gdcm::UIDs, 1182
dicomStationName
gdcm::UIDs, 1183
dicomSupportedCharacterSet
gdcm::UIDs, 1183
dicomThisNodeCertificateReference
gdcm::UIDs, 1183
dicomTLSCyphersuite
gdcm::UIDs, 1183
dicomTransferCapability
gdcm::UIDs, 1183
dicomTransferRole
gdcm::UIDs, 1182
dicomTransferSyntax
gdcm::UIDs, 1182
DICOMUIDRegistry
gdcm::UIDs, 1178
dicomUniqueAETitle
gdcm::UIDs, 1183
dicomUniqueAETitlesRegistryRoot
gdcm::UIDs, 1183
dicomVendorData
gdcm::UIDs, 1182
DICOS2DAITStorage
gdcm::UIDs, 1185

DICOS3DAITStorage
gdcm::UIDs, 1185
DICOSCTImageStorage
gdcm::UIDs, 1185
DICOSDigitalXRayImageStorageForPresentation
gdcm::UIDs, 1185
DICOSDigitalXRayImageStorageForProcessing
gdcm::UIDs, 1185
DICOSQuadrupoleResonanceQRStorage
gdcm::UIDs, 1185
DICOSThreatDetectionReportStorage
gdcm::UIDs, 1185
Dict
gdcm::Dict, 357
gdcm::DictEntry, 368
DICT_DEBUG
gdcm::DictConverter, 361
DICT_DEFAULT
gdcm::DictConverter, 361
DICT_XML
gdcm::DictConverter, 361
DictConverter
gdcm::DictConverter, 361
DictEntry
gdcm::DictEntry, 365
DictPrinter
gdcm::DictPrinter, 370
Dicts
gdcm::CSAHeaderDict, 295
gdcm::Dict, 360
gdcm::Dicts, 373
gdcm::PrivateDict, 877
difference_type
gdcm::CodeString, 254
gdcm::LO, 669
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1069
DigitalIntraoralXRayImageStorageForPresentation
gdcm::UIDs, 1179
DigitalIntraoralXrayImageStorageForPresentation
gdcm::MediaStorage, 693
DigitalIntraoralXRayImageStorageForProcessing
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
DigitalMammographyImageStorageForPresentation
gdcm::MediaStorage, 693
DigitalMammographyImageStorageForProcessing
gdcm::MediaStorage, 693
DigitalMammographyXRayImageStorageForPresentation
gdcm::UIDs, 1179
DigitalMammographyXRayImageStorageForProcessing
gdcm::UIDs, 1179
DigitalXRayImageStorageForPresentation
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
DigitalXRayImageStorageForProcessing
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
dim
gdcm::terminal, 82
Dimensions
gdcm::Bitmap, 205
gdcm::ImageCodec, 564
DirCosTolerance
gdcm::IPPSorter, 615
DirectionCosines
gdcm::DirectionCosines, 377
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1330
Directory
gdcm::Directory, 381
DisplaySystemSOPClass
gdcm::UIDs, 1184
DisplaySystemSOPInstance
gdcm::UIDs, 1184
DoByteSwap
gdcm::ImageCodec, 559
DoIconImage
gdcm::PixmapWriter, 845
DoInvertMonochrome
gdcm::ImageCodec, 559
DoOverlayCleanup
gdcm::ImageCodec, 559
DoPaddedCompositePixelCode
gdcm::ImageCodec, 559
DoPlanarConfiguration
gdcm::ImageCodec, 559
doround
gdcm, 64
DoSimpleCopy
gdcm::ImageCodec, 560
Dot
gdcm::DirectionCosines, 378
DoYBR
gdcm::ImageCodec, 560
DoYBRFull422
gdcm::ImageCodec, 560
DPath
gdcm::DPath, 386
DropDuplicatePositions
gdcm::IPPSorter, 615
DS
gdcm::VR, 1296
dSag
gdcm::MrProtocol::Vector3, 1283
DT
gdcm::VR, 1296
DTComp

gdcm, 58
dTra
gdcm::MrProtocol::Vector3, 1283
Dumper
gdcm::Dumper, 391
DuplicateAttributeError
gdcm::Parser, 792

eAABORTPDUReceivedOpen
gdcm::network, 79
eAABORTRequest
gdcm::network, 79
eAASSOCIATE_RQPDUreceived
gdcm::network, 79
eAASSOCIATERequestLocalUser
gdcm::network, 79
eAASSOCIATEresponseAccept
gdcm::network, 79
eAASSOCIATEresponseReject
gdcm::network, 79
eArabic
gdcm, 62
eARELEASE_RPPDUReceived
gdcm::network, 79
eARELEASE_RQPDUReceivedOpen
gdcm::network, 79
eARELEASERequest
gdcm::network, 79
eARELEASEResponse
gdcm::network, 79
eARTIMTimerExpired
gdcm::network, 79
eASSOCIATE_ACPDUreceived
gdcm::network, 79
eASSOCIATE_RJPDUreceived
gdcm::network, 79
ECG12leadWaveformStorage
gdcm::UIDs, 1180
ECharSet
gdcm, 60
eCreateMMPS
gdcm, 62
eCyrillic
gdcm, 62
EddyCurrentImageStorage
gdcm::UIDs, 1185
EddyCurrentMultiframeImageStorage
gdcm::UIDs, 1185
EDGE
gdcm::MeshPrimitive, 707
eEventDoesNotExist
gdcm::network, 79
EEventID
gdcm::network, 79
eFind
gdcm, 63
eGB18030
gdcm, 62
eGreek
gdcm, 62
eHebrew
gdcm, 62
eImage
gdcm, 62
eJapanese
gdcm, 62
eJapaneseKanjiMultibyte
gdcm, 62
eJapaneseSupplementaryKanjiMultibyte
gdcm, 62
eKoreanHangulHanjaMultibyte
gdcm, 62
eLatin1
gdcm, 62
eLatin2
gdcm, 62
eLatin3
gdcm, 62
eLatin4
gdcm, 62
eLatin5
gdcm, 62
elem
gdcm::SerieHelper, 994
Element
gdcm::Element< TVR, VM::VM1_n >, 400
eMove
gdcm, 63
Empty
gdcm::Anonymizer, 111
gdcm::BoxRegion, 211
gdcm::Cleaner, 242
gdcm::DataElement, 312
gdcm::FileAnonymizer, 455
gdcm::Region, 920
EmptyMaskGenerator
gdcm::EmptyMaskGenerator, 424
EmptyWhenScrubFails
gdcm::Cleaner, 242
EncapsulatedCDAStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
EncapsulatedDocument
gdcm::EncapsulatedDocument, 425
EncapsulatedPDFStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
EncapsulatedSTLStorage

gdcm::UIDs, 1185
Encode
gdcm::Base64, 167
EncodeBuffer
gdcm::JPEG12Codec, 627
gdcm::JPEG16Codec, 632
gdcm::JPEG8Codec, 644
gdcm::JPEGCodec, 651
EncodeBytes
gdcm::System, 1109
Encrypt
gdcm::CAPICryptographicMessageSyntax, 229
gdcm::CryptographicMessageSyntax, 279
gdcm::OpenSSLCryptographicMessageSyntax, 769
gdcm::OpenSSLP7CryptographicMessageSyntax, 774
End
gdcm::CSAHeaderDict, 295
gdcm::DataSet, 329
gdcm::Dict, 358
gdcm::IODs, 610
gdcm::Scanner, 939
gdcm::Scanner2, 949
gdcm::SequenceOfFragments, 978
gdcm::SequenceOfItems, 986
gdcm::StrictScanner, 1053
gdcm::StrictScanner2, 1062
EndElement
gdcm::TableReader, 1119
gdcm::XMLDictReader, 1419
gdcm::XMLPrivateDictReader, 1425
EndElementHandler
gdcm::Parser, 792
EndFilter
gdcm::SimpleSubjectWatcher, 1014
EndWith
gdcm::Filename, 482
EnhancedCTImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1179
EnhancedMRColorImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1186
EnhancedMRImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
EnhancedPETImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1185
EnhancedSR
gdcm::MediaStorage, 694
EnhancedSRStorage
gdcm::UIDs, 1181
EnhancedUSVolumeStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1183
EnhancedXAImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1180
EnhancedXRFImageStorage
gdcm::UIDs, 1180
ENQueryType
gdcm, 62
EnumeratedValues
gdcm::EnumeratedValues, 430
ePatient
gdcm, 62
ePatientRootType
gdcm, 63
ePDATArequest
gdcm::network, 79
ePDATATFPDU
gdcm::network, 79
EQueryLevel
gdcm, 62
EQueryType
gdcm, 62
ERootType
gdcm, 63
ErrorOff
gdcm::Trace, 1143
ErrorOn
gdcm::Trace, 1143
ErrorType
gdcm::Parser, 792
eSeries
gdcm, 62
eSetMMPS
gdcm, 62
eSta10ReleaseCollisionAc
gdcm::network, 80
eSta11ReleaseCollisionRq
gdcm::network, 80
eSta12ReleaseCollisionAcLocal
gdcm::network, 80
eSta13AwaitingClose
gdcm::network, 80
eSta1Idle
gdcm::network, 80
eSta2Open
gdcm::network, 80
eSta3WaitLocalAssoc
gdcm::network, 80
eSta4LocalAssocDone
gdcm::network, 80
eSta5WaitRemoteAssoc
gdcm::network, 80
eSta6TransferReady

gdcm::network, 80
eSta7WaitRelease
gdcm::network, 80
eSta8WaitLocalRelease
gdcm::network, 80
eSta9ReleaseCollisionRqLocal
gdcm::network, 80
EstablishConnection
gdcm::network::ULConnectionManager, 1252
EstablishConnectionMove
gdcm::network::ULConnectionManager, 1252
eStaDoesNotExist
gdcm::network, 80
EStateID
gdcm::network, 79
eStudy
gdcm, 62
eStudyRootType
gdcm, 63
eThai
gdcm, 62
eTransportConnConfirmLocal
gdcm::network, 79
eTransportConnectionClosed
gdcm::network, 79
eTransportConnIndicLocal
gdcm::network, 79
eUnrecognizedPDUReceived
gdcm::network, 79
eUTF8
gdcm, 62
Event
gdcm::Event, 434
eWLMFind
gdcm, 63
Exception
gdcm::Exception, 436
Execute
gdcm::Command, 259
gdcm::EmptyMaskGenerator, 424
gdcm::MemberCommand< T >, 703
gdcm::SimpleMemberCommand< T >, 1011
ExecuteData
vtkGDCMImageReader, 1310
vtkGDCMThreadedImageReader, 1357
ExecuteInformation
vtkGDCMImageReader, 1310
vtkGDCMThreadedImageReader, 1357
ExecuteQuery
gdcm::StringFilter, 1074
Explicit
gdcm::TransferSyntax, 1148
ExplicitVRBigEndian
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1177
ExplicitVRLittleEndian
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1177
Explore
gdcm::Directory, 382
ExtensibleSRStorage
gdcm::UIDs, 1185
Extract
gdcm::IconImageFilter, 522
ExtractIconImages
gdcm::IconImageFilter, 522
ExtractVeproIconImages
gdcm::IconImageFilter, 522

F
gdcm::Printer, 874
gdcm::Reader, 917
gdcm::Validate, 1279
gdcm::XMLPrinter, 1422
FACET
gdcm::MeshPrimitive, 707
FallColorPaletteSOPInstance
gdcm::UIDs, 1183
FD
gdcm::VR, 1296
Fiducials
gdcm::Fiducials, 447
File
gdcm::File, 450
FileAnonymizer
gdcm::FileAnonymizer, 455
FileChangeTransferSyntax
gdcm::FileChangeTransferSyntax, 459
gdcm::ImageCodec, 564
FileDecompressLookupTable
gdcm::FileDecompressLookupTable, 463
FileDerivation
gdcm::FileDerivation, 465
FileExists
gdcm::System, 1109
FileExplicitFilter
gdcm::FileExplicitFilter, 469
FileIsDirectory
gdcm::System, 1109
FileIsSymlink
gdcm::System, 1110
FileList
gdcm, 59
FileMetaInformation
gdcm::FileMetaInformation, 475
FileName
vtkGDCMPolyDataReader, 1346
Filename

gdcm::Filename, 482
filename
gdcm::FileWithName, 501
FileNameEvent
gdcm::FileNameEvent, 486
FilenameGenerator
gdcm::FilenameGenerator, 489
FileNameOrdering
gdcm::SerieHelper, 993
FileNames
vtkGDCMImageReader, 1318
Filenames
gdcm::Sorter, 1028
FilenamesType
gdcm::DICOMDIRGenerator, 354
gdcm::Directory, 381
gdcm::FilenameGenerator, 488
FilenameType
gdcm::DICOMDIRGenerator, 354
gdcm::Directory, 381
gdcm::FilenameGenerator, 488
FileSet
gdcm::FileSet, 492
FileSize
gdcm::System, 1110
FileStreamer
gdcm::FileStreamer, 496
FilesType
gdcm::FileSet, 491
FileTime
gdcm::System, 1110
FileType
gdcm::FileSet, 491
FileWithName
gdcm::FileWithName, 501
Fill
gdcm::ByteValue, 221
FillFromDataSet
gdcm::FileMetaInformation, 476
FillMedicalImageInformation
vtkGDCMImageReader, 1310
vtkGDCMImageReader2, 1322
vtkGDCMPolyDataReader, 1344
FindContext
gdcm::network::ULConnection, 1242
FindCSAElementByName
gdcm::CSAHeader, 290
FindDataElement
gdcm::DataSet, 329, 330
gdcm::Item, 620
gdcm::SequenceOfItems, 986
FindDictEntry
gdcm::PrivateDict, 876
FindMacroEntry
gdcm::Macro, 683
FindModuleEntryInMacros
gdcm::Module, 720
FindMrProtocolByName
gdcm::MrProtocol, 736
FindNextDataElement
gdcm::DataSet, 330
FindPatientRootQuery
gdcm::FindPatientRootQuery, 504
FindPDBElementByName
gdcm::PDBHeader, 802
FindStudyRootQuery
gdcm::FindStudyRootQuery, 508
FirstRender
vtkImageColorViewer, 1377
FL
gdcm::VR, 1296
FLOAT16
gdcm::PixelFormat, 822
FLOAT32
gdcm::PixelFormat, 822
FLOAT64
gdcm::PixelFormat, 822
ForceRescale
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
FormatDateTime
gdcm::System, 1110
Fragment
gdcm::Fragment, 513
FragmentVector
gdcm::SequenceOfFragments, 977
FromString
gdcm::StringFilter, 1074
FUJI
gdcm::EquipmentManufacturer, 431
FujiPrivateCRImageStorage
gdcm::MediaStorage, 694
FujiPrivateMammoCRImageStorage
gdcm::MediaStorage, 695

gdcm, 43
add1, 63
AEComp, 58
ASComp, 58
backslash, 63
BOOL_FUNCTION_PFILE_PFILE_POINTER, 58
Clamp, 63
clean, 64
CompOperators, 60
CSComp, 58
DAComp, 58
doround, 64
DTComp, 58

eArabic, 62
ECharSet, 60
eCreateMMPS, 62
eCyrillic, 62
eFind, 63
eGB18030, 62
eGreek, 62
eHebrew, 62
eImage, 62
eJapanese, 62
eJapaneseKanjiMultibyte, 62
eJapaneseSupplementaryKanjiMultibyte, 62
eKoreanHangulHanjaMultibyte, 62
eLatin1, 62
eLatin2, 62
eLatin3, 62
eLatin4, 62
eLatin5, 62
eMove, 63
ENQueryType, 62
ePatient, 62
ePatientRootType, 63
EQueryLevel, 62
EQueryType, 62
ERootType, 63
eSeries, 62
eSetMMPS, 62
eStudy, 62
eStudyRootType, 63
eThai, 62
eUTF8, 62
eWLMFind, 63
FileList, 59
GDCM_DIFFERENT, 60
GDCM_EQUAL, 60
GDCM_GREATER, 60
GDCM_GREATEROREQUAL, 60
GDCM_LESS, 60
GDCM_LESSOREQUAL, 60
GetVRFromTag, 64
GlobalInstance, 74
IconImage, 59
LD_ALL, 63
LD_NOSEQ, 63
LD_NOSHADOW, 63
LD_NOSHADOWSEQ, 63
LOComp, 59
LodModeType, 63
LTComp, 59
MacroEntry, 59
NestedMacroEntries, 59
operator!=, 64
operator<<, 64–73
operator>>, 73
operator==, 73
PNComp, 59
Round, 74
roundat, 74
SHComp, 59
STComp, 59
TMComp, 59
UCComp, 60
UIComp, 60
URComp, 60
UTComp, 60
x16printf, 74
GDCM Documentation, 1
gdcm::AbortEvent, 99
gdcm::AnonymizeEvent, 103
~AnonymizeEvent, 105
AnonymizeEvent, 105
CheckEvent, 105
GetEventName, 105
GetTag, 105
MakeObject, 105
operator=, 106
Self, 104
SetTag, 106
Superclass, 104
gdcm::Anonymizer, 106
~Anonymizer, 110
Anonymizer, 110
BALCPProtect, 110
BasicApplicationLevelConfidentialityProfile, 110
CanEmptyTag, 110
Clear, 110
ClearInternalUIDs, 111
Empty, 111
GetBasicApplicationLevelConfidentialityProfileAttributes, 111
GetCryptographicMessageSyntax, 111
GetFile, 112
New, 112
RecurseDataSet, 112
Remove, 112
RemoveGroupLength, 112
RemovePrivateTags, 113
RemoveRetired, 113
Replace, 113, 114
SetCryptographicMessageSyntax, 114
SetFile, 114
gdcm::AnyEvent, 115
gdcm::ApplicationEntity, 118
Internal, 120
IsValid, 119
MaxLength, 120
MaxNumberOfComponents, 120
Padding, 120

Print, 119
Separator, 120
SetBlob, 119
Squeeze, 119
gdcm::ASN1, 126
~ASN1, 127
ASN1, 127
operator=, 127
ParseDump, 127
ParseDumpFile, 128
TestPBKDF2, 128
gdcm::Attribute< Group, Element, TVR, TVM >, 130
ArrayType, 132
GDCM_STATIC_ASSERT, 132
GetAsDataElement, 132
GetDictVM, 133
GetDictVR, 133
GetNumberOfValues, 133
GetTag, 133
GetValue, 133, 134
GetValues, 134
GetVM, 134
GetVR, 134
Internal, 137
operator!=, 134
operator<, 135
operator==, 135
operator[], 135
Print, 135
Set, 135
SetByteValue, 136
SetByteValueNoSwap, 136
SetFromDataElement, 136
SetFromDataSet, 136
SetValue, 137
SetValues, 137
VMType, 132
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 138
ArrayType, 139
GDCM_STATIC_ASSERT, 139, 140
GetAsDataElement, 140
GetDictVM, 140
GetDictVR, 140
GetNumberOfValues, 140
GetTag, 140
GetValue, 141
GetValues, 141
GetVM, 141
GetVR, 141
Internal, 143
operator!=, 141
operator<, 141
operator==, 142
Print, 142
Set, 142
SetByteValue, 142
SetByteValueNoSwap, 142
SetFromDataElement, 142
SetFromDataSet, 143
SetValue, 143
VMType, 139
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 144
GetVM, 146
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 146
GetVM, 148
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 148
~Attribute, 149
ArrayType, 149
Attribute, 149
GDCM_STATIC_ASSERT, 150
GetAsDataElement, 150
GetDictVM, 150
GetDictVR, 150
GetNumberOfValues, 150
GetTag, 150
GetValue, 151
GetValues, 151
GetVM, 151
GetVR, 151
operator[], 151
Print, 151
Set, 152
SetByteValue, 152
SetFromDataElement, 152
SetFromDataSet, 152
SetNumberOfValues, 152
SetValue, 152, 153
SetValues, 153
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 153
GetVM, 156
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 156
GetVM, 158
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 158
GetVM, 161
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 161
GetVM, 163
gdcm::AudioCodec, 163
~AudioCodec, 165
AudioCodec, 165
CanCode, 165
CanDecode, 165

Decode, 166
gdcm::Base64, 166
Base64, 167
Decode, 167
Encode, 167
GetDecodeLength, 168
GetEncodeLength, 168
operator=, 168
gdcm::BaseQuery, 175
~BaseQuery, 177
AddQueryDataSet, 177
BaseQuery, 177
GetAbstractSyntaxUID, 177
GetQueryDataSet, 177, 178
GetSOPInstanceUID, 178
mDataSet, 179
mSopInstanceUID, 179
Print, 178
QueryFactory, 179
SetSearchParameter, 178
SetSOPInstanceUID, 178
ValidateQuery, 179
ValidDataSet, 179
WriteHelpFile, 179
WriteQuery, 179
gdcm::BaseRootQuery, 180
~BaseRootQuery, 182
BaseRootQuery, 182
Construct, 183
GetQueryLevelFromQueryRoot, 183
GetQueryLevelFromString, 183
GetQueryLevelString, 183
GetTagListByLevel, 183
InitializeDataSet, 183
mHelpDescription, 184
mImage, 184
mPatient, 184
mRootType, 185
mSeries, 185
mStudy, 185
QueryFactory, 184
ValidateQuery, 184
gdcm::BasicOffsetTable, 188
BasicOffsetTable, 191
operator<<, 192
Read, 191
gdcm::Bitmap, 192
~Bitmap, 195
AreOverlaysInPixelData, 196
Bitmap, 195
Clear, 196
ComputeLossyFlag, 196
Dimensions, 205
GetBuffer, 196
GetBuffer2, 196
GetBufferLength, 196
GetColumns, 197
GetDataElement, 197
GetDimension, 197
GetDimensions, 197
GetLUT, 198
GetNeedByteSwap, 198
GetNumberOfDimensions, 198
GetPhotometricInterpretation, 198
GetPixelFormat, 199
GetPlanarConfiguration, 199
GetRows, 199
GetTransferSyntax, 199
ImageChangeTransferSyntax, 204
IsEmpty, 199
IsLossy, 200
IsTransferSyntaxCompatible, 200
LossyFlag, 205
LUT, 205
LUTPtr, 195
NeedByteSwap, 205
NumberOfDimensions, 205
PF, 205
PI, 205
PixelData, 205
PixmapReader, 204
PlanarConfiguration, 205
Print, 200
SetColumns, 200
SetDataElement, 200
SetDimension, 200
SetDimensions, 201
SetLossyFlag, 201
SetLUT, 201
SetNeedByteSwap, 201
SetNumberOfDimensions, 201
SetPhotometricInterpretation, 202
SetPixelFormat, 202
SetPlanarConfiguration, 202
SetRows, 202
SetTransferSyntax, 203
TryJPEG2000Codec, 203
TryJPEG2000Codec2, 203
TryJPEGCodec, 203
TryJPEGCodec2, 203
TryJPEGLSCodec, 203
TryKAKADUCodec, 203
TryPVRGCodec, 204
TryRAWCodec, 204
TryRLECodec, 204
TS, 205
UnusedBitsPresentInPixelData, 204
gdcm::BitmapToBitmapFilter, 206

~BitmapToBitmapFilter, 207
BitmapToBitmapFilter, 207
GetOutput, 207
GetOutputAsBitmap, 207
Input, 208
Output, 208
SetInput, 207
gdcm::BoxRegion, 208
~BoxRegion, 210
Area, 210
BoundingBox, 210
BoxRegion, 210
Clone, 211
ComputeBoundingBox, 211
Empty, 211
GetXMax, 211
GetXMin, 211
GetYMax, 211
GetYMin, 211
GetZMax, 212
GetZMin, 212
IsValid, 212
operator=, 212
Print, 212
SetDomain, 212
gdcm::ByteBuffer, 213
ByteBuffer, 214
Get, 214
GetStart, 214
ShiftEnd, 214
UpdatePosition, 214
gdcm::ByteSwap< T >, 214
Swap, 215
SwapFromSwapCodeIntoSystem, 215
SwapRange, 215
SwapRangeFromSwapCodeIntoSystem, 215
SystemIsBigEndian, 216
SystemIsLittleEndian, 216
gdcm::ByteSwapFilter, 216
~ByteSwapFilter, 217
ByteSwap, 217
ByteSwapFilter, 217
operator=, 217
SetByteSwapTag, 217
gdcm::ByteValue, 218
~ByteValue, 220
Append, 221
ByteValue, 220
Clear, 221
ComputeLength, 221
Fill, 221
GetBuffer, 221
GetLength, 221
GetPointer, 222
GetVoidPointer, 222
IsEmpty, 222
IsPrintable, 223
operator const std::vector< char > &, 223
operator=, 223
operator==, 223
Print, 223
PrintASCII, 223
PrintASCIIXML, 224
PrintGroupLength, 224
PrintHex, 224
PrintHexXML, 224
PrintPNXML, 224
Read, 224
SetLength, 225
SetLengthOnly, 225
Write, 225
WriteBuffer, 225
gdcm::CAPICryptoFactory, 226
CAPICryptoFactory, 227
CreateCMSProvider, 227
gdcm::CAPICryptographicMessageSyntax, 227
~CAPICryptographicMessageSyntax, 229
CAPICryptographicMessageSyntax, 229
Decrypt, 229
Encrypt, 229
GetCipherType, 229
GetInitialized, 229
ParseCertificateFile, 229
ParseKeyFile, 230
SetCipherType, 230
SetPassword, 230
gdcm::Cleaner, 239
~Cleaner, 241
Clean, 242
Cleaner, 241
Empty, 242
EmptyWhenScrubFails, 242
GetFile, 243
New, 243
Preserve, 243
Remove, 243, 244
RemoveAllGroupLength, 244
RemoveAllIllegal, 244
RemoveAllMissingPrivateCreator, 244
RemoveMissingPrivateCreator, 244
Scrub, 244, 245
SetFile, 245
gdcm::Codec, 250
gdcm::Coder, 251
~Coder, 252
CanCode, 252
Code, 252
InternalCode, 252

gdcm::CodeString, 253
CodeString, 255, 256
const_iterator, 254
const_reference, 254
const_reverse_iterator, 254
difference_type, 254
GetAsString, 256
IsValid, 256
iterator, 255
operator!=, 256
operator<<, 256
operator==, 257
pointer, 255
reference, 255
reverse_iterator, 255
Size, 256
size_type, 255
TrimInternal, 256
value_type, 255
gdcm::Command, 257
~Command, 259
Command, 259
Execute, 259
operator=, 260
gdcm::CommandDataSet, 260
~CommandDataSet, 263
CommandDataSet, 263
Insert, 263
operator<<, 264
Read, 263
Replace, 264
Write, 264
gdcm::CompositeNetworkFunctions, 266
CEcho, 267
CFind, 268
CMove, 268
ConstructQuery, 269
CStore, 270
KeyValuePairArrayType, 267
KeyValuePairType, 267
gdcm::ConstCharWrapper, 271
ConstCharWrapper, 271
operator const char *, 271
gdcm::CP246ExplicitDataElement, 272
GetLength, 274
Read, 274
ReadPreValue, 275
ReadValue, 275
ReadWithLength, 275
gdcm::CryptoFactory, 275
~CryptoFactory, 277
CAPI, 277
CreateCMSProvider, 277
CryptoFactory, 277
CryptoLib, 276
DEFAULT, 277
GetFactoryInstance, 277
OPENSSL, 277
OPENSSLP7, 277
gdcm::CryptographicMessageSyntax, 278
~CryptographicMessageSyntax, 279
AES128_CIPHER, 279
AES192_CIPHER, 279
AES256_CIPHER, 279
CipherTypes, 279
CryptographicMessageSyntax, 279
Decrypt, 279
DES3_CIPHER, 279
Encrypt, 279
GetCipherType, 280
operator=, 280
ParseCertificateFile, 280
ParseKeyFile, 280
SetCipherType, 280
SetPassword, 281
gdcm::CSAElement, 281
CSAElement, 283
DataField, 287
DataPtr, 283
GetByteValue, 283
GetKey, 283
GetName, 284
GetNoOfItems, 284
GetSyngoDT, 284
GetValue, 284
GetVM, 284
GetVR, 285
IsEmpty, 285
KeyField, 287
NameField, 287
NoOfItemsField, 287
operator<, 285
operator<<, 287
operator=, 285
operator==, 285
SetByteValue, 285
SetKey, 286
SetName, 286
SetNoOfItems, 286
SetSyngoDT, 286
SetValue, 286
SetVM, 286
SetVR, 286
SyngoDTField, 287
ValueMultiplicityField, 287
VRField, 287
gdcm::CSAHeader, 288
~CSAHeader, 290

CSAHeader, 290
CSAHeaderType, 289
DATASET_FORMAT, 290
FindCSAElementByName, 290
GetCSADataInfo, 290
GetCSAEEnd, 290
GetCSAElementByName, 291
GetCSAImageHeaderInfoTag, 291
GetCSASeriesHeaderInfoTag, 291
GetDataSet, 291
GetFormat, 291
GetInterfile, 292
GetMrProtocol, 292
INTERFILE, 290
LoadFromDataElement, 292
NOMAGIC, 290
operator<<, 293
Print, 292
SV10, 290
UNKNOWN, 290
ZEROED_OUT, 290
gdcm::CSAHeaderDict, 293
AddCSAHeaderDictEntry, 294
Begin, 294
ConstIterator, 294
CSAHeaderDict, 294
Dicts, 295
End, 295
GetCSAHeaderDictEntry, 295
IsEmpty, 295
Iterator, 294
LoadDefault, 295
MapCSAHeaderDictEntry, 294
operator<<, 295
operator=, 295
gdcm::CSAHeaderDictEntry, 296
CSAHeaderDictEntry, 297
GetDescription, 297
GetName, 297
GetVM, 297
GetVR, 298
operator<, 298
operator<<, 299
SetDescription, 298
SetName, 298
SetVM, 298
SetVR, 298
gdcm::CSAHeaderDictException, 299
gdcm::Curve, 303
~Curve, 305
Curve, 305
Decode, 305
GetAsPoints, 305
GetCurveDataDescriptor, 305
GetDataValueRepresentation, 305
GetDimensions, 305
GetGroup, 305
GetNumberOfCurves, 306
GetNumberOfPoints, 306
GetTypeOfData, 306
GetTypeOfDataDescription, 306
IsEmpty, 306
Print, 306
SetCoordinateStartValue, 306
SetCoordinateStepValue, 306
SetCurve, 306
SetCurveDataDescriptor, 307
SetCurveDescription, 307
SetDataValueRepresentation, 307
SetDimensions, 307
SetGroup, 307
SetNumberOfPoints, 307
SetTypeOfData, 307
Update, 307
gdcm::DataElement, 308
Clear, 312
DataElement, 311
Empty, 312
GetByteValue, 312
GetLength, 312
GetSequenceOfFragments, 312, 313
GetTag, 313
GetValue, 313
GetValueAsSQ, 314
GetVL, 314
GetVR, 314
IsEmpty, 315
IsUndefinedLength, 315
operator<, 315
operator<<, 319
operator=, 315
operator==, 316
Read, 316
ReadOrSkip, 316
ReadPreValue, 316
ReadValue, 316
ReadValueWithLength, 316
ReadWithLength, 317
SetByteValue, 317
SetTag, 317
SetValue, 318
SetValueFieldLength, 318
SetVL, 318
SetVLToUndefined, 318
SetVR, 319
TagField, 320
ValueField, 320
ValueLengthField, 320

ValuePtr, 311
VRField, 320
Write, 319
gdcm::DataElementException, 321
gdcm::DataEvent, 321
~DataEvent, 323
CheckEvent, 324
DataEvent, 323, 324
GetData, 324
GetDataLength, 324
GetEventName, 324
MakeObject, 324
operator=, 324
Self, 323
SetData, 325
Superclass, 323
gdcm::DataSet, 325
Begin, 328
Clear, 329
ComputeDataElement, 329
ComputeGroupLength, 329
ConstIterator, 328
CSAHeader, 336
DataElementSet, 328
End, 329
FindDataElement, 329, 330
FindNextDataElement, 330
GetDataElement, 330
GetDEEnd, 331
GetDES, 331
GetLength, 331
GetMediaStorage, 331
GetPrivateCreator, 332
GetPrivateTag, 332
Insert, 332
InsertDataElement, 332
IsEmpty, 333
Iterator, 328
operator<<, 336
operator(), 333
operator=, 333
operator[], 333
Print, 333
Read, 333
ReadNested, 333
ReadSelectedPrivateTags, 334
ReadSelectedPrivateTagsWithLength, 334
ReadSelectedTags, 334
ReadSelectedTagsWithLength, 334
ReadUpToTag, 334
ReadUpToTagWithLength, 334
ReadWithLength, 335
Remove, 335
Replace, 335
ReplaceEmpty, 335
Size, 336
SizeType, 328
Write, 336
gdcm::DataSetEvent, 337
~DataSetEvent, 339
CheckEvent, 339
DataSetEvent, 339
GetDataSet, 339
GetEventName, 339
m_DataSet, 340
MakeObject, 339
operator=, 339
Self, 338
Superclass, 338
gdcm::DataSetHelper, 340
ComputeVR, 341
gdcm::Decoder, 341
~Decoder, 342
CanDecode, 342
Decode, 342
DecodeByStreams, 342
gdcm::DefinedTerms, 343
DefinedTerms, 343
gdcm::Defs, 344
~Defs, 345
Defs, 345
GetIODFromFile, 345
GetIODNameFromMediaStorage, 345
GetIODs, 345
GetMacros, 345, 346
GetModules, 346
GetTypeFromTag, 346
Global, 347
IsEmpty, 346
LoadDefaults, 346
LoadFromFile, 346
operator=, 347
Verify, 347
gdcm::DeltaEncodingCodec, 348
~DeltaEncodingCodec, 351
CanDecode, 351
Decode, 351
DeltaEncodingCodec, 351
gdcm::DICOMDIR, 351
DICOMDIR, 352
gdcm::DICOMDIRGenerator, 352
~DICOMDIRGenerator, 354
AddImageDirectoryRecord, 354
AddPatientDirectoryRecord, 354
AddSeriesDirectoryRecord, 354
AddStudyDirectoryRecord, 354
DICOMDIRGenerator, 354
FilenamesType, 354

FilenameType, 354
Generate, 354
GetFile, 355
GetScanner, 355
SetDescriptor, 355
SetFile, 355
SetFilenames, 355
SetRootDirectory, 356
gdcm::Dict, 356
AddDictEntry, 358
Begin, 358
ConstIterator, 357
Dict, 357
Dicts, 360
End, 358
GetDictEntry, 358
GetDictEntryByKeyword, 358
GetDictEntryByName, 359
GetKeywordFromTag, 359
IsEmpty, 359
Iterator, 357
LoadDefault, 359
MapDictEntry, 357
operator<<, 360
operator=, 359
gdcm::DictConverter, 360
~DictConverter, 361
AddGroupLength, 362
Convert, 362
ConvertToCXX, 362
ConvertToXML, 362
DICT_DEBUG, 361
DICT_DEFAULT, 361
DICT_XML, 361
DictConverter, 361
GetDictName, 362
GetInputFilename, 362
GetOutputFilename, 362
GetOutputType, 362
OutputTypes, 361
Readuint16, 363
ReadVM, 363
ReadVR, 363
SetDictName, 363
SetInputFileName, 363
SetOutputFileName, 363
SetOutputType, 363
WriteFooter, 363
WriteHeader, 364
gdcm::DictEntry, 364
Dict, 368
DictEntry, 365
GetKeyword, 365
GetName, 365
GetRetired, 366
GetVM, 366
GetVR, 366
IsUnique, 366
operator<<, 368
SetElementXX, 366
SetGroupXX, 367
SetKeyword, 367
SetName, 367
SetRetired, 367
SetVM, 367
SetVR, 367
gdcm::DictPrinter, 368
~DictPrinter, 370
DictPrinter, 370
Print, 371
PrintDataElement2, 371
PrintDataSet2, 371
gdcm::Dicts, 371
~Dicts, 373
ConstructorType, 372
Dicts, 373
GEMS, 372
GetConstructorString, 373
GetCSAHeaderDict, 373
GetDictEntry, 373
GetPrivateDict, 374
GetPublicDict, 374
Global, 375
IsEmpty, 374
LoadDefaults, 374
operator<<, 375
operator=, 374
PHILIPS, 372
SIEMENS, 372
gdcm::DirectionCosines, 376
~DirectionCosines, 378
ComputeDistAlongNormal, 378
Cross, 378
CrossDot, 378
DirectionCosines, 377
Dot, 378
IsValid, 379
Norm, 379
Normalize, 379
operator const double *, 379
Print, 379
SetFromString, 379
gdcm::Directory, 380
~Directory, 381
Directory, 381
Explore, 382
FilenamesType, 381
FilenameType, 381

GetDirectories, 382
GetFilenames, 382
GetToplevel, 382
Load, 382
operator<<, 383
Print, 382
gdcm::DirectoryHelper, 383
GetCTImageSeriesUIDs, 384
GetFilenamesFromSeriesUIDs, 384
GetFrameOfReference, 384
GetMRImageSeriesUIDs, 384
GetRTStructSeriesUIDs, 384
GetSeriesUIDsBySOPClassUID, 384
GetSOPClassUID, 384
GetStringValueFromTag, 385
LoadImageFromFiles, 385
RetrieveSOPInstanceUIDFromIndex, 385
RetrieveSOPInstanceUIDFromZPosition, 385
gdcm::DPath, 385
~DPath, 386
ConstructFromString, 387
DPath, 386
IsValid, 387
Match, 387
operator<, 387
operator<<, 387
Print, 387
gdcm::DummyValueGenerator, 388
Generate, 388
gdcm::Dumper, 389
~Dumper, 391
Dumper, 391
gdcm::Element< TVR, TVM >, 391
GetAsDataElement, 393
GetLength, 393
GetValue, 394
GetValues, 394
GetVM, 394
GetVR, 394
Internal, 396
operator[], 394
Print, 395
Read, 395
Set, 395
SetFromDataElement, 395
SetNoSwap, 395
SetValue, 396
Type, 393
Write, 396
gdcm::Element< TVR, VM::VM1_2 >, 397
Parent, 398
SetLength, 399
gdcm::Element< TVR, VM::VM1_n >, 399
~Element, 400
Element, 400
GetAsDataElement, 401
GetLength, 401
GetValue, 401
GetVM, 401
GetVR, 401
operator=, 401
operator[], 402
Print, 402
Read, 402
Set, 402
SetArray, 402
SetFromDataElement, 402
SetLength, 403
SetNoSwap, 403
SetValue, 403
Type, 400
Write, 403
WriteASCII, 403
gdcm::Element< TVR, VM::VM2_2n >, 404
Parent, 406
SetLength, 406
gdcm::Element< TVR, VM::VM2_n >, 406
Parent, 408
SetLength, 408
gdcm::Element< TVR, VM::VM3_3n >, 408
Parent, 411
SetLength, 411
gdcm::Element< TVR, VM::VM3_4 >, 411
Parent, 413
SetLength, 413
gdcm::Element< TVR, VM::VM3_n >, 413
Parent, 415
SetLength, 416
gdcm::Element< VR::AS, VM::VM5 >, 416
GetLength, 416
Internal, 417
Print, 416
gdcm::Element< VR::OB, VM::VM1 >, 417
gdcm::Element< VR::OW, VM::VM1 >, 419
gdcm::ElementDisableCombinations< TVR, TVM >, 421
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >, 422
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >, 422
gdcm::EmptyMaskGenerator, 422
~EmptyMaskGenerator, 424
EmptyMaskGenerator, 424
Execute, 424
SetInputDirectory, 424
SetOutputDirectory, 424
SetSOPClassUIDMode, 424
SOPClassUIDMode, 423
UseGrayscaleSecondaryImageStorage, 423

UseOriginalSOPClassUID, 423
gdcm::EncapsulatedDocument, 425
EncapsulatedDocument, 425
gdcm::EncodingImplementation< T >, 425
gdcm::EncodingImplementation< VR::VRASCII >, 426
Read, 426
ReadComputeLength, 426
ReadNoSwap, 427
Write, 427
gdcm::EncodingImplementation< VR::VRBINARY >, 427
Read, 428
ReadComputeLength, 428
ReadNoSwap, 428
Write, 428
gdcm::EndEvent, 429
gdcm::EnumeratedValues, 430
EnumeratedValues, 430
gdcm::EquipmentManufacturer, 431
AGFA, 431
Compute, 432
FUJI, 431
GEMS, 431
HITACHI, 431
KODAK, 431
MARCONI, 431
PMS, 431
SAMSUNG, 431
SIEMENS, 431
TOSHIBA, 431
Type, 431
TypeToString, 432
UIH, 431
UNKNOWN, 431
gdcm::Event, 432
~Event, 434
CheckEvent, 434
Event, 434
GetEventName, 434
MakeObject, 434
operator=, 435
Print, 435
gdcm::Exception, 435
~Exception, 437
Exception, 436
GetDescription, 437
what, 437
gdcm::ExitEvent, 438
gdcm::ExplicitDataElement, 439
GetLength, 442
Read, 442
ReadPreValue, 442
ReadValue, 442
ReadWithLength, 442
Write, 443
gdcm::ExplicitImplicitDataElement, 443
GetLength, 446
Read, 446
ReadPreValue, 446
ReadValue, 446
ReadWithLength, 446
gdcm::Fiducials, 447
Fiducials, 447
gdcm::File, 448
~File, 450
File, 450
GetDataSet, 450
GetHeader, 451
operator<<, 452
Read, 451
SetDataSet, 451
SetHeader, 452
Write, 452
gdcm::FileAnonymizer, 453
~FileAnonymizer, 455
Empty, 455
FileAnonymizer, 455
Remove, 455
Replace, 456
SetInputFileName, 456
SetOutputFileName, 456
Write, 457
gdcm::FileChangeTransferSyntax, 457
~FileChangeTransferSyntax, 459
Change, 460
FileChangeTransferSyntax, 459
GetCodec, 460
New, 460
SetInputFileName, 460
SetOutputFileName, 460
SetTransferSyntax, 461
gdcm::FileDecompressLookupTable, 461
~FileDecompressLookupTable, 463
Change, 463
FileDecompressLookupTable, 463
GetFile, 463
GetPixmap, 464
SetFile, 464
SetPixmap, 464
gdcm::FileDerivation, 464
~FileDerivation, 465
AddDerivationDescription, 466
AddPurposeOfReferenceCodeSequence, 466
AddReference, 466
AddSourceImageSequence, 466
Derive, 466
FileDerivation, 465
GetFile, 466, 467
SetAppendDerivationHistory, 467

SetDerivationCodeSequenceCodeValue, 467
SetDerivationDescription, 467
SetFile, 467
SetPurposeOfReferenceCodeSequenceCodeValue, 468
gdcm::FileExplicitFilter, 468
~FileExplicitFilter, 469
Change, 469
ChangeFMI, 469
FileExplicitFilter, 469
GetFile, 470
ProcessDataSet, 470
SetChangePrivateTags, 470
SetFile, 470
SetRecomputeItemLength, 470
SetRecomputeSequenceLength, 470
SetUseVRUN, 470
gdcm::FileMetaInformation, 471
~FileMetaInformation, 475
AppendImplementationClassUID, 475
ComputeDataSetMediaStorageSOPClass, 475
ComputeDataSetTransferSyntax, 476
DataSetMS, 480
DataSetTS, 480
Default, 476
FileMetaInformation, 475
FillFromDataSet, 476
GetDataSetTransferSyntax, 476
GetFileMetaInformationVersion, 476
GetFullLength, 476
GetGDCMImplementationClassUID, 476
GetGDCMImplementationVersionName, 476
GetGDCMSourceApplicationEntityTitle, 477
GetImplementationClassUID, 477
GetImplementationVersionName, 477
GetMediaStorage, 477
GetMediaStorageAsString, 477
GetMetaInformationTS, 477
GetPreamble, 477
GetSourceApplicationEntityTitle, 477
Insert, 478
IsValid, 478
MetaInformationTS, 480
operator<<, 480
operator=, 478
Read, 478
ReadCompat, 478
ReadCompatInternal, 478
Replace, 478
SetDataSetTransferSyntax, 479
SetImplementationClassUID, 479
SetImplementationVersionName, 479
SetPreamble, 479
SetSourceApplicationEntityTitle, 479
Write, 480
gdcm::Filename, 481
EndWith, 482
Filename, 482
GetExtension, 482
GetFileName, 482
GetName, 482
GetPath, 482
IsEmpty, 482
IsIdentical, 483
Join, 483
operator const char *, 483
ToUnixSlashes, 483
ToWindowsSlashes, 483
gdcm::FileNameEvent, 484
~FileNameEvent, 486
CheckEvent, 486
FileNameEvent, 486
GetEventName, 486
GetFileName, 486
MakeObject, 486
operator=, 487
Self, 485
SetFileName, 487
Superclass, 485
gdcm::FilenameGenerator, 487
~FilenameGenerator, 489
FilenameGenerator, 489
FilenamesType, 488
FilenameType, 488
Generate, 489
GetFilename, 489
GetFilenames, 489
GetNumberOfFilenames, 489
GetPattern, 490
GetPrefix, 490
SetNumberOfFilenames, 490
SetPattern, 490
SetPrefix, 490
SizeType, 488
gdcm::FileSet, 491
AddFile, 492
FileSet, 492
FilesType, 491
FileType, 491
GetFiles, 492
operator<<, 493
SetFiles, 492
gdcm::FileStreamer, 493
~FileStreamer, 496
AppendToDataElement, 496
AppendToGroupDataElement, 496
CheckDataElement, 496
CheckTemplateFileName, 496

FileStreamer, 496
New, 497
ReserveDataElement, 497
ReserveGroupDataElement, 497
SetOutputFileName, 497
SetTemplateFileName, 497
StartDataElement, 498
StartGroupDataElement, 498
StopDataElement, 498
StopGroupDataElement, 498
gdcm::FileWithName, 499
filename, 501
FileWithName, 501
gdcm::FindPatientRootQuery, 502
FindPatientRootQuery, 504
GetAbstractSyntaxUID, 504
GetTagListByLevel, 504
InitializeDataSet, 505
QueryFactory, 505
ValidateQuery, 505
gdcm::FindStudyRootQuery, 506
FindStudyRootQuery, 508
GetAbstractSyntaxUID, 508
GetTagListByLevel, 508
InitializeDataSet, 509
QueryFactory, 509
ValidateQuery, 509
gdcm::Fragment, 510
ComputeLength, 513
Fragment, 513
GetLength, 513
operator<<, 514
Read, 513
ReadBacktrack, 513
ReadPreValue, 513
ReadValue, 513
Write, 514
gdcm::Global, 514
~Global, 515
Append, 516
GetDefs, 516
GetDicts, 516
GetInstance, 516
Global, 515
LoadResourcesFiles, 516
Locate, 517
operator<<, 517
operator=, 517
Prepend, 517
gdcm::GroupDict, 518
~GroupDict, 519
Add, 519
GetAbbreviation, 519
GetName, 519
GroupDict, 519
GroupStringVector, 518
Insert, 519
operator<<, 520
Size, 519
gdcm::IconImageFilter, 520
~IconImageFilter, 521
Extract, 522
ExtractIconImages, 522
ExtractVeproIconImages, 522
GetFile, 522
GetIconImage, 522
GetNumberOfIconImages, 522
IconImageFilter, 521
SetFile, 523
gdcm::IconImageGenerator, 523
~IconImageGenerator, 524
AutoPixelMinMax, 524
ConvertRGBToPaletteColor, 524
Generate, 525
GetIconImage, 525
GetPixmap, 525
IconImageGenerator, 524
SetOutputDimensions, 525
SetOutsideValuePixel, 525
SetPixelMinMax, 526
SetPixmap, 526
gdcm::ignore_char, 526
ignore_char, 527
m_char, 527
gdcm::Image, 527
~Image, 532
GetDirectionCosines, 533
GetIntercept, 533
GetOrigin, 533
GetSlope, 533
GetSpacing, 533
Image, 532
Print, 534
SetDirectionCosines, 534
SetIntercept, 534
SetOrigin, 534, 535
SetSlope, 535
SetSpacing, 535
gdcm::ImageApplyLookupTable, 536
~ImageApplyLookupTable, 538
Apply, 539
ImageApplyLookupTable, 538
SetRGB8, 539
gdcm::ImageChangePhotometricInterpretation, 539
~ImageChangePhotometricInterpretation, 542
Change, 542
ChangeMonochrome, 542
ChangeRGB2YBR, 542

ChangeYBR2RGB, 542
GetPhotometricInterpretation, 542
ImageChangePhotometricInterpretation, 542
RGB2YBR, 542
SetPhotometricInterpretation, 543
YBR2RGB, 543
gdcm::ImageChangePlanarConfiguration, 543
~ImageChangePlanarConfiguration, 547
Change, 547
GetPlanarConfiguration, 547
ImageChangePlanarConfiguration, 547
RGBPixelsToRGBPlanes, 547
RGBPlanesToRGBPixels, 547
SetPlanarConfiguration, 548
gdcm::ImageChangeTransferSyntax, 548
~ImageChangeTransferSyntax, 551
Change, 551
GetTransferSyntax, 551
ImageChangeTransferSyntax, 551
SetCompressIconImage, 552
SetForce, 552
SetTransferSyntax, 552
SetUserCodec, 552
TryJPEG2000Codec, 553
TryJPEGCodec, 553
TryJPEGLSCodec, 553
TryRAWCodec, 553
TryRLECodec, 553
gdcm::ImageCodec, 554
~ImageCodec, 557
AppendFrameEncode, 557
AppendRowEncode, 557
CanCode, 558
CanDecode, 558
CleanupUnusedBits, 558
Clone, 558
Decode, 558
DecodeByStreams, 559
Dimensions, 564
DoByteSwap, 559
DoInvertMonochrome, 559
DoOverlayCleanup, 559
DoPaddedCompositePixelCode, 559
DoPlanarConfiguration, 559
DoSimpleCopy, 560
DoYBR, 560
DoYBRFull422, 560
FileChangeTransferSyntax, 564
GetDimensions, 560
GetHeaderInfo, 560
GetLossyFlag, 560
GetLUT, 560
GetNeedByteSwap, 561
GetNumberOfDimensions, 561
GetPhotometricInterpretation, 561
GetPixelFormat, 561
GetPlanarConfiguration, 561
ImageChangePhotometricInterpretation, 564
ImageCodec, 557
IsFrameEncoder, 561
IsLossy, 561
IsRowEncoder, 562
IsValid, 562
LossyFlag, 564
LUT, 564
LUTPtr, 557
NeedByteSwap, 565
NeedOverlayCleanup, 565
NumberOfDimensions, 565
PF, 565
PI, 565
PlanarConfiguration, 565
RequestPaddedCompositePixelCode, 565
RequestPlanarConfiguration, 565
SetDimensions, 562
SetLossyFlag, 562
SetLUT, 562
SetNeedByteSwap, 562
SetNeedOverlayCleanup, 563
SetNumberOfDimensions, 563
SetPhotometricInterpretation, 563
SetPixelFormat, 563
SetPlanarConfiguration, 563
StartEncode, 563
StopEncode, 564
gdcm::ImageConverter, 566
~ImageConverter, 566
Convert, 566
GetOuput, 566
ImageConverter, 566
SetInput, 567
gdcm::ImageFragmentSplitter, 567
~ImageFragmentSplitter, 569
GetFragmentSizeMax, 570
ImageFragmentSplitter, 569
SetForce, 570
SetFragmentSizeMax, 570
Split, 570
gdcm::ImageHelper, 570
ComputeMediaStorageFromModality, 572
ComputeSpacingFromImagePositionPatient, 572
GetDimensionsValue, 572
GetDirectionCosinesFromDataSet, 572
GetDirectionCosinesValue, 573
GetForcePixelSpacing, 573
GetForceRescaleInterceptSlope, 573
GetLUT, 573
GetOriginValue, 573

GetPhotometricInterpretationValue, 573
GetPixelFormatValue, 573
GetPlanarConfigurationValue, 574
GetPMSRescaleInterceptSlope, 574
GetPointerFromElement, 574
GetRealWorldValueMappingContent, 574
GetRescaleInterceptSlopeValue, 574
GetSecondaryCaptureImagePlaneModule, 574
GetSpacingTagFromMediaStorage, 575
GetSpacingValue, 575
GetZSpacingTagFromMediaStorage, 575
SetDimensionsValue, 575
SetDirectionCosinesValue, 575
SetForcePixelSpacing, 575
SetForceRescaleInterceptSlope, 575
SetOriginValue, 576
SetPMSRescaleInterceptSlope, 576
SetRescaleInterceptSlopeValue, 576
SetSecondaryCaptureImagePlaneModule, 576
SetSpacingValue, 576
gdcm::ImageReader, 577
~ImageReader, 580
GetImage, 580
ImageReader, 580
Read, 581
ReadACRNEMAImage, 581
ReadImage, 581
gdcm::ImageRegionReader, 582
~ImageRegionReader, 585
ComputeBufferLength, 586
GetRegion, 586
ImageRegionReader, 585
Read, 586
ReadInformation, 586
ReadIntoBuffer, 586
SetRegion, 587
gdcm::ImageToImageFilter, 587
~ImageToImageFilter, 589
GetInput, 589
GetOutput, 589
ImageToImageFilter, 589
gdcm::ImageWriter, 590
~ImageWriter, 593
ComputeTargetMediaStorage, 593
GetImage, 593, 594
ImageWriter, 593
Write, 594
gdcm::ImplicitDataElement, 598
GetLength, 601
Read, 601
ReadPreValue, 601
ReadValue, 601
ReadValueWithLength, 601
ReadWithLength, 601
Write, 601
gdcm::InitializeEvent, 602
gdcm::IOD, 603
AddIODEntry, 605
Clear, 605
GetIODEntry, 605
GetNumberOfIODs, 605
GetTypeFromTag, 605
IOD, 604
MapIODEntry, 604
operator<<, 605
SizeType, 604
gdcm::IODEntry, 606
GetIE, 607
GetName, 607
GetRef, 607
GetUsage, 607
GetUsageType, 607
IODEntry, 607
operator<<, 608
SetIE, 607
SetName, 607
SetRef, 608
SetUsage, 608
gdcm::IODs, 608
AddIOD, 610
Begin, 610
Clear, 610
End, 610
GetIOD, 610
IODMapType, 609
IODMapTypeConstIterator, 609
IODName, 609
IODs, 610
operator<<, 611
gdcm::IPPSorter, 611
ComputeZSpacing, 615
DirCosTolerance, 615
DropDuplicatePositions, 615
GetDirectionCosinesTolerance, 613
GetZSpacing, 613
GetZSpacingTolerance, 614
IPPSorter, 613
SetComputeZSpacing, 614
SetDirectionCosinesTolerance, 614
SetDropDuplicatePositions, 614
SetZSpacingTolerance, 615
Sort, 615
ZSpacing, 616
ZTolerance, 616
gdcm::Item, 616
Clear, 620
FindDataElement, 620
GetDataElement, 620

GetLength, 620
GetNestedDataSet, 620
InsertDataElement, 620
Item, 619
operator<<, 621
Read, 621
SetNestedDataSet, 621
Write, 621
gdcm::IterationEvent, 622
gdcm::JPEG12Codec, 623
~JPEG12Codec, 627
DecodeByStreams, 627
EncodeBuffer, 627
GetHeaderInfo, 627
InternalCode, 627
IsStateSuspension, 627
JPEG12Codec, 627
gdcm::JPEG16Codec, 628
~JPEG16Codec, 632
DecodeByStreams, 632
EncodeBuffer, 632
GetHeaderInfo, 632
InternalCode, 632
IsStateSuspension, 632
JPEG16Codec, 632
gdcm::JPEG2000Codec, 633
~JPEG2000Codec, 636
AppendFrameEncode, 636
AppendRowEncode, 636
Bitmap, 640
CanCode, 637
CanDecode, 637
Clone, 637
Code, 637
Decode, 637
DecodeByStreams, 638
DecodeExtent, 638
GetHeaderInfo, 638
GetQuality, 638
GetRate, 638
ImageRegionReader, 640
IsFrameEncoder, 638
IsRowEncoder, 639
JPEG2000Codec, 636
SetMCT, 639
SetNumberOfResolutions, 639
SetNumberOfThreadsForDecompression, 639
SetQuality, 639
SetRate, 639
SetReversible, 640
SetTileSize, 640
StartEncode, 640
StopEncode, 640
gdcm::JPEG8Codec, 641
~JPEG8Codec, 644
DecodeByStreams, 644
EncodeBuffer, 644
GetHeaderInfo, 645
InternalCode, 645
IsStateSuspension, 645
JPEG8Codec, 644
gdcm::JPEGCodec, 646
~JPEGCodec, 649
AppendFrameEncode, 650
AppendRowEncode, 650
BitSample, 654
CanCode, 650
CanDecode, 650
Clone, 650
Code, 650
ComputeOffsetTable, 651
Decode, 651
DecodeByStreams, 651
DecodeExtent, 651
EncodeBuffer, 651
GetHeaderInfo, 652
GetLossless, 652
GetQuality, 652
ImageRegionReader, 654
IsFrameEncoder, 652
IsRowEncoder, 652
IsStateSuspension, 652
IsValid, 653
JPEGCodec, 649
Quality, 654
SetBitSample, 653
SetLossless, 653
SetPixelFormat, 653
SetQuality, 653
StartEncode, 653
StopEncode, 654
gdcm::JPEGLSCodec, 655
~JPEGLSCodec, 658
AppendFrameEncode, 658
AppendRowEncode, 658
CanCode, 659
CanDecode, 659
Clone, 659
Code, 659
Decode, 659, 660
DecodeExtent, 660
GetBufferLength, 660
GetHeaderInfo, 660
GetLossless, 660
ImageRegionReader, 662
IsFrameEncoder, 661
IsRowEncoder, 661
JPEGLSCodec, 658

SetBufferLength, 661
SetLossless, 661
SetLossyError, 661
StartEncode, 661
StopEncode, 661
gdcm::JSON, 662
~JSON, 662
Code, 663
Decode, 663
GetPrettyPrint, 663
JSON, 662
PrettyPrintOff, 663
PrettyPrintOn, 663
SetPrettyPrint, 663
gdcm::KAKADUCodec, 664
~KAKADUCodec, 667
CanCode, 667
CanDecode, 667
Clone, 667
Code, 667
Decode, 667
KAKADUCodec, 667
gdcm::LO, 668
const_iterator, 669
const_reference, 669
const_reverse_iterator, 669
difference_type, 669
IsValid, 671
iterator, 670
LO, 670, 671
pointer, 670
reference, 670
reverse_iterator, 670
size_type, 670
Superclass, 670
value_type, 670
gdcm::LookupTable, 671
~LookupTable, 674
Allocate, 675
BitSample, 679
BLUE, 674
Clear, 675
Decode, 675
Decode8, 675
GetBitSample, 676
GetBufferAsRGBA, 676
GetLUT, 676
GetLUTDescriptor, 676
GetLUTLength, 676
GetPointer, 676
GRAY, 674
GREEN, 674
IncompleteLUT, 679
InitializeBlueLUT, 677
Initialized, 677
InitializeGreenLUT, 677
InitializeLUT, 677
InitializeRedLUT, 677
Internal, 679
IsRGB8, 677
LookupTable, 674, 675
LookupTableType, 674
Print, 678
RED, 674
SetBlueLUT, 678
SetGreenLUT, 678
SetLUT, 678
SetRedLUT, 678
UNKNOWN, 674
WriteBufferAsRGBA, 678
gdcm::Macro, 681
AddMacroEntry, 682
ArrayIncludeMacrosType, 682
Clear, 682
FindMacroEntry, 683
GetMacroEntry, 683
GetName, 683
Macro, 682
MapModuleEntry, 682
operator<<, 683
SetName, 683
Verify, 683
gdcm::Macros, 684
AddMacro, 685
Clear, 685
GetMacro, 685
IsEmpty, 685
Macros, 685
ModuleMapType, 684
operator<<, 685
gdcm::MD5, 687
Compute, 688
ComputeFile, 688
gdcm::MEC_MR3, 688
GetCanonMECMR3Tag, 688
GetPMTFInformationDataTag, 688
GetToshibaMECMR3Tag, 689
Print, 689
gdcm::MediaStorage, 689
AmbulatoryECGWaveformStorage, 693
Audio, 695
BasicTextSR, 694
BasicVoiceAudioWaveformStorage, 693
BreastProjectionXRayImageStorageForPresentation, 695
BreastProjectionXRayImageStorageForProcessing, 695
BreastTomosynthesisImageStorage, 694

CardiacElectrophysiologyWaveformStorage, 693
ComprehensiveSR, 694
ComputedRadiographyImageStorage, 693
CSANonImageStorage, 694
CTImageStorage, 693
DetachedPatientManagementSOPClass, 694
DetachedStudyManagementSOPClass, 694
DetachedVisitManagementSOPClass, 694
DigitalIntraoralXrayImageStorageForPresentation, 693
DigitalIntraoralXRayImageStorageForProcessing, 693
DigitalMammographyImageStorageForPresentation, 693
DigitalMammographyImageStorageForProcessing, 693
DigitalXRayImageStorageForPresentation, 693
DigitalXRayImageStorageForProcessing, 693
EncapsulatedCDAStorage, 694
EncapsulatedPDFStorage, 694
EnhancedCTImageStorage, 693
EnhancedMRColorImageStorage, 695
EnhancedMRImageStorage, 693
EnhancedPETImageStorage, 694
EnhancedSR, 694
EnhancedUSVolumeStorage, 694
EnhancedXAImageStorage, 694
FujiPrivateCRImageStorage, 694
FujiPrivateMammoCRImageStorage, 695
GeneralECGWaveformStorage, 693
GeneralElectricMagneticResonanceImageStorage, 694
GEPrivate3DModelStorage, 694
GetModality, 696
GetModalityDimension, 696
GetMSString, 696
GetMSType, 696
GetNumberOfModality, 696
GetNumberOfMSString, 696
GetNumberOfMSType, 696
GetString, 696
GrayscaleSoftcopyPresentationStateStorageSOPClass, 693
GuessFromModality, 697
HangingProtocolStorage, 694
HardcopyColorImageStorage, 695
HardcopyGrayscaleImageStorage, 694
HemodynamicWaveformStorage, 693
IsImage, 697
IsUndefined, 697
IVOCTForPresentation, 695
IVOCTForProcessing, 695
KeyObjectSelectionDocument, 694
LeadECGWaveformStorage, 693
LegacyConvertedEnhancedCTImageStorage, 695
LegacyConvertedEnhancedMRImageStorage, 695
LegacyConvertedEnhancedPETImageStorage, 695
MammographyCADSR, 694
MediaStorage, 695
MediaStorageDirectoryStorage, 693
ModalityPerformedProcedureStepSOPClass, 694
MRImageStorage, 693
MRSpectroscopyStorage, 693
MS_END, 695
MSType, 692
MultiframeGrayscaleByteSecondaryCaptureImageStorage, 693
MultiframeGrayscaleWordSecondaryCaptureImageStorage, 693
MultiframeSingleBitSecondaryCaptureImageStorage, 693
MultiframeTrueColorSecondaryCaptureImageStorage, 693
NoObject, 695
NuclearMedicineImageStorage, 693
NuclearMedicineImageStorageRetired, 693
ObjectEnd, 695
ObjectType, 695
operator MSType, 697
operator<<, 699
OphthalmicPhotography16BitImageStorage, 695
OphthalmicPhotography8BitImageStorage, 694
OphthalmicTomographyImageStorage, 694
PDF, 695
PETImageStorage, 693
Philips3D, 694
PhilipsPrivateMRSyntheticImageStorage, 694
RawDataStorage, 693
RTDoseStorage, 694
RTImageStorage, 693
RTIonBeamsTreatmentRecordStorage, 694
RTIonPlanStorage, 694
RTPlanStorage, 694
RTStructureSetStorage, 694
RTTreatmentSummaryRecordStorage, 694
SecondaryCaptureImageStorage, 693
Segmentation, 695
SegmentationStorage, 694
SetFromDataSet, 698
SetFromFile, 698
SetFromHeader, 698
SetFromModality, 698
SetFromSourceImageSequence, 698
SpacialFiducialsStorage, 693
SpacialRegistrationStorage, 693
StandaloneCurveStorage, 693
StandaloneModalityLUTStorage, 693
StandaloneOverlayStorage, 693

StandaloneVOILUTStorage, 693
StudyComponentManagementSOPClass, 694
SurfaceSegmentationStorage, 694
ToshibaPrivateDataStorage, 694
UltrasoundImageStorage, 693
UltrasoundImageStorageRetired, 693
UltrasoundMultiFrameImageStorage, 693
UltrasoundMultiFrameImageStorageRetired, 693
URI, 695
Video, 695
VideoEndoscopicImageStorage, 694
VideoMicroscopicImageStorage, 695
VideoPhotographicImageStorage, 694
VLEndoscopicImageStorage, 694
VLMicroscopicImageStorage, 694
VLPhotographicImageStorage, 694
VLWholeSlideMicroscopyImageStorage, 694
Waveform, 695
XRay3DAngiographicImageStorage, 694
XRay3DCraniofacialImageStorage, 695
XRayAngiographicBiPlaneImageStorageRetired, 693
XRayAngiographicImageStorage, 693
XRayRadiationDoseSR, 694
XRayRadiofluoroscopingImageStorage, 693
gdcm::MemberCommand< T >, 699
~MemberCommand, 702
Execute, 703
m_ConstMemberFunction, 704
m_MemberFunction, 704
m_This, 704
MemberCommand, 702
New, 703
operator=, 703
Self, 702
SetCallbackFunction, 703, 704
TConstMemberFunctionPointer, 702
TMemberFunctionPointer, 702
gdcm::MeshPrimitive, 705
~MeshPrimitive, 708
AddPrimitiveData, 708
EDGE, 707
FACET, 707
GetMPType, 708
GetMPTypeString, 708
GetNumberOfPrimitivesData, 708
GetPrimitiveData, 708, 709
GetPrimitivesData, 709
GetPrimitiveType, 709
LINE, 707
MeshPrimitive, 708
MPType, 707
MPType_END, 707
PrimitiveData, 710
PrimitivesData, 707
PrimitiveType, 710
SetPrimitiveData, 709
SetPrimitivesData, 709
SetPrimitiveType, 709
TRIANGLE, 707
TRIANGLE_FAN, 707
TRIANGLE_STRIP, 707
VERTEX, 707
gdcm::ModalityPerformedProcedureStepCreateQuery, 710
GetAbstractSyntaxUID, 713
GetRequiredDataSet, 713
ModalityPerformedProcedureStepCreateQuery, 712
QueryFactory, 713
ValidateQuery, 713
gdcm::ModalityPerformedProcedureStepSetQuery, 713
GetAbstractSyntaxUID, 716
GetRequiredDataSet, 716
ModalityPerformedProcedureStepSetQuery, 716
QueryFactory, 717
ValidateQuery, 716
gdcm::ModifiedEvent, 717
gdcm::Module, 718
AddMacro, 720
AddModuleEntry, 720
ArrayIncludeMacrosType, 719
Clear, 720
FindModuleEntryInMacros, 720
GetModuleEntryInMacros, 720
GetName, 720
MapModuleEntry, 719
Module, 720
operator<<, 721
SetName, 721
Verify, 721
gdcm::ModuleEntry, 721
~ModuleEntry, 723
DataElementType, 724
Description, 723
DescriptionField, 724
GetDescription, 723
GetName, 723
GetType, 724
ModuleEntry, 723
Name, 725
operator<<, 724
SetDescription, 724
SetName, 724
SetType, 724
gdcm::Modules, 725
AddModule, 726
Clear, 726
GetModule, 726
IsEmpty, 726

ModuleMapType, 726
Modules, 726
operator<<, 726
gdcm::MovePatientRootQuery, 727
GetAbstractSyntaxUID, 729
GetTagListByLevel, 729
InitializeDataSet, 730
MovePatientRootQuery, 729
QueryFactory, 730
ValidateQuery, 730
gdcm::MoveStudyRootQuery, 731
GetAbstractSyntaxUID, 733
GetTagListByLevel, 733
InitializeDataSet, 734
MoveStudyRootQuery, 733
QueryFactory, 734
ValidateQuery, 734
gdcm::MrProtocol, 735
~MrProtocol, 735
FindMrProtocolByName, 736
GetMrProtocolByName, 736
GetSliceArray, 736
GetVersion, 736
Load, 736
MrProtocol, 735
operator<<, 736
Print, 736
gdcm::MrProtocol::Slice, 1015
Normal, 1016
Position, 1016
gdcm::MrProtocol::SliceArray, 1016
Slices, 1017
gdcm::MrProtocol::Vector3, 1283
dCor, 1283
dSag, 1283
dTra, 1283
gdcm::NestedModuleEntries, 746
AddModuleEntry, 748
GetModuleEntry, 748
GetNumberOfModuleEntries, 748
NestedModuleEntries, 748
operator<<, 749
SizeType, 748
gdcm::network, 75
cMaxEventID, 80
cMaxStateID, 80
eAABORTPDUReceivedOpen, 79
eAABORTRequest, 79
eAASSOCIATE_RQPDUreceived, 79
eAASSOCIATERequestLocalUser, 79
eAASSOCIATEresponseAccept, 79
eAASSOCIATEresponseReject, 79
eARELEASE_RPPDUReceived, 79
eARELEASE_RQPDUReceivedOpen, 79
eARELEASERequest, 79
eARELEASEResponse, 79
eARTIMTimerExpired, 79
eASSOCIATE_ACPDUreceived, 79
eASSOCIATE_RJPDUreceived, 79
eEventDoesNotExist, 79
EEventID, 79
ePDATArequest, 79
ePDATATFPDU, 79
eSta10ReleaseCollisionAc, 80
eSta11ReleaseCollisionRq, 80
eSta12ReleaseCollisionAcLocal, 80
eSta13AwaitingClose, 80
eSta1Idle, 80
eSta2Open, 80
eSta3WaitLocalAssoc, 80
eSta4LocalAssocDone, 80
eSta5WaitRemoteAssoc, 80
eSta6TransferReady, 80
eSta7WaitRelease, 80
eSta8WaitLocalRelease, 80
eSta9ReleaseCollisionRqLocal, 80
eStaDoesNotExist, 80
EStateID, 79
eTransportConnConfirmLocal, 79
eTransportConnectionClosed, 79
eTransportConnIndicLocal, 79
eUnrecognizedPDUReceived, 79
GetStateIndex, 80
gdcm::network::AAbortPDU, 85
AAbortPDU, 86
IsLastFragment, 86
Print, 86
Read, 86
SetReason, 87
SetSource, 87
Size, 87
Write, 87
gdcm::network::AAssociateACPDU, 88
AAssociateACPDU, 89
AAssociateRQPDU, 91
AddPresentationContextAC, 90
GetNumberOfPresentationContextAC, 90
GetPresentationContextAC, 90
GetUserInformation, 90
InitFromRQ, 90
IsLastFragment, 90
Print, 90
Read, 90
SetCalledAETitle, 91
SetCallingAETitle, 91
Size, 91
SizeType, 89
Write, 91

gdcm::network::AAssociateRJPDU, 92
AAssociateRJPDU, 93
IsLastFragment, 93
Print, 93
Read, 93
Size, 93
Write, 93
gdcm::network::AAssociateRQPDU, 94
AAssociateACPDU, 99
AAssociateRQPDU, 96
AddPresentationContext, 96
GetCalledAETitle, 96
GetCallingAETitle, 96
GetNumberOfPresentationContext, 97
GetPresentationContext, 97
GetPresentationContextByAbstractSyntax, 97
GetPresentationContextByID, 97
GetPresentationContexts, 97
GetReserved43_74, 97
GetUserInformation, 97
IsAETitleValid, 97
IsLastFragment, 98
PresentationContextArrayType, 96
Print, 98
Read, 98
SetCalledAETitle, 98
SetCallingAETitle, 98
SetUserInformation, 98
Size, 98
SizeType, 96
Write, 99
gdcm::network::AbstractSyntax, 100
AbstractSyntax, 101
GetAsDataElement, 101
GetName, 101
operator==, 101
Print, 101
Read, 102
SetName, 102
SetNameFromUID, 102
Size, 102
Write, 102
gdcm::network::ApplicationContext, 116
ApplicationContext, 117
GetName, 117
Print, 117
Read, 117
SetName, 117
Size, 117
Write, 117
gdcm::network::AReleaseRPPDU, 120
AReleaseRPPDU, 121
IsLastFragment, 122
Print, 122
Read, 122
Size, 122
Write, 122
gdcm::network::AReleaseRQPDU, 123
AReleaseRQPDU, 124
IsLastFragment, 124
Print, 124
Read, 124
Size, 124
Write, 124
gdcm::network::ARTIMTimer, 125
ARTIMTimer, 125
GetElapsedTime, 126
GetHasExpired, 126
GetTimeout, 126
SetTimeout, 126
Start, 126
Stop, 126
gdcm::network::AsynchronousOperationsWindowSub, 128
AsynchronousOperationsWindowSub, 129
Print, 129
Read, 129
Size, 129
Write, 129
gdcm::network::BaseCompositeMessage, 169
~BaseCompositeMessage, 170
ConstructPDV, 170
gdcm::network::BaseNormalizedMessage, 170
~BaseNormalizedMessage, 172
ConstructPDV, 172
gdcm::network::BasePDU, 173
~BasePDU, 174
IsLastFragment, 174
Print, 174
Read, 174
Size, 174
Write, 175
gdcm::network::CEchoRQ, 231
AffectedSOPClassUID, 232
ConstructPDV, 232
MessageID, 232
gdcm::network::CEchoRSP, 233
ConstructPDVByDataSet, 234
gdcm::network::CFind, 234
gdcm::network::CFindCancelRQ, 234
ConstructPDVByDataSet, 235
gdcm::network::CFindRQ, 236
ConstructPDV, 237
gdcm::network::CFindRSP, 237
ConstructPDVByDataSet, 238
gdcm::network::CMoveCancelRq, 246
ConstructPDVByDataSet, 247
gdcm::network::CMoveRQ, 247

ConstructPDV, 248
gdcm::network::CMoveRSP, 248
ConstructPDVByDataSet, 249
gdcm::network::CompositeMessageFactory, 264
ConstructCEchoRQ, 265
ConstructCFindRQ, 265
ConstructCMoveRQ, 265
ConstructCStoreRQ, 265
ConstructCStoreRSP, 266
gdcm::network::CStoreRQ, 300
ConstructPDV, 301
gdcm::network::CStoreRSP, 301
ConstructPDV, 302
gdcm::network::DIMSE, 375
C_CANCEL_RQ, 376
C_ECHO_RQ, 376
C_ECHO_RSP, 376
C_FIND_RQ, 376
C_FIND_RSP, 376
C_GET_RQ, 376
C_GET_RSP, 376
C_MOVE_RQ, 376
C_MOVE_RSP, 376
C_STORE_RQ, 376
C_STORE_RSP, 376
CommandTypes, 376
N_ACTION_RQ, 376
N_ACTION_RSP, 376
N_CREATE_RQ, 376
N_CREATE_RSP, 376
N_DELETE_RQ, 376
N_DELETE_RSP, 376
N_EVENT_REPORT_RQ, 376
N_EVENT_REPORT_RSP, 376
N_GET_RQ, 376
N_GET_RSP, 376
N_SET_RQ, 376
N_SET_RSP, 376
gdcm::network::ImplementationClassUIDSub, 594
ImplementationClassUIDSub, 595
Print, 595
Read, 595
Size, 595
Write, 595
gdcm::network::ImplementationUIDSub, 596
ImplementationUIDSub, 596
Write, 596
gdcm::network::ImplementationVersionNameSub, 596
ImplementationVersionNameSub, 597
Print, 597
Read, 597
Size, 597
Write, 597
gdcm::network::MaximumLengthSub, 686
GetMaximumLength, 686
MaximumLengthSub, 686
Print, 686
Read, 686
SetMaximumLength, 687
Size, 687
Write, 687
gdcm::network::NActionRQ, 737
ConstructPDV, 738
gdcm::network::NActionRSP, 738
ConstructPDVByDataSet, 739
gdcm::network::NCreateRQ, 740
ConstructPDV, 741
gdcm::network::NCreateRSP, 741
ConstructPDVByDataSet, 742
gdcm::network::NDeleteRQ, 743
ConstructPDV, 744
gdcm::network::NDeleteRSP, 744
ConstructPDVByDataSet, 745
gdcm::network::NEventReportRQ, 749
ConstructPDV, 750
gdcm::network::NEventReportRSP, 751
ConstructPDVByDataSet, 752
gdcm::network::NGetRQ, 752
ConstructPDV, 753
gdcm::network::NGetRSP, 754
ConstructPDVByDataSet, 755
gdcm::network::NormalizedMessageFactory, 756
ConstructNAction, 756
ConstructNCreate, 756
ConstructNDelete, 757
ConstructNEventReport, 757
ConstructNGet, 757
ConstructNSet, 757
gdcm::network::NSetRQ, 760
ConstructPDV, 761
gdcm::network::NSetRSP, 761
ConstructPDVByDataSet, 762
gdcm::network::PDataTFPDU, 795
AddPresentationDataValue, 796
GetNumberOfPresentationDataValues, 796
GetPresentationDataValue, 796
IsLastFragment, 796
PDataTFPDU, 796
Print, 797
Read, 797
ReadInto, 797
Size, 797
SizeType, 796
Write, 797
gdcm::network::PDUFactory, 806
ConstructAbortPDU, 807
ConstructPDU, 807
ConstructReleasePDU, 807

CreateCEchoPDU, 807
CreateCFindPDU, 807
CreateCMovePDU, 807
CreateCStoreRQPDU, 807
CreateCStoreRSPPDU, 808
CreateNActionPDU, 808
CreateNCreatePDU, 808
CreateNDeletePDU, 808
CreateNEventReportPDU, 808
CreateNGetPDU, 808
CreateNSetPDU, 808
DetermineEventByPDU, 809
GetPDVs, 809
gdcm::network::PresentationContextAC, 859
GetPresentationContextID, 859
GetReason, 859
GetTransferSyntax, 860
PresentationContextAC, 859
Print, 860
Read, 860
SetPresentationContextID, 860
SetReason, 860
SetTransferSyntax, 860
Size, 860
Write, 860
gdcm::network::PresentationContextRQ, 864
AddTransferSyntax, 865
GetAbstractSyntax, 865, 866
GetNumberOfTransferSyntaxes, 866
GetPresentationContextID, 866
GetTransferSyntax, 866
GetTransferSyntaxes, 866
operator==, 866
PresentationContextRQ, 865
Print, 866
Read, 866
SetAbstractSyntax, 867
SetPresentationContextID, 867
Size, 867
SizeType, 865
Write, 867
gdcm::network::PresentationDataValue, 867
ConcatenatePDVBlobs, 868
ConcatenatePDVBlobsAsExplicit, 868
GetBlob, 869
GetIsCommand, 869
GetIsLastFragment, 869
GetMessageHeader, 869
GetPresentationContextID, 869
PresentationDataValue, 868
Print, 869
Read, 869
ReadInto, 869
SetBlob, 869
SetCommand, 870
SetDataSet, 870
SetLastFragment, 870
SetMessageHeader, 870
SetPresentationContextID, 870
Size, 870
Write, 870
gdcm::network::RoleSelectionSub, 933
Print, 933
Read, 933
RoleSelectionSub, 933
SetTuple, 934
Size, 934
Write, 934
gdcm::network::ServiceClassApplicationInformation, 996
Print, 996
Read, 996
ServiceClassApplicationInformation, 996
SetTuple, 996
Size, 996
Write, 997
gdcm::network::SOPClassExtendedNegociationSub, 1021
Print, 1021
Read, 1021
SetTuple, 1021
Size, 1022
SOPClassExtendedNegociationSub, 1021
Write, 1022
gdcm::network::TableRow, 1122
~TableRow, 1122
TableRow, 1122
transitions, 1123
gdcm::network::TransferSyntaxSub, 1152
GetName, 1153
operator==, 1153
Print, 1153
Read, 1153
SetName, 1153
SetNameFromUID, 1153
Size, 1153
TransferSyntaxSub, 1152
Write, 1153
gdcm::network::Transition, 1154
~Transition, 1154
mAction, 1155
MakeNew, 1155
mEnd, 1155
Transition, 1154, 1155
gdcm::network::ULAction, 1197
~ULAction, 1199
operator=, 1200
PerformAction, 1200
ULAction, 1199

gdcm::network::ULActionAA1, 1200
PerformAction, 1201
gdcm::network::ULActionAA2, 1202
PerformAction, 1203
gdcm::network::ULActionAA3, 1203
PerformAction, 1204
gdcm::network::ULActionAA4, 1204
PerformAction, 1205
gdcm::network::ULActionAA5, 1206
PerformAction, 1207
gdcm::network::ULActionAA6, 1207
PerformAction, 1208
gdcm::network::ULActionAA7, 1208
PerformAction, 1209
gdcm::network::ULActionAA8, 1210
PerformAction, 1211
gdcm::network::ULActionAE1, 1211
PerformAction, 1212
gdcm::network::ULActionAE2, 1212
PerformAction, 1213
gdcm::network::ULActionAE3, 1214
PerformAction, 1215
gdcm::network::ULActionAE4, 1215
PerformAction, 1216
gdcm::network::ULActionAE5, 1216
PerformAction, 1217
gdcm::network::ULActionAE6, 1218
PerformAction, 1219
gdcm::network::ULActionAE7, 1219
PerformAction, 1220
gdcm::network::ULActionAE8, 1220
PerformAction, 1221
gdcm::network::ULActionAR1, 1222
PerformAction, 1223
gdcm::network::ULActionAR10, 1223
PerformAction, 1224
gdcm::network::ULActionAR2, 1224
PerformAction, 1225
gdcm::network::ULActionAR3, 1226
PerformAction, 1227
gdcm::network::ULActionAR4, 1227
PerformAction, 1228
gdcm::network::ULActionAR5, 1228
PerformAction, 1229
gdcm::network::ULActionAR6, 1230
PerformAction, 1231
gdcm::network::ULActionAR7, 1231
PerformAction, 1232
gdcm::network::ULActionAR8, 1232
PerformAction, 1233
gdcm::network::ULActionAR9, 1234
PerformAction, 1235
gdcm::network::ULActionDT1, 1235
PerformAction, 1236
gdcm::network::ULActionDT2, 1236
PerformAction, 1237
gdcm::network::ULBasicCallback, 1238
~ULBasicCallback, 1239
GetDataSets, 1239
GetResponses, 1239
HandleDataSet, 1240
HandleResponse, 1240
ULBasicCallback, 1239
gdcm::network::ULConnection, 1240
~ULConnection, 1241
AddAcceptedPresentationContext, 1242
FindContext, 1242
GetAcceptedPresentationContexts, 1242
GetConnectionInfo, 1242
GetMaxPDUSize, 1242
GetPresentationContextACByID, 1242
GetPresentationContextIDFromPresentationContext, 1243
GetPresentationContextRQByID, 1243
GetPresentationContexts, 1243
GetProtocol, 1243
GetState, 1243
GetTimer, 1243
InitializeConnection, 1243
InitializeIncomingConnection, 1243
operator=, 1244
SetMaxPDUSize, 1244
SetPresentationContexts, 1244
SetState, 1244
StopProtocol, 1244
ULActionAE6, 1244
ULConnection, 1241, 1242
ULConnectionManager, 1244
gdcm::network::ULConnectionCallback, 1245
~ULConnectionCallback, 1246
DataSetHandled, 1246
DataSetHandles, 1246
HandleDataSet, 1246
HandleResponse, 1246
mImplicit, 1247
ResetHandledDataSet, 1246
SetImplicitFlag, 1247
ULConnectionCallback, 1246
gdcm::network::ULConnectionInfo, 1247
GetCalledAETitle, 1248
GetCalledComputerName, 1248
GetCalledIPAddress, 1248
GetCalledIPPort, 1248
GetCallingAETitle, 1248
GetMaxPDULength, 1248
Initialize, 1248
SetMaxPDULength, 1248
ULConnectionInfo, 1248

gdcm::network::ULConnectionManager, 1249
~ULConnectionManager, 1252
BreakConnection, 1252
BreakConnectionNow, 1252
EstablishConnection, 1252
EstablishConnectionMove, 1252
mConnection, 1255
mSecondaryConnection, 1255
mTransitions, 1256
RunEventLoop, 1252
RunMoveEventLoop, 1253
SendEcho, 1253
SendFind, 1253
SendMove, 1253
SendNAction, 1253, 1254
SendNCreate, 1254
SendNDelete, 1254
SendNEventReport, 1254
SendNGet, 1254, 1255
SendNSet, 1255
SendStore, 1255
ULConnectionManager, 1251
gdcm::network::ULEvent, 1256
~ULEvent, 1257
GetDataSetPos, 1257
GetEvent, 1257
GetIStream, 1257
GetPDUs, 1257
SetEvent, 1257
SetPDU, 1258
ULEvent, 1257
gdcm::network::ULTransitionTable, 1258
HandleEvent, 1259
PrintTable, 1259
ULTransitionTable, 1258
gdcm::network::ULWritingCallback, 1259
~ULWritingCallback, 1261
HandleDataSet, 1261
HandleResponse, 1261
SetDirectory, 1261
ULWritingCallback, 1261
gdcm::network::UserInformation, 1274
~UserInformation, 1275
AddRoleSelectionSub, 1275
AddSOPClassExtendedNegociationSub, 1275
GetMaximumLengthSub, 1275
operator=, 1275
Print, 1275
Read, 1276
Size, 1276
UserInformation, 1275
Write, 1276
gdcm::NoEvent, 755
gdcm::NormalizedNetworkFunctions, 757
ConstructQuery, 758
NAction, 758
NCreate, 759
NDelete, 759
NEventReport, 759
NGet, 759
NSet, 759
gdcm::Object, 763
~Object, 764
Object, 764
operator<<, 765
operator=, 765
Print, 765
Register, 765
SmartPointer, 765
UnRegister, 765
gdcm::OpenSSLCryptoFactory, 766
CreateCMSProvider, 767
InitOpenSSL, 767
OpenSSLCryptoFactory, 767
gdcm::OpenSSLCryptographicMessageSyntax, 768
~OpenSSLCryptographicMessageSyntax, 769
Decrypt, 769
Encrypt, 769
GetCipherType, 770
OpenSSLCryptographicMessageSyntax, 769
ParseCertificateFile, 770
ParseKeyFile, 770
SetCipherType, 770
SetPassword, 770
gdcm::OpenSSLP7CryptoFactory, 771
CreateCMSProvider, 772
OpenSSLP7CryptoFactory, 772
gdcm::OpenSSLP7CryptographicMessageSyntax, 773
~OpenSSLP7CryptographicMessageSyntax, 774
Decrypt, 774
Encrypt, 774
GetCipherType, 775
OpenSSLP7CryptographicMessageSyntax, 774
ParseCertificateFile, 775
ParseKeyFile, 775
SetCipherType, 775
SetPassword, 775
gdcm::Orientation, 776
~Orientation, 777
AXIAL, 777
CORONAL, 777
GetLabel, 778
GetMajorAxisFromPatientRelativeDirectionCosine, 778
GetObliquityThresholdCosineValue, 778
GetType, 778
OBLIQUE, 777
operator<<, 779

Orientation, 777
OrientationType, 777
Print, 778
SAGITTAL, 777
SetObliquityThresholdCosineValue, 778
UNKNOWN, 777
gdcm::Overlay, 779
~Overlay, 782
Decompress, 783
GetBitPosition, 783
GetBitsAllocated, 783
GetColumns, 783
GetDescription, 783
GetGroup, 783
GetOrigin, 784
GetOverlayData, 784
GetOverlayTypeAsString, 784
GetOverlayTypeFromString, 784
GetRows, 784
GetType, 784
GetTypeAsEnum, 784
GetUnpackBuffer, 785
GetUnpackBufferLength, 785
GrabOverlayFromPixelData, 785
Graphics, 782
Invalid, 782
IsEmpty, 785
IsInPixelData, 785
IsZero, 785
operator=, 786
Overlay, 782, 783
OverlayType, 782
Print, 786
ROI, 782
SetBitPosition, 786
SetBitsAllocated, 786
SetColumns, 786
SetDescription, 786
SetFrameOrigin, 787
SetGroup, 787
SetNumberOfFrames, 787
SetOrigin, 787
SetOverlay, 787
SetRows, 787
SetType, 788
Update, 788
gdcm::ParseException, 788
~ParseException, 789
GetLastElement, 790
operator=, 790
ParseException, 789, 790
SetLastElement, 790
gdcm::Parser, 790
~Parser, 792
DuplicateAttributeError, 792
EndElementHandler, 792
ErrorType, 792
GetBuffer, 793
GetCurrentByteIndex, 793
GetErrorCode, 793
GetErrorString, 793
GetUserData, 793
JunkAfterDocElementError, 792
NoElementsError, 792
NoError, 792
NoMemoryError, 792
Parse, 793
ParseBuffer, 793
Parser, 792
Process, 793
SetElementHandler, 793
SetUserData, 794
StartElementHandler, 792
SyntaxError, 792
TagMismatchError, 792
UndefinedEntityError, 792
UnexpectedStateError, 792
gdcm::Patient, 794
Patient, 794
gdcm::PDBElement, 798
GetName, 799
GetValue, 799
NameField, 800
operator<<, 800
operator==, 799
PDBElement, 799
SetName, 799
SetValue, 799
ValueField, 800
gdcm::PDBHeader, 800
~PDBHeader, 802
FindPDBElementByName, 802
GetPDBEEnd, 802
GetPDBElementByName, 802
GetPDBInfoTag, 802
LoadFromDataElement, 802
operator<<, 803
PDBHeader, 802
Print, 803
gdcm::PDFCodec, 803
~PDFCodec, 805
CanCode, 805
CanDecode, 805
Decode, 805
PDFCodec, 805
gdcm::PersonName, 809
Component, 811
GetMaxLength, 810

GetNumberOfComponents, 810
MaxLength, 811
MaxNumberOfComponents, 811
Padding, 811
Print, 810
Separator, 811
SetBlob, 810
SetComponents, 810
gdcm::PGXCodec, 812
~PGXCodec, 815
CanCode, 815
CanDecode, 815
Clone, 815
GetHeaderInfo, 815
PGXCodec, 815
Read, 815
Write, 816
gdcm::PhotometricInterpretation, 816
ARGB, 818
CMYK, 818
GetPIString, 818
GetPIType, 818
GetSamplesPerPixel, 818
GetString, 818
GetType, 819
HSV, 817
IsLossless, 819
IsLossy, 819
IsRetired, 819
IsSameColorSpace, 819
MONOCHROME1, 817
MONOCHROME2, 817
operator PIType, 819
operator<<, 819
PALETTE_COLOR, 817
PhotometricInterpretation, 818
PI_END, 818
PIType, 817
RGB, 817
UNKNOWN, 817
YBR_FULL, 818
YBR_FULL_422, 818
YBR_ICT, 818
YBR_PARTIAL_420, 818
YBR_PARTIAL_422, 818
YBR_RCT, 818
gdcm::PixelFormat, 820
Bitmap, 827
FLOAT16, 822
FLOAT32, 822
FLOAT64, 822
GetBitsAllocated, 823
GetBitsStored, 823
GetHighBit, 823
GetMax, 823
GetMin, 823
GetPixelRepresentation, 823
GetPixelSize, 824
GetSamplesPerPixel, 824
GetScalarType, 824
GetScalarTypeAsString, 824
INT12, 822
INT16, 822
INT32, 822
INT64, 822
INT8, 822
IsCompatible, 825
IsValid, 825
operator ScalarType, 825
operator!=, 825
operator<<, 827
operator==, 825
PixelFormat, 822
Print, 825
ScalarType, 822
SetBitsAllocated, 826
SetBitsStored, 826
SetHighBit, 826
SetPixelRepresentation, 826
SetSamplesPerPixel, 826
SetScalarType, 826
SINGLEBIT, 822
UINT12, 822
UINT16, 822
UINT32, 822
UINT64, 822
UINT8, 822
UNKNOWN, 822
Validate, 827
gdcm::Pixmap, 828
~Pixmap, 832
AreOverlaysInPixelData, 832
Curves, 834
GetCurve, 832
GetIconImage, 832
GetNumberOfCurves, 832
GetNumberOfOverlays, 833
GetOverlay, 833
Icon, 834
Overlays, 834
Pixmap, 832
Print, 833
RemoveOverlay, 833
SetIconImage, 833
SetNumberOfCurves, 833
SetNumberOfOverlays, 833
UnusedBitsPresentInPixelData, 834
gdcm::PixmapReader, 835

~PixmapReader, 838
GetPixmap, 838
PixelData, 839
PixmapReader, 838
Read, 838
ReadACRNEMAImage, 838
ReadImage, 839
ReadImageInternal, 839
gdcm::PixmapToPixmapFilter, 839
~PixmapToPixmapFilter, 841
GetInput, 841
GetOutput, 841
GetOutputAsPixmap, 841
PixmapToPixmapFilter, 841
gdcm::PixmapWriter, 842
~PixmapWriter, 845
DoIconImage, 845
GetImage, 845
GetPixmap, 845
PixelData, 846
PixmapWriter, 845
PrepareWrite, 845
SetImage, 846
SetPixmap, 846
Write, 846
gdcm::PNMCodec, 847
~PNMCodec, 850
CanCode, 850
CanDecode, 850
Clone, 850
GetBufferLength, 851
GetHeaderInfo, 851
PNMCodec, 850
Read, 851
SetBufferLength, 851
Write, 851
gdcm::Preamble, 852
~Preamble, 853
Clear, 853
Create, 853
GetInternal, 853
GetLength, 853
IsEmpty, 853
IsValid, 854
operator<<, 855
operator=, 854
Preamble, 853
Print, 854
Read, 854
Remove, 854
Valid, 854
Write, 854
gdcm::PresentationContext, 855
AbstractSyntax, 858
AddTransferSyntax, 857
GetAbstractSyntax, 857
GetNumberOfTransferSyntaxes, 857
GetPresentationContextID, 857
GetTransferSyntax, 857
ID, 858
operator==, 857
PresentationContext, 857
Print, 858
SetAbstractSyntax, 858
SetPresentationContextID, 858
SizeType, 856
TransferSyntaxArrayType, 856
TransferSyntaxes, 858
gdcm::PresentationContextGenerator, 861
AddFromFile, 863
AddPresentationContext, 863
GenerateFromFilenames, 863
GenerateFromUID, 863
GetDefaultTransferSyntax, 863
GetPresentationContexts, 863
PresentationContextArrayType, 862
PresentationContextGenerator, 862
SetDefaultTransferSyntax, 863
SetMergeModeToAbstractSyntax, 864
SetMergeModeToTransferSyntax, 864
SizeType, 862
gdcm::Printer, 871
~Printer, 873
CONDENSED_STYLE, 873
CXX, 873
F, 874
GetPrintStyle, 873
MaxPrintLength, 874
Print, 873
PrintDataElement, 873
PrintDataSet, 873
Printer, 873
PrintSQ, 874
PrintStyle, 875
PrintStyles, 872
SetColor, 874
SetFile, 874
SetStyle, 874
VERBOSE_STYLE, 873
XML, 873
gdcm::PrivateDict, 875
~PrivateDict, 876
AddDictEntry, 876
Dicts, 877
FindDictEntry, 876
GetDictEntry, 876
IsEmpty, 876
LoadDefault, 876

operator<<, 877
PrintXML, 876
PrivateDict, 876
RemoveDictEntry, 877
gdcm::PrivateTag, 877
GetAsDataElement, 881
GetOwner, 881
operator!=, 881
operator<, 881
operator<<, 882
operator=, 881
operator==, 881, 882
PrivateTag, 880
ReadFromCommaSeparatedString, 882
SetOwner, 882
gdcm::ProgressEvent, 883
~ProgressEvent, 885
CheckEvent, 885
GetEventName, 885
GetProgress, 885
MakeObject, 885
operator=, 886
ProgressEvent, 885
Self, 884
SetProgress, 886
Superclass, 884
gdcm::PVRGCodec, 886
~PVRGCodec, 889
CanCode, 889
CanDecode, 889
Clone, 889
Code, 890
Decode, 890
PVRGCodec, 889
SetLossyFlag, 890
gdcm::PythonFilter, 890
~PythonFilter, 891
GetFile, 891
PythonFilter, 891
SetDicts, 891
SetFile, 891
ToPyObject, 892
UseDictAlways, 892
gdcm::QueryBase, 892
~QueryBase, 893
GetAllRequiredTags, 893
GetAllTags, 893
GetHierachicalSearchTags, 893
GetName, 894
GetOptionalTags, 894
GetQueryLevel, 894
GetRequiredTags, 894
GetUniqueTags, 894
gdcm::QueryFactory, 895
GetCharacterFromCurrentLocale, 895
ListCharSets, 895
ProduceCharacterSetDataElement, 895
ProduceQuery, 896
gdcm::QueryImage, 896
GetHierachicalSearchTags, 897
GetName, 897
GetOptionalTags, 898
GetQueryLevel, 898
GetRequiredTags, 898
GetUniqueTags, 898
gdcm::QueryPatient, 899
GetHierachicalSearchTags, 900
GetName, 900
GetOptionalTags, 900
GetQueryLevel, 900
GetRequiredTags, 900
GetUniqueTags, 901
gdcm::QuerySeries, 901
GetHierachicalSearchTags, 902
GetName, 902
GetOptionalTags, 903
GetQueryLevel, 903
GetRequiredTags, 903
GetUniqueTags, 903
gdcm::QueryStudy, 904
GetHierachicalSearchTags, 905
GetName, 905
GetOptionalTags, 905
GetQueryLevel, 905
GetRequiredTags, 905
GetUniqueTags, 906
gdcm::RAWCodec, 906
~RAWCodec, 909
CanCode, 909
CanDecode, 909
Clone, 909
Code, 910
Decode, 910
DecodeByStreams, 910
DecodeBytes, 910
GetHeaderInfo, 910
RAWCodec, 909
gdcm::Reader, 911
~Reader, 914
CanRead, 914
F, 917
GetFile, 914
GetStreamCurrentPosition, 914
GetStreamPtr, 915
Read, 915
ReadDataSet, 915
Reader, 914
ReadMetaInformation, 915

ReadPreamble, 915
ReadSelectedPrivateTags, 916
ReadSelectedTags, 916
ReadUpToTag, 916
SetFile, 916
SetFileName, 916
SetStream, 917
StreamImageReader, 917
gdcm::RealWorldValueMappingContent, 918
CodeMeaning, 918
CodeValue, 918
RealWorldValueIntercept, 918
RealWorldValueSlope, 919
gdcm::Region, 919
~Region, 920
Area, 920
Clone, 920
ComputeBoundingBox, 920
Empty, 920
IsValid, 921
Print, 921
Region, 920
gdcm::Rescaler, 921
~Rescaler, 923
ComputeInterceptSlopePixelType, 923
ComputePixelTypeFromMinMax, 923
GetIntercept, 924
GetSlope, 924
InverseRescale, 924
InverseRescaleFunctionIntoBestFit, 924
Rescale, 924
RescaleFunctionIntoBestFit, 924
Rescaler, 923
SetIntercept, 925
SetMinMaxForPixelType, 925
SetPixelFormat, 925
SetSlope, 925
SetTargetPixelType, 925
SetUseTargetPixelType, 926
gdcm::RLECodec, 926
~RLECodec, 929
AppendFrameEncode, 930
AppendRowEncode, 930
CanCode, 930
CanDecode, 930
Clone, 930
Code, 930
Decode, 931
DecodeByStreams, 931
DecodeExtent, 931
GetBufferLength, 931
GetHeaderInfo, 931
ImageRegionReader, 933
IsFrameEncoder, 932
IsRowEncoder, 932
RLECodec, 929
SetBufferLength, 932
SetLength, 932
StartEncode, 932
StopEncode, 932
gdcm::Scanner, 934
~Scanner, 938
AddPrivateTag, 938
AddSkipTag, 938
AddTag, 939
Begin, 939
ClearSkipTags, 939
ClearTags, 939
ConstIterator, 938
End, 939
GetAllFilenamesFromTagToValue, 939
GetFilenameFromTagToValue, 939
GetFilenames, 940
GetKeys, 940
GetMapping, 940
GetMappingFromTagToValue, 940
GetMappings, 940
GetOrderedValues, 941
GetValue, 941
GetValues, 941
IsKey, 941
MappingType, 938
New, 942
operator<<, 943
Print, 942
PrintTable, 942
ProcessPublicTag, 942
Scan, 942
Scanner, 938
TagToValue, 938
TagToValueValueType, 938
ValuesType, 938
gdcm::Scanner2, 943
~Scanner2, 948
AddPrivateTag, 948
AddPublicTag, 948
AddSkipTag, 948
Begin, 948
ClearPrivateTags, 948
ClearPublicTags, 949
ClearSkipTags, 949
End, 949
GetAllFilenamesFromPrivateTagToValue, 949
GetAllFilenamesFromPublicTagToValue, 949
GetFilenameFromPrivateTagToValue, 949
GetFilenameFromPublicTagToValue, 949
GetFilenames, 949
GetKeys, 950

GetMappingFromPrivateTagToValue, 950
GetMappingFromPublicTagToValue, 950
GetPrivateMapping, 950
GetPrivateMappings, 950
GetPrivateOrderedValues, 950
GetPrivateValue, 950
GetPrivateValues, 951
GetPublicMapping, 951
GetPublicMappings, 951
GetPublicOrderedValues, 951
GetPublicValue, 951
GetPublicValues, 951
GetValues, 952
IsKey, 952
New, 952
operator<<, 953
Print, 952
PrintTable, 952
PrivateBegin, 952
PrivateConstIterator, 947
PrivateEnd, 953
PrivateMappingType, 947
PrivateTagToValue, 947
PrivateTagToValueValueType, 947
ProcessPrivateTag, 953
ProcessPublicTag, 953
PublicConstIterator, 947
PublicMappingType, 947
PublicTagToValue, 947
PublicTagToValueValueType, 947
Scan, 953
Scanner2, 948
ValuesType, 947
gdcm::Scanner2::ltstr, 679
operator(), 679
gdcm::Scanner::ltstr, 680
operator(), 680
gdcm::Segment, 954
~Segment, 957
AddSurface, 957
ALGOType, 956
ALGOType_END, 957
AnatomicRegion, 961
AnatomicRegionModifiers, 961
AUTOMATIC, 957
BasicCodedEntryVector, 956
GetALGOType, 957
GetALGOTypeString, 957
GetAnatomicRegion, 957
GetAnatomicRegionModifiers, 958
GetPropertyCategory, 958
GetPropertyType, 958
GetPropertyTypeModifiers, 958
GetSegmentAlgorithmName, 958
GetSegmentAlgorithmType, 958
GetSegmentDescription, 959
GetSegmentLabel, 959
GetSegmentNumber, 959
GetSurface, 959
GetSurfaceCount, 959
GetSurfaces, 959
MANUAL, 957
PropertyCategory, 961
PropertyType, 961
PropertyTypeModifiers, 961
Segment, 957
SegmentAlgorithmName, 961
SegmentAlgorithmType, 961
SegmentDescription, 962
SegmentLabel, 962
SegmentNumber, 962
SEMIAUTOMATIC, 957
SetAnatomicRegion, 959
SetAnatomicRegionModifiers, 959
SetPropertyCategory, 960
SetPropertyType, 960
SetPropertyTypeModifiers, 960
SetSegmentAlgorithmName, 960
SetSegmentAlgorithmType, 960
SetSegmentDescription, 960
SetSegmentLabel, 960
SetSegmentNumber, 961
SetSurfaceCount, 961
SurfaceCount, 962
Surfaces, 962
SurfaceVector, 956
gdcm::SegmentedPaletteColorLookupTable, 963
~SegmentedPaletteColorLookupTable, 965
Print, 966
SegmentedPaletteColorLookupTable, 965
SetLUT, 966
gdcm::SegmentHelper, 81
gdcm::SegmentHelper::BasicCodedEntry, 185
BasicCodedEntry, 186
CM, 187
CSD, 187
CSV, 187
CV, 187
IsEmpty, 187
gdcm::SegmentReader, 966
~SegmentReader, 969
GetSegments, 969
Read, 969
ReadSegment, 969
ReadSegments, 970
SegmentMap, 969
SegmentReader, 969
Segments, 970

SegmentVector, 969
gdcm::SegmentWriter, 970
~SegmentWriter, 972
AddSegment, 973
GetNumberOfSegments, 973
GetSegment, 973
GetSegments, 973
PrepareWrite, 973
Segments, 974
SegmentVector, 972
SegmentWriter, 972
SetNumberOfSegments, 973
SetSegments, 973
Write, 973
gdcm::SequenceOfFragments, 974
AddFragment, 978
Begin, 978
Clear, 978
ComputeByteLength, 978
ComputeLength, 978
ConstIterator, 977
End, 978
FragmentVector, 977
GetBuffer, 978
GetFragBuffer, 979
GetFragment, 979
GetLength, 979
GetNumberOfFragments, 979
GetTable, 979
Iterator, 977
New, 980
operator==, 980
Print, 980
Read, 980
ReadPreValue, 980
ReadValue, 980
SequenceOfFragments, 977
SetLength, 981
SizeType, 977
Write, 981
WriteBuffer, 981
gdcm::SequenceOfItems, 982
AddItem, 985
AddNewUndefinedLengthItem, 985
Begin, 986
Clear, 986
ComputeLength, 986
ConstIterator, 985
End, 986
FindDataElement, 986
GetItem, 986, 987
GetLength, 987
GetNumberOfItems, 987
IsEmpty, 987
IsUndefinedLength, 987
Items, 989
ItemVector, 985
Iterator, 985
New, 987
operator=, 988
operator==, 988
Print, 988
Read, 988
RemoveItemByIndex, 988
SequenceLengthField, 989
SequenceOfItems, 985
SetLength, 989
SetLengthToUndefined, 989
SetNumberOfItems, 989
SizeType, 985
Write, 989
gdcm::SerieHelper, 990
~SerieHelper, 992
AddFile, 992
AddFileName, 992
AddRestriction, 992, 993
Clear, 993
CreateDefaultUniqueSeriesIdentifier, 993
CreateUniqueSeriesIdentifier, 993
elem, 994
FileNameOrdering, 993
GetFirstSingleSerieUIDFileSet, 993
GetNextSingleSerieUIDFileSet, 993
ImageNumberOrdering, 993
ImagePositionPatientOrdering, 994
ItFileSetHt, 994
op, 995
OrderFileList, 994
Rule, 992
SerieHelper, 992
SerieRestrictions, 992
SetDirectory, 994
SetLoadMode, 994
SetUseSeriesDetails, 994
SingleSerieUIDFileSetHT, 995
SingleSerieUIDFileSetmap, 992
UserOrdering, 994
value, 995
gdcm::Series, 995
Series, 995
gdcm::ServiceClassUser, 997
~ServiceClassUser, 1000
GetAETitle, 1000
GetCalledAETitle, 1000
GetTimeout, 1001
InitializeConnection, 1001
IsPresentationContextAccepted, 1001
New, 1001

operator=, 1001
SendEcho, 1001
SendFind, 1001
SendMove, 1002
SendStore, 1002, 1003
ServiceClassUser, 1000
SetAETitle, 1003
SetCalledAETitle, 1003
SetHostname, 1003
SetPort, 1003
SetPortSCP, 1004
SetPresentationContexts, 1004
SetTimeout, 1004
StartAssociation, 1004
StopAssociation, 1005
gdcm::SHA1, 1005
~SHA1, 1006
Compute, 1006
ComputeFile, 1006
operator=, 1006
SHA1, 1006
gdcm::SimpleMemberCommand< T >, 1007
~SimpleMemberCommand, 1010
Execute, 1011
m_MemberFunction, 1012
m_This, 1012
New, 1011
operator=, 1011
Self, 1010
SetCallbackFunction, 1011
SimpleMemberCommand, 1010
TMemberFunctionPointer, 1010
gdcm::SimpleSubjectWatcher, 1012
~SimpleSubjectWatcher, 1013
EndFilter, 1014
operator=, 1014
ShowAbort, 1014
ShowAnonymization, 1014
ShowData, 1014
ShowDataSet, 1014
ShowFileName, 1014
ShowIteration, 1014
ShowProgress, 1015
SimpleSubjectWatcher, 1013
StartFilter, 1015
TestAbortOff, 1015
TestAbortOn, 1015
gdcm::SmartPointer< ObjectType >, 1017
~SmartPointer, 1019
GetPointer, 1019
operator ObjectType *, 1019
operator->, 1020
operator=, 1020
operator*, 1020
SmartPointer, 1019
gdcm::SOPClassUIDToIOD, 1022
const, 1023
GetIOD, 1023
GetIODFromSOPClassUID, 1023
GetNumberOfSOPClassToIOD, 1023
GetSOPClassUIDFromIOD, 1023
GetSOPClassUIDToIOD, 1023
GetSOPClassUIDToIODs, 1024
gdcm::Sorter, 1024
~Sorter, 1026
AddSelect, 1026
Filenames, 1028
GetFilenames, 1026
operator<<, 1028
Print, 1026
Selection, 1028
SelectionMap, 1026
SetSortFunction, 1027
SetTagsToRead, 1027
Sort, 1027
Sorter, 1026
SortFunc, 1028
SortFunction, 1026
StableSort, 1027
TagsToRead, 1028
gdcm::Spacing, 1029
~Spacing, 1030
CALIBRATED, 1030
ComputePixelAspectRatioFromPixelSpacing, 1031
DETECTOR, 1030
MAGNIFIED, 1030
Spacing, 1030
SpacingType, 1030
UNKNOWN, 1030
gdcm::Spectroscopy, 1031
Spectroscopy, 1031
gdcm::SplitMosaicFilter, 1032
~SplitMosaicFilter, 1033
ComputeMOSAICDimensions, 1033
ComputeMOSAICImagePositionPatient, 1033
ComputeMOSAICSliceNormal, 1033
ComputeMOSAICSlicePosition, 1033
GetAcquisitionSize, 1033
GetFile, 1034
GetImage, 1034
GetNumberOfImagesInMosaic, 1034
SetFile, 1034
SetImage, 1034
Split, 1034
SplitMosaicFilter, 1033
gdcm::StartEvent, 1035
gdcm::static_assert_test< x >, 1036
gdcm::STATIC_ASSERTION_FAILURE< true >, 1037

value, 1037
gdcm::STATIC_ASSERTION_FAILURE< x >, 1037
gdcm::StreamImageReader, 1037
~StreamImageReader, 1038
CanReadImage, 1039
DefinePixelExtent, 1039
DefineProperBufferLength, 1039
GetDimensionsValueForResolution, 1039
GetFile, 1040
Read, 1040
ReadImageInformation, 1040
SetFileName, 1040
SetStream, 1041
StreamImageReader, 1038
gdcm::StreamImageWriter, 1041
~StreamImageWriter, 1043
CanWriteFile, 1044
DefinePixelExtent, 1044
DefineProperBufferLength, 1044
mElementOffsets, 1046
mElementOffsets1, 1046
mspFile, 1046
mWriter, 1047
mXMax, 1047
mXMin, 1047
mYMax, 1047
mYMin, 1047
mZMax, 1047
mZMin, 1047
SetFile, 1044
SetFileName, 1045
SetStream, 1045
StreamImageWriter, 1043
Write, 1045
WriteImageInformation, 1045
WriteImageSubregionRAW, 1046
WriteRawHeader, 1046
gdcm::StrictScanner, 1048
~StrictScanner, 1052
AddPrivateTag, 1052
AddSkipTag, 1052
AddTag, 1052
Begin, 1052
ClearSkipTags, 1053
ClearTags, 1053
ConstIterator, 1051
End, 1053
GetAllFilenamesFromTagToValue, 1053
GetFilenameFromTagToValue, 1053
GetFilenames, 1053
GetKeys, 1053
GetMapping, 1053
GetMappingFromTagToValue, 1054
GetMappings, 1054
GetOrderedValues, 1054
GetValue, 1054
GetValues, 1054, 1055
IsKey, 1055
MappingType, 1051
New, 1055
operator<<, 1056
Print, 1055
PrintTable, 1055
ProcessPublicTag, 1056
Scan, 1056
StrictScanner, 1052
TagToValue, 1051
TagToValueValueType, 1051
ValuesType, 1052
gdcm::StrictScanner2, 1057
~StrictScanner2, 1061
AddPrivateTag, 1062
AddPublicTag, 1062
AddSkipTag, 1062
Begin, 1062
ClearPrivateTags, 1062
ClearPublicTags, 1062
ClearSkipTags, 1062
End, 1062
GetAllFilenamesFromPrivateTagToValue, 1062
GetAllFilenamesFromPublicTagToValue, 1063
GetFilenameFromPrivateTagToValue, 1063
GetFilenameFromPublicTagToValue, 1063
GetFilenames, 1063
GetKeys, 1063
GetMappingFromPrivateTagToValue, 1063
GetMappingFromPublicTagToValue, 1063
GetPrivateMapping, 1064
GetPrivateMappings, 1064
GetPrivateOrderedValues, 1064
GetPrivateValue, 1064
GetPrivateValues, 1064
GetPublicMapping, 1064
GetPublicMappings, 1064
GetPublicOrderedValues, 1065
GetPublicValue, 1065
GetPublicValues, 1065
GetValues, 1065
IsKey, 1065
New, 1065
operator<<, 1067
Print, 1066
PrintTable, 1066
PrivateBegin, 1066
PrivateConstIterator, 1060
PrivateEnd, 1066
PrivateMappingType, 1060
PrivateTagToValue, 1060

PrivateTagToValueValueType, 1060
ProcessPrivateTag, 1066
ProcessPublicTag, 1066
PublicConstIterator, 1061
PublicMappingType, 1061
PublicTagToValue, 1061
PublicTagToValueValueType, 1061
Scan, 1066
StrictScanner2, 1061
ValuesType, 1061
gdcm::StrictScanner2::ltstr, 680
operator(), 680
gdcm::StrictScanner::ltstr, 681
operator(), 681
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1067
const_iterator, 1069
const_reference, 1069
const_reverse_iterator, 1069
difference_type, 1069
IsValid, 1071
iterator, 1069
operator const char *, 1071
pointer, 1070
reference, 1070
reverse_iterator, 1070
size_type, 1070
String, 1070, 1071
Trim, 1071, 1072
Truncate, 1072
value_type, 1070
gdcm::StringFilter, 1072
~StringFilter, 1073
ExecuteQuery, 1074
FromString, 1074
GetFile, 1074
SetDicts, 1074
SetFile, 1074
StringFilter, 1073
ToString, 1075
ToStringPair, 1075, 1076
UseDictAlways, 1076
gdcm::Study, 1076
Study, 1076
gdcm::Subject, 1077
~Subject, 1078
AddObserver, 1079
GetCommand, 1079
HasObserver, 1079
InvokeEvent, 1079, 1080
RemoveAllObservers, 1080
RemoveObserver, 1080
Subject, 1078
gdcm::Surface, 1081
~Surface, 1084
GetAlgorithmFamily, 1085
GetAlgorithmName, 1085
GetAlgorithmVersion, 1085
GetAxisOfRotation, 1085
GetCenterOfRotation, 1085
GetFiniteVolume, 1085
GetManifold, 1085
GetMaximumPointDistance, 1086
GetMeanPointDistance, 1086
GetMeshPrimitive, 1086
GetNumberOfSurfacePoints, 1086
GetNumberOfVectors, 1086
GetPointCoordinatesData, 1086
GetPointPositionAccuracy, 1086
GetPointsBoundingBoxCoordinates, 1087
GetProcessingAlgorithm, 1087
GetRecommendedDisplayCIELabValue, 1087
GetRecommendedDisplayGrayscaleValue, 1087
GetRecommendedPresentationOpacity, 1087
GetRecommendedPresentationType, 1087
GetSTATES, 1088
GetSTATESString, 1088
GetSurfaceComments, 1088
GetSurfaceNumber, 1088
GetSurfaceProcessing, 1088
GetSurfaceProcessingDescription, 1088
GetSurfaceProcessingRatio, 1088
GetVectorAccuracy, 1088
GetVectorCoordinateData, 1088, 1089
GetVectorDimensionality, 1089
GetVIEWType, 1089
GetVIEWTypeString, 1089
NO, 1084
POINTS, 1084
SetAlgorithmFamily, 1089
SetAlgorithmName, 1089
SetAlgorithmVersion, 1089
SetAxisOfRotation, 1089
SetCenterOfRotation, 1089
SetFiniteVolume, 1090
SetManifold, 1090
SetMaximumPointDistance, 1090
SetMeanPointDistance, 1090
SetMeshPrimitive, 1090
SetNumberOfSurfacePoints, 1090
SetNumberOfVectors, 1090
SetPointCoordinatesData, 1090
SetPointPositionAccuracy, 1091
SetPointsBoundingBoxCoordinates, 1091
SetProcessingAlgorithm, 1091
SetRecommendedDisplayCIELabValue, 1091
SetRecommendedDisplayGrayscaleValue, 1091
SetRecommendedPresentationOpacity, 1091

SetRecommendedPresentationType, 1092
SetSurfaceComments, 1092
SetSurfaceNumber, 1092
SetSurfaceProcessing, 1092
SetSurfaceProcessingDescription, 1092
SetSurfaceProcessingRatio, 1092
SetVectorAccuracy, 1092
SetVectorCoordinateData, 1092
SetVectorDimensionality, 1093
STATES, 1084
STATES_END, 1084
SURFACE, 1084
Surface, 1084
UNKNOWN, 1084
VIEWType, 1084
VIEWType_END, 1084
WIREFRAME, 1084
YES, 1084
gdcm::SurfaceHelper, 1093
ColorArray, 1094
RecommendedDisplayCIELabToRGB, 1094
RGBToRecommendedDisplayCIELab, 1095
RGBToRecommendedDisplayGrayscale, 1095
gdcm::SurfaceReader, 1096
~SurfaceReader, 1099
GetNumberOfSurfaces, 1099
Read, 1099
ReadPointMacro, 1099
ReadSurface, 1100
ReadSurfaces, 1100
SurfaceReader, 1099
gdcm::SurfaceWriter, 1100
~SurfaceWriter, 1103
ComputeNumberOfSurfaces, 1103
GetNumberOfSurfaces, 1103
NumberOfSurfaces, 1104
PrepareWrite, 1103
PrepareWritePointMacro, 1103
SetNumberOfSurfaces, 1103
SurfaceWriter, 1103
Write, 1103
gdcm::SwapCode, 1104
BadBigEndian, 1105
BadLittleEndian, 1105
BigEndian, 1105
GetIndex, 1105
GetSwapCodeString, 1105
LittleEndian, 1105
operator SwapCode::SwapCodeType, 1105
operator<<, 1106
SwapCode, 1105
SwapCodeType, 1105
Unknown, 1105
gdcm::SwapperDoOp, 1106
Swap, 1106
SwapArray, 1106
gdcm::SwapperNoOp, 1107
Swap, 1107
SwapArray, 1107
gdcm::System, 1107
ConvertToUNC, 1109
DeleteDirectory, 1109
EncodeBytes, 1109
FileExists, 1109
FileIsDirectory, 1109
FileIsSymlink, 1110
FileSize, 1110
FileTime, 1110
FormatDateTime, 1110
GetCurrentDateTime, 1111
GetCurrentModuleFileName, 1111
GetCurrentProcessFileName, 1111
GetCurrentResourcesDirectory, 1111
GetCWD, 1111
GetHostName, 1111
GetLastSystemError, 1112
GetLocaleCharset, 1112
GetPermissions, 1112
GetTimezoneOffsetFromUTC, 1112
MakeDirectory, 1112
ParseDateTime, 1112, 1113
RemoveFile, 1113
SetPermissions, 1113
StrCaseCmp, 1113
StrNCaseCmp, 1113
StrSep, 1114
StrTokR, 1114
gdcm::Table, 1114
~Table, 1116
GetTableEntry, 1116
InsertEntry, 1116
MapTableEntry, 1116
operator<<, 1117
operator=, 1116
Table, 1116
TableInternal, 1117
gdcm::TableEntry, 1117
~TableEntry, 1118
TableEntry, 1118
gdcm::TableReader, 1118
~TableReader, 1119
CharacterDataHandler, 1119
EndElement, 1119
GetDefs, 1120
GetFilename, 1120
HandleIOD, 1120
HandleIODEntry, 1120
HandleMacro, 1120

HandleMacroEntry, 1120
HandleMacroEntryDescription, 1120
HandleModule, 1120
HandleModuleEntry, 1121
HandleModuleEntryDescription, 1121
HandleModuleInclude, 1121
Read, 1121
SetFilename, 1121
StartElement, 1121
TableReader, 1119
gdcm::Tag, 1123
bytes, 1132
GetElement, 1126
GetElementTag, 1126
GetGroup, 1126
GetLength, 1126
GetPrivateCreator, 1127
IsGroupLength, 1127
IsGroupXX, 1127
IsIllegal, 1127
IsPrivate, 1127
IsPrivateCreator, 1127
IsPublic, 1128
operator!=, 1128
operator<, 1128
operator<<, 1132
operator<=, 1128
operator>>, 1132
operator=, 1128
operator==, 1128
operator[], 1129
PrintAsContinuousString, 1129
PrintAsContinuousUpperCaseString, 1129
PrintAsPipeSeparatedString, 1129
Read, 1129
ReadFromCommaSeparatedString, 1130
ReadFromContinuousString, 1130
ReadFromPipeSeparatedString, 1130
SetElement, 1130
SetElementTag, 1130, 1131
SetGroup, 1131
SetPrivateCreator, 1131
Tag, 1125
tag, 1132
tags, 1132
Write, 1131
gdcm::TagPath, 1132
~TagPath, 1133
ConstructFromString, 1133
ConstructFromTagList, 1133
IsValid, 1134
Print, 1134
Push, 1134
TagPath, 1133
gdcm::terminal, 81
Attribute, 82
black, 82
blink, 82
blue, 82
bright, 82
Color, 82
CONSOLE, 82
cyan, 82
dim, 82
green, 82
hidden, 82
magenta, 82
Mode, 82
red, 82
reset, 82
reverse, 82
setattribute, 83
setbgcolor, 83
setfgcolor, 83
setmode, 83
underline, 82
VT100, 82
white, 82
yellow, 82
gdcm::Testing, 1134
~Testing, 1136
ComputeFileMD5, 1136
ComputeMD5, 1136
GetDataExtraRoot, 1137
GetDataRoot, 1137
GetFileName, 1137
GetFileNames, 1137
GetLossyFlagFromFile, 1138
GetMD5DataImage, 1138
GetMD5DataImages, 1138
GetMD5FromBrokenFile, 1138
GetMD5FromFile, 1138
GetMediaStorageDataFile, 1138
GetMediaStorageDataFiles, 1138
GetMediaStorageFromFile, 1139
GetNumberOfFileNames, 1139
GetNumberOfMD5DataImages, 1139
GetNumberOfMediaStorageDataFiles, 1139
GetPixelSpacingDataRoot, 1139
GetSelectedPrivateGroupOffsetFromFile, 1139
GetSelectedTagsOffsetFromFile, 1139
GetSourceDirectory, 1140
GetStreamOffsetFromFile, 1140
GetTempDirectory, 1140
GetTempDirectoryW, 1140
GetTempFilename, 1140
GetTempFilenameW, 1141
MD5DataImagesType, 1136

MediaStorageDataFilesType, 1136
Print, 1141
Testing, 1136
gdcm::Trace, 1141
~Trace, 1143
DebugOff, 1143
DebugOn, 1143
ErrorOff, 1143
ErrorOn, 1143
GetDebugFlag, 1143
GetDebugStream, 1144
GetErrorFlag, 1144
GetErrorStream, 1144
GetStream, 1144
GetWarningFlag, 1144
GetWarningStream, 1144
SetDebug, 1144
SetDebugStream, 1144
SetError, 1145
SetErrorStream, 1145
SetStream, 1145
SetStreamToFile, 1145
SetWarning, 1145
SetWarningStream, 1146
Trace, 1143
WarningOff, 1146
WarningOn, 1146
gdcm::TransferSyntax, 1146
CanStoreLossy, 1150
CT_private_ELE, 1149
DeflatedExplicitVRLittleEndian, 1149
Explicit, 1148
ExplicitVRBigEndian, 1149
ExplicitVRLittleEndian, 1149
GetNegociatedType, 1150
GetString, 1150
GetSwapCode, 1150
GetTSString, 1150
GetTSType, 1150
Implicit, 1148
ImplicitVRBigEndianACRNEMA, 1149
ImplicitVRBigEndianPrivateGE, 1149
ImplicitVRLittleEndian, 1149
IsEncapsulated, 1150
IsEncoded, 1151
IsExplicit, 1151
IsImplicit, 1151
IsLossless, 1151
IsLossy, 1151
IsValid, 1151
JPEG2000, 1149
JPEG2000Lossless, 1149
JPEG2000Part2, 1149
JPEG2000Part2Lossless, 1149
JPEGBaselineProcess1, 1149
JPEGExtendedProcess2_4, 1149
JPEGExtendedProcess3_5, 1149
JPEGFullProgressionProcess10_12, 1149
JPEGLosslessProcess14, 1149
JPEGLosslessProcess14_1, 1149
JPEGLSLossless, 1149
JPEGLSNearLossless, 1149
JPEGSpectralSelectionProcess6_8, 1149
JPIPReferenced, 1149
MPEG2MainProfile, 1149
MPEG2MainProfileHighLevel, 1149
MPEG4AVCH264BDcompatibleHighProfileLevel4_1, 1149
MPEG4AVCH264HighProfileLevel4_1, 1149
NegociatedType, 1148
operator TSType, 1151
operator<<, 1152
RLELossless, 1149
TransferSyntax, 1149
TS_END, 1149
TSType, 1149
Unknown, 1148
WeirdPapryus, 1149
gdcm::Type, 1156
GetTypeString, 1157
GetTypeType, 1157
operator TypeType, 1157
operator<<, 1157
T1, 1157
T1C, 1157
T2, 1157
T2C, 1157
T3, 1157
Type, 1157
TypeType, 1156
UNKNOWN, 1157
gdcm::UI, 1158
Internal, 1158
operator<<, 1158
gdcm::UIDGenerator, 1158
Generate, 1159
GenerateUUID, 1159
GetGDCMUID, 1160
GetRoot, 1160
IsValid, 1160
SetRoot, 1160
UIDGenerator, 1159
gdcm::UIDs, 1161
AbstractMultiDimensionalImageModel, 1186
AcquisitionContextSRStorage, 1185
AdultMouseAnatomyOntology, 1183
AdvancedBlendingPresentationStateStorage, 1184
AmbulatoryECGWaveformStorage, 1180

ArterialPulseWaveformStorage, 1184
AudioSRStorageTrialRetired, 1181
AutorefractionMeasurementsStorage, 1184
BasicAnnotationBoxSOPClass, 1179
BasicColorImageBoxSOPClass, 1179
BasicColorPrintManagementMetaSOPClass, 1179
BasicFilmBoxSOPClass, 1179
BasicFilmSessionSOPClass, 1179
BasicGrayscaleImageBoxSOPClass, 1179
BasicGrayscalePrintManagementMetaSOPClass, 1179
BasicPrintImageOverlayBoxSOPClassRetired, 1179
BasicStructuredDisplayStorage, 1185
BasicStudyContentNotificationSOPClassRetired, 1178
BasicTextSRStorage, 1181
BasicVoiceAudioWaveformStorage, 1180
BlendingSoftcopyPresentationStateStorageSOPClass, 1180
BreastImagingRelevantPatientInformationQuery, 1182
BreastProjectionXRayImageStorageForPresentation, 1184
BreastProjectionXRayImageStorageForProcessing, 1184
BreastTomosynthesisImageStorage, 1183
CardiacElectrophysiologyWaveformStorage, 1180
CardiacRelevantPatientInformationQuery, 1182
ChestCADSRStorage, 1181
ColonCADSRStorage, 1185
ColorPaletteQueryRetrieveInformationModelFIND, 1186
ColorPaletteQueryRetrieveInformationModelGET, 1186
ColorPaletteQueryRetrieveInformationModelMOVE, 1186
ColorPaletteStorage, 1186
ColorSoftcopyPresentationStateStorageSOPClass, 1180
CompositeInstanceRetrieveWithoutBulkDataGET, 1185
CompositeInstanceRootRetrieveGET, 1185
CompositeInstanceRootRetrieveMOVE, 1185
CompositingPlanarMPRVolumetricPresentationStateStorage, 1184
Comprehensive3DSRStorage, 1185
ComprehensiveSRStorage, 1181
ComprehensiveSRStorageTrialRetired, 1181
ComputedRadiographyImageStorage, 1179
ContentAssessmentResultsStorage, 1185
CornealTopographyMapStorage, 1185
CTDefinedProcedureProtocolStorage, 1185
CTImageStorage, 1179
CTPerformedProcedureProtocolStorage, 1185
DefinedProcedureProtocolInformationModelFIND, 1185
DefinedProcedureProtocolInformationModelGET, 1185
DefinedProcedureProtocolInformationModelMOVE, 1185
DeflatedExplicitVRLittleEndian, 1177
DeformableSpatialRegistrationStorage, 1180
DetachedInterpretationManagementSOPClassRetired, 1179
DetachedPatientManagementMetaSOPClassRetired, 1178
DetachedPatientManagementSOPClassRetired, 1178
DetachedResultsManagementMetaSOPClassRetired, 1179
DetachedResultsManagementSOPClassRetired, 1179
DetachedStudyManagementMetaSOPClassRetired, 1179
DetachedStudyManagementSOPClassRetired, 1178
DetachedVisitManagementSOPClassRetired, 1178
DetailSRStorageTrialRetired, 1181
dicomAETitle, 1182
dicomApplicationCluster, 1182
DICOMApplicationContextName, 1178
dicomAssociationAcceptor, 1182
dicomAssociationInitiator, 1182
dicomAuthorizedNodeCertificateReference, 1183
dicomConfigurationRoot, 1183
DICOMContentMappingResource, 1186
DICOMControlledTerminology, 1178
dicomDescription, 1182
dicomDevice, 1183
dicomDeviceName, 1182
dicomDeviceSerialNumber, 1183
dicomDevicesRoot, 1183
dicomHostname, 1182
dicomInstalled, 1183
dicomInstitutionAddress, 1183
dicomInstitutionDepartmentName, 1183
dicomInstitutionName, 1183
dicomIssuerOfPatientID, 1183
dicomManufacturer, 1182
dicomManufacturerModelName, 1182
dicomNetworkAE, 1183
dicomNetworkConnection, 1183
dicomNetworkConnectionReference, 1182
dicomPort, 1182
dicomPreferredCalledAETitle, 1182
dicomPreferredCallingAETitle, 1183
dicomPrimaryDeviceType, 1182
dicomRelatedDeviceReference, 1182
dicomSoftwareVersion, 1182

dicomSOPClass, 1182
dicomStationName, 1183
dicomSupportedCharacterSet, 1183
dicomThisNodeCertificateReference, 1183
dicomTLSCyphersuite, 1183
dicomTransferCapability, 1183
dicomTransferRole, 1182
dicomTransferSyntax, 1182
DICOMUIDRegistry, 1178
dicomUniqueAETitle, 1183
dicomUniqueAETitlesRegistryRoot, 1183
dicomVendorData, 1182
DICOS2DAITStorage, 1185
DICOS3DAITStorage, 1185
DICOSCTImageStorage, 1185
DICOSDigitalXRayImageStorageForPresentation, 1185
DICOSDigitalXRayImageStorageForProcessing, 1185
DICOSQuadrupoleResonanceQRStorage, 1185
DICOSThreatDetectionReportStorage, 1185
DigitalIntraoralXRayImageStorageForPresentation, 1179
DigitalIntraoralXRayImageStorageForProcessing, 1179
DigitalMammographyXRayImageStorageForPresentation, 1179
DigitalMammographyXRayImageStorageForProcessing, 1179
DigitalXRayImageStorageForPresentation, 1179
DigitalXRayImageStorageForProcessing, 1179
DisplaySystemSOPClass, 1184
DisplaySystemSOPInstance, 1184
ECG12leadWaveformStorage, 1180
EddyCurrentImageStorage, 1185
EddyCurrentMultiframeImageStorage, 1185
EncapsulatedCDAStorage, 1181
EncapsulatedPDFStorage, 1181
EncapsulatedSTLStorage, 1185
EnhancedCTImageStorage, 1179
EnhancedMRColorImageStorage, 1186
EnhancedMRImageStorage, 1180
EnhancedPETImageStorage, 1185
EnhancedSRStorage, 1181
EnhancedUSVolumeStorage, 1183
EnhancedXAImageStorage, 1180
EnhancedXRFImageStorage, 1180
ExplicitVRBigEndian, 1177
ExplicitVRLittleEndian, 1177
ExtensibleSRStorage, 1185
FallColorPaletteSOPInstance, 1183
GeneralAudioWaveformStorage, 1184
GeneralECGWaveformStorage, 1180
GeneralPurposePerformedProcedureStepSOPClass, 1182
GeneralPurposeScheduledProcedureStepSOPClass, 1182
GeneralPurposeWorklistInformationModelFIND, 1182
GeneralPurposeWorklistManagementMetaSOPClass, 1182
GeneralRelevantPatientInformationQuery, 1182
GenericImplantTemplateInformationModelFIND, 1186
GenericImplantTemplateInformationModelGET, 1186
GenericImplantTemplateInformationModelMOVE, 1186
GenericImplantTemplateStorage, 1186
GetName, 1196
GetNumberOfTransferSyntaxStrings, 1196
GetString, 1196
GetTransferSyntaxString, 1196
GetTransferSyntaxStrings, 1196
GetUIDName, 1196
GetUIDString, 1196
GrayscalePlanarMPRVolumetricPresentationStateStorage, 1184
GrayscaleSoftcopyPresentationStateStorageSOPClass, 1180
HangingProtocolInformationModelFIND, 1182
HangingProtocolInformationModelGET, 1186
HangingProtocolInformationModelMOVE, 1182
HangingProtocolStorage, 1182
HardcopyColorImageStorageSOPClassRetired, 1179
HardcopyGrayscaleImageStorageSOPClassRetired, 1179
HemodynamicWaveformStorage, 1180
HEVCH_265Main10ProfileLevel5_1, 1184
HEVCH_265MainProfileLevel5_1, 1184
HotIronColorPaletteSOPInstance, 1184
HotMetalBlueColorPaletteSOPInstance, 1183
ICBM452T1FrameofReference, 1178
ICBMSingleSubjectMRIFrameofReference, 1178
ICD11, 1183
ImageBiomarkerStandardisationInitiative, 1184
ImageOverlayBoxSOPClassRetired, 1179
ImplantAssemblyTemplateInformationModelFIND, 1186
ImplantAssemblyTemplateInformationModelGET, 1186
ImplantAssemblyTemplateInformationModelMOVE, 1186
ImplantAssemblyTemplateStorage, 1186
ImplantationPlanSRStorage, 1185
ImplantTemplateGroupInformationModelFIND, 1186
ImplantTemplateGroupInformationModelGET, 1186

ImplantTemplateGroupInformationModelMOVE, 1186
ImplantTemplateGroupStorage, 1186
ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM, 1177
InstanceAvailabilityNotificationSOPClass, 1182
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN, 1183
IntraocularLensCalculationsStorage, 1185
IntravascularOpticalCoherenceTomographyImageStorageForPresentation, 1184
IntravascularOpticalCoherenceTomographyImageStorageForProcessing, 1184
JPEG2000ImageCompression, 1177
JPEG2000ImageCompressionLosslessOnly, 1177
JPEG2000Part2MulticomponentImageCompression, 1177
JPEG2000Part2MulticomponentImageCompressionLosslessOnly, 1177
JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression, 1177
JPEGExtendedHierarchicalProcess1618Retired, 1177
JPEGExtendedHierarchicalProcess1719Retired, 1177
JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompression, 1177
JPEGExtendedProcess35Retired, 1177
JPEGFullProgressionHierarchicalProcess2426Retired, 1177
JPEGFullProgressionHierarchicalProcess2527Retired, 1177
JPEGFullProgressionNonHierarchicalProcess1012Retired, 1177
JPEGFullProgressionNonHierarchicalProcess1113Retired, 1177
JPEGLosslessHierarchicalProcess28Retired, 1177
JPEGLosslessHierarchicalProcess29Retired, 1177
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompression, 1177
JPEGLosslessNonHierarchicalProcess14, 1177
JPEGLosslessNonHierarchicalProcess15Retired, 1177
JPEGLSLosslessImageCompression, 1177
JPEGLSLossyNearLosslessImageCompression, 1177
JPEGSpectralSelectionHierarchicalProcess2022Retired, 1177
JPEGSpectralSelectionHierarchicalProcess2123Retired, 1177
JPEGSpectralSelectionNonHierarchicalProcess68Retired, 1177
JPEGSpectralSelectionNonHierarchicalProcess79Retired, 1177
JPIPReferenced, 1177
JPIPReferencedDeflate, 1178
KeratometryMeasurementsStorage, 1184
KeyObjectSelectionDocumentStorage, 1181
LegacyConvertedEnhancedCTImageStorage, 1183
LegacyConvertedEnhancedMRImageStorage, 1183
LegacyConvertedEnhancedPETImageStorage, 1183
LensometryMeasurementsStorage, 1184
MacularGridThicknessandVolumeReportStorage, 1185
MammographyCADSRStorage, 1181
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide, 1184
MediaCreationManagementSOPClassUID, 1179
MediaStorageDirectoryStorage, 1178
ModalityPerformedProcedureStepNotificationSOPClass, 1179
ModalityPerformedProcedureStepRetrieveSOPClass, 1178
ModalityPerformedProcedureStepSOPClass, 1178
ModalityWorklistInformationModelFIND, 1182
MouseGenomeInitiativeMGI, 1183
MPEG2MainProfileHighLevel, 1183
MPEG2MainProfileMainLevel, 1178
MPEG4AVCH_264BaselineProfileLevel4_1, 1183
MPEG4AVCH_264HighProfileLevel4_1, 1183
MPEG4AVCH_264HighProfileLevel4_2For2DVideo, 1184
MPEG4AVCH_264HighProfileLevel4_2For3DVideo, 1184
MPEG4AVCH_264StereoHighProfileLevel4_2, 1184
MRImageStorage, 1180
MRSpectroscopyStorage, 1180
MultiframeGrayscaleByteSecondaryCaptureImageStorage, 1180
MultiframeGrayscaleWordSecondaryCaptureImageStorage, 1180
MultiframeSingleBitSecondaryCaptureImageStorage, 1180
MultiframeTrueColorSecondaryCaptureImageStorage, 1180
MultipleVolumeRenderingVolumetricPresentationStateStorage, 1184
NativeDICOMModel, 1186
NewYorkUniversityMelanomaClinicalCooperativeGroup, 1184
NuclearMedicineImageStorage, 1180
NuclearMedicineImageStorageRetired, 1180
Null0, 1184
Null1, 1184
operator TSType, 1197
OphthalmicAxialMeasurementsStorage, 1184

OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage, 1184
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage, 1184
OphthalmicPhotography16BitImageStorage, 1181
OphthalmicPhotography8BitImageStorage, 1181
OphthalmicThicknessMapStorage, 1185
OphthalmicTomographyImageStorage, 1181
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage, 1185
Papyrus3ImplicitVRLittleEndian, 1183
ParametricMapStorage, 1184
PatientRadiationDoseSRStorage, 1185
PatientRootQueryRetrieveInformationModelFIND, 1181
PatientRootQueryRetrieveInformationModelGET, 1181
PatientRootQueryRetrieveInformationModelMOVE, 1181
PatientStudyOnlyQueryRetrieveInformationModelFINDRetired, 1181
PatientStudyOnlyQueryRetrieveInformationModelGETRetired, 1182
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired, 1182
PerformedImagingAgentAdministrationSRStorage, 1185
PET20StepColorPaletteSOPInstance, 1183
PETColorPaletteSOPInstance, 1183
PlannedImagingAgentAdministrationSRStorage, 1185
PositronEmissionTomographyImageStorage, 1181
PresentationLUTSOPClass, 1179
PrinterConfigurationRetrievalSOPClass, 1179
PrinterConfigurationRetrievalSOPInstance, 1179
PrinterSOPClass, 1179
PrinterSOPInstance, 1179
PrintJobSOPClass, 1179
PrintQueueManagementSOPClassRetired, 1179
PrintQueueSOPInstanceRetired, 1179
ProceduralEventLoggingSOPClass, 1178
ProceduralEventLoggingSOPInstance, 1178
ProcedureLogStorage, 1181
ProductCharacteristicsQuerySOPClass, 1182
ProtocolApprovalInformationModelFIND, 1185
ProtocolApprovalInformationModelGET, 1185
ProtocolApprovalInformationModelMOVE, 1185
ProtocolApprovalStorage, 1185
PseudoColorSoftcopyPresentationStateStorageSOPClass, 1180
PubChemCompoundCID, 1183
PullPrintRequestSOPClassRetired, 1179
PullStoredPrintManagementMetaSOPClassRetired, 1179
RadiomicsOntology, 1184
RadiopharmaceuticalRadiationDoseSRStorage, 1185
RawDataStorage, 1180
RealWorldValueMappingStorage, 1180
ReferencedColorPrintManagementMetaSOPClassRetired, 1179
ReferencedGrayscalePrintManagementMetaSOPClassRetired, 1179
ReferencedImageBoxSOPClassRetired, 1179
RespiratoryWaveformStorage, 1184
RFC2557MIMEencapsulation, 1178
RLELossless, 1178
RTBeamsDeliveryInstructionStorage, 1186
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft, 1182
RTBeamsTreatmentRecordStorage, 1181
RTBrachyApplicationSetupDeliveryInstructionStorage, 1186
RTBrachyTreatmentRecordStorage, 1181
RTConventionalMachineVerification, 1186
RTConventionalMachineVerificationSupplement74FrozenDraft, 1182
RTDoseStorage, 1181
RTImageStorage, 1181
RTIonBeamsTreatmentRecordStorage, 1181
RTIonMachineVerification, 1186
RTIonMachineVerificationSupplement74FrozenDraft, 1182
RTIonPlanStorage, 1181
RTPhysicianIntentStorage, 1185
RTPlanStorage, 1181
RTSegmentAnnotationStorage, 1185
RTStructureSetStorage, 1181
RTTreatmentSummaryRecordStorage, 1181
SecondaryCaptureImageStorage, 1180
SegmentationStorage, 1180
SegmentedVolumeRenderingVolumetricPresentationStateStorage, 1184
SetFromUID, 1197
SimplifiedAdultEchoSRStorage, 1185
SpatialFiducialsStorage, 1180
SpatialRegistrationStorage, 1180
SpectaclePrescriptionReportStorage, 1184
SPM2AVG152PDFrameofReference, 1178
SPM2AVG152T1FrameofReference, 1178
SPM2AVG152T2FrameofReference, 1178
SPM2AVG305T1FrameofReference, 1178
SPM2BRAINMASKFrameofReference, 1178
SPM2CSFFrameofReference, 1178
SPM2EPIFrameofReference, 1178
SPM2FILT1FrameofReference, 1178
SPM2GRAYFrameofReference, 1178
SPM2PDFrameofReference, 1178

SPM2PETFrameofReference, 1178
SPM2SINGLESUBJT1FrameofReference, 1178
SPM2SPECTFrameofReference, 1178
SPM2T1FrameofReference, 1178
SPM2T2FrameofReference, 1178
SPM2TRANSMFrameofReference, 1178
SPM2WHITEFrameofReference, 1178
SpringColorPaletteSOPInstance, 1183
StandaloneCurveStorageRetired, 1180
StandaloneModalityLUTStorageRetired, 1180
StandaloneOverlayStorageRetired, 1180
StandalonePETCurveStorageRetired, 1181
StandaloneVOILUTStorageRetired, 1180
StereometricRelationshipStorage, 1181
StorageCommitmentPullModelSOPClassRetired, 1178
StorageCommitmentPullModelSOPInstanceRetired, 1178
StorageCommitmentPushModelSOPClass, 1178
StorageCommitmentPushModelSOPInstance, 1178
StorageServiceClass, 1179
StoredPrintStorageSOPClassRetired, 1179
StudyComponentManagementSOPClassRetired, 1178
StudyRootQueryRetrieveInformationModelFIND, 1181
StudyRootQueryRetrieveInformationModelGET, 1181
StudyRootQueryRetrieveInformationModelMOVE, 1181
SubjectiveRefractionMeasurementsStorage, 1184
SubstanceAdministrationLoggingSOPClass, 1178
SubstanceAdministrationLoggingSOPInstance, 1178
SubstanceApprovalQuerySOPClass, 1182
SummerColorPaletteSOPInstance, 1183
SurfaceScanMeshStorage, 1184
SurfaceScanPointCloudStorage, 1184
SurfaceSegmentationStorage, 1183
TalairachBrainAtlasFrameofReference, 1178
TextSRStorageTrialRetired, 1181
TractographyResultsStorage, 1184
TransferSyntaxStringsType, 1177
TSName, 1177
TSType, 1186
UberonOntology, 1183
uid_1_2_840_10008_15_0_3_1, 1192
uid_1_2_840_10008_15_0_3_10, 1192
uid_1_2_840_10008_15_0_3_11, 1192
uid_1_2_840_10008_15_0_3_12, 1192
uid_1_2_840_10008_15_0_3_13, 1192
uid_1_2_840_10008_15_0_3_14, 1192
uid_1_2_840_10008_15_0_3_15, 1192
uid_1_2_840_10008_15_0_3_16, 1192
uid_1_2_840_10008_15_0_3_17, 1192
uid_1_2_840_10008_15_0_3_18, 1192
uid_1_2_840_10008_15_0_3_19, 1192
uid_1_2_840_10008_15_0_3_2, 1192
uid_1_2_840_10008_15_0_3_20, 1192
uid_1_2_840_10008_15_0_3_21, 1192
uid_1_2_840_10008_15_0_3_22, 1192
uid_1_2_840_10008_15_0_3_23, 1192
uid_1_2_840_10008_15_0_3_24, 1192
uid_1_2_840_10008_15_0_3_25, 1192
uid_1_2_840_10008_15_0_3_26, 1192
uid_1_2_840_10008_15_0_3_27, 1192
uid_1_2_840_10008_15_0_3_28, 1192
uid_1_2_840_10008_15_0_3_29, 1192
uid_1_2_840_10008_15_0_3_3, 1192
uid_1_2_840_10008_15_0_3_30, 1192
uid_1_2_840_10008_15_0_3_31, 1192
uid_1_2_840_10008_15_0_3_4, 1192
uid_1_2_840_10008_15_0_3_5, 1192
uid_1_2_840_10008_15_0_3_6, 1192
uid_1_2_840_10008_15_0_3_7, 1192
uid_1_2_840_10008_15_0_3_8, 1192
uid_1_2_840_10008_15_0_3_9, 1192
uid_1_2_840_10008_15_0_4_1, 1192
uid_1_2_840_10008_15_0_4_2, 1192
uid_1_2_840_10008_15_0_4_3, 1192
uid_1_2_840_10008_15_0_4_4, 1192
uid_1_2_840_10008_15_0_4_5, 1192
uid_1_2_840_10008_15_0_4_6, 1192
uid_1_2_840_10008_15_0_4_7, 1192
uid_1_2_840_10008_15_0_4_8, 1192
uid_1_2_840_10008_15_1_1, 1195
uid_1_2_840_10008_1_1, 1186
uid_1_2_840_10008_1_2, 1186
uid_1_2_840_10008_1_20, 1193
uid_1_2_840_10008_1_20_1, 1188
uid_1_2_840_10008_1_20_1_1, 1188
uid_1_2_840_10008_1_20_2, 1188
uid_1_2_840_10008_1_20_2_1, 1188
uid_1_2_840_10008_1_2_1, 1186
uid_1_2_840_10008_1_2_1_99, 1186
uid_1_2_840_10008_1_2_2, 1186
uid_1_2_840_10008_1_2_4_100, 1187
uid_1_2_840_10008_1_2_4_101, 1193
uid_1_2_840_10008_1_2_4_102, 1193
uid_1_2_840_10008_1_2_4_103, 1193
uid_1_2_840_10008_1_2_4_104, 1193
uid_1_2_840_10008_1_2_4_105, 1193
uid_1_2_840_10008_1_2_4_106, 1193
uid_1_2_840_10008_1_2_4_107, 1193
uid_1_2_840_10008_1_2_4_108, 1193
uid_1_2_840_10008_1_2_4_50, 1187
uid_1_2_840_10008_1_2_4_51, 1187
uid_1_2_840_10008_1_2_4_52, 1187
uid_1_2_840_10008_1_2_4_53, 1187

uid_1_2_840_10008_1_2_4_54, 1187
uid_1_2_840_10008_1_2_4_55, 1187
uid_1_2_840_10008_1_2_4_56, 1187
uid_1_2_840_10008_1_2_4_57, 1187
uid_1_2_840_10008_1_2_4_58, 1187
uid_1_2_840_10008_1_2_4_59, 1187
uid_1_2_840_10008_1_2_4_60, 1187
uid_1_2_840_10008_1_2_4_61, 1187
uid_1_2_840_10008_1_2_4_62, 1187
uid_1_2_840_10008_1_2_4_63, 1187
uid_1_2_840_10008_1_2_4_64, 1187
uid_1_2_840_10008_1_2_4_65, 1187
uid_1_2_840_10008_1_2_4_66, 1187
uid_1_2_840_10008_1_2_4_70, 1187
uid_1_2_840_10008_1_2_4_80, 1187
uid_1_2_840_10008_1_2_4_81, 1187
uid_1_2_840_10008_1_2_4_90, 1187
uid_1_2_840_10008_1_2_4_91, 1187
uid_1_2_840_10008_1_2_4_92, 1187
uid_1_2_840_10008_1_2_4_93, 1187
uid_1_2_840_10008_1_2_4_94, 1187
uid_1_2_840_10008_1_2_4_95, 1187
uid_1_2_840_10008_1_2_5, 1187
uid_1_2_840_10008_1_2_6_1, 1187
uid_1_2_840_10008_1_2_6_2, 1187
uid_1_2_840_10008_1_3_10, 1187
uid_1_2_840_10008_1_40, 1188
uid_1_2_840_10008_1_40_1, 1188
uid_1_2_840_10008_1_42, 1188
uid_1_2_840_10008_1_42_1, 1188
uid_1_2_840_10008_1_4_1_1, 1187
uid_1_2_840_10008_1_4_1_10, 1187
uid_1_2_840_10008_1_4_1_11, 1187
uid_1_2_840_10008_1_4_1_12, 1187
uid_1_2_840_10008_1_4_1_13, 1187
uid_1_2_840_10008_1_4_1_14, 1187
uid_1_2_840_10008_1_4_1_15, 1187
uid_1_2_840_10008_1_4_1_16, 1188
uid_1_2_840_10008_1_4_1_17, 1188
uid_1_2_840_10008_1_4_1_18, 1188
uid_1_2_840_10008_1_4_1_2, 1187
uid_1_2_840_10008_1_4_1_3, 1187
uid_1_2_840_10008_1_4_1_4, 1187
uid_1_2_840_10008_1_4_1_5, 1187
uid_1_2_840_10008_1_4_1_6, 1187
uid_1_2_840_10008_1_4_1_7, 1187
uid_1_2_840_10008_1_4_1_8, 1187
uid_1_2_840_10008_1_4_1_9, 1187
uid_1_2_840_10008_1_4_2_1, 1188
uid_1_2_840_10008_1_4_2_2, 1188
uid_1_2_840_10008_1_5_1, 1193
uid_1_2_840_10008_1_5_2, 1193
uid_1_2_840_10008_1_5_3, 1193
uid_1_2_840_10008_1_5_4, 1193
uid_1_2_840_10008_1_5_5, 1193
uid_1_2_840_10008_1_5_6, 1193
uid_1_2_840_10008_1_5_7, 1193
uid_1_2_840_10008_1_5_8, 1193
uid_1_2_840_10008_1_9, 1188
uid_1_2_840_10008_2_16_10, 1193
uid_1_2_840_10008_2_16_11, 1193
uid_1_2_840_10008_2_16_12, 1193
uid_1_2_840_10008_2_16_13, 1193
uid_1_2_840_10008_2_16_14, 1193
uid_1_2_840_10008_2_16_4, 1188
uid_1_2_840_10008_2_16_5, 1193
uid_1_2_840_10008_2_16_6, 1193
uid_1_2_840_10008_2_16_7, 1193
uid_1_2_840_10008_2_16_8, 1193
uid_1_2_840_10008_2_16_9, 1193
uid_1_2_840_10008_2_6_1, 1188
uid_1_2_840_10008_3_1_1_1, 1188
uid_1_2_840_10008_3_1_2_1_1, 1188
uid_1_2_840_10008_3_1_2_1_4, 1188
uid_1_2_840_10008_3_1_2_2_1, 1188
uid_1_2_840_10008_3_1_2_3_1, 1188
uid_1_2_840_10008_3_1_2_3_2, 1188
uid_1_2_840_10008_3_1_2_3_3, 1188
uid_1_2_840_10008_3_1_2_3_4, 1188
uid_1_2_840_10008_3_1_2_3_5, 1188
uid_1_2_840_10008_3_1_2_5_1, 1188
uid_1_2_840_10008_3_1_2_5_4, 1188
uid_1_2_840_10008_3_1_2_5_5, 1188
uid_1_2_840_10008_3_1_2_6_1, 1188
uid_1_2_840_10008_4_2, 1188
uid_1_2_840_10008_5_1_1_1, 1188
uid_1_2_840_10008_5_1_1_14, 1188
uid_1_2_840_10008_5_1_1_15, 1188
uid_1_2_840_10008_5_1_1_16, 1188
uid_1_2_840_10008_5_1_1_16_376, 1188
uid_1_2_840_10008_5_1_1_17, 1188
uid_1_2_840_10008_5_1_1_17_376, 1188
uid_1_2_840_10008_5_1_1_18, 1188
uid_1_2_840_10008_5_1_1_18_1, 1188
uid_1_2_840_10008_5_1_1_2, 1188
uid_1_2_840_10008_5_1_1_22, 1188
uid_1_2_840_10008_5_1_1_23, 1189
uid_1_2_840_10008_5_1_1_24, 1189
uid_1_2_840_10008_5_1_1_24_1, 1189
uid_1_2_840_10008_5_1_1_25, 1189
uid_1_2_840_10008_5_1_1_26, 1189
uid_1_2_840_10008_5_1_1_27, 1189
uid_1_2_840_10008_5_1_1_29, 1189
uid_1_2_840_10008_5_1_1_30, 1189
uid_1_2_840_10008_5_1_1_31, 1189
uid_1_2_840_10008_5_1_1_32, 1189
uid_1_2_840_10008_5_1_1_33, 1189
uid_1_2_840_10008_5_1_1_4, 1188

uid_1_2_840_10008_5_1_1_40, 1193
uid_1_2_840_10008_5_1_1_40_1, 1193
uid_1_2_840_10008_5_1_1_4_1, 1188
uid_1_2_840_10008_5_1_1_4_2, 1188
uid_1_2_840_10008_5_1_1_9, 1188
uid_1_2_840_10008_5_1_1_9_1, 1188
uid_1_2_840_10008_5_1_4_1_1_1, 1189
uid_1_2_840_10008_5_1_4_1_1_10, 1189
uid_1_2_840_10008_5_1_4_1_1_104_1, 1191
uid_1_2_840_10008_5_1_4_1_1_104_2, 1191
uid_1_2_840_10008_5_1_4_1_1_104_3, 1194
uid_1_2_840_10008_5_1_4_1_1_11, 1189
uid_1_2_840_10008_5_1_4_1_1_11_1, 1189
uid_1_2_840_10008_5_1_4_1_1_11_10, 1193
uid_1_2_840_10008_5_1_4_1_1_11_11, 1193
uid_1_2_840_10008_5_1_4_1_1_11_2, 1189
uid_1_2_840_10008_5_1_4_1_1_11_3, 1190
uid_1_2_840_10008_5_1_4_1_1_11_4, 1190
uid_1_2_840_10008_5_1_4_1_1_11_5, 1193
uid_1_2_840_10008_5_1_4_1_1_11_6, 1193
uid_1_2_840_10008_5_1_4_1_1_11_7, 1193
uid_1_2_840_10008_5_1_4_1_1_11_8, 1193
uid_1_2_840_10008_5_1_4_1_1_11_9, 1193
uid_1_2_840_10008_5_1_4_1_1_128, 1191
uid_1_2_840_10008_5_1_4_1_1_128_1, 1192
uid_1_2_840_10008_5_1_4_1_1_129, 1191
uid_1_2_840_10008_5_1_4_1_1_12_1, 1190
uid_1_2_840_10008_5_1_4_1_1_12_1_1, 1190
uid_1_2_840_10008_5_1_4_1_1_12_2, 1190
uid_1_2_840_10008_5_1_4_1_1_12_2_1, 1190
uid_1_2_840_10008_5_1_4_1_1_12_3, 1190
uid_1_2_840_10008_5_1_4_1_1_12_77, 1193
uid_1_2_840_10008_5_1_4_1_1_130, 1194
uid_1_2_840_10008_5_1_4_1_1_131, 1194
uid_1_2_840_10008_5_1_4_1_1_13_1_1, 1190
uid_1_2_840_10008_5_1_4_1_1_13_1_2, 1190
uid_1_2_840_10008_5_1_4_1_1_13_1_3, 1192
uid_1_2_840_10008_5_1_4_1_1_13_1_4, 1193
uid_1_2_840_10008_5_1_4_1_1_13_1_5, 1193
uid_1_2_840_10008_5_1_4_1_1_14_1, 1193
uid_1_2_840_10008_5_1_4_1_1_14_2, 1193
uid_1_2_840_10008_5_1_4_1_1_1_1, 1189
uid_1_2_840_10008_5_1_4_1_1_1_1_1, 1189
uid_1_2_840_10008_5_1_4_1_1_1_2, 1189
uid_1_2_840_10008_5_1_4_1_1_1_2_1, 1189
uid_1_2_840_10008_5_1_4_1_1_1_3, 1189
uid_1_2_840_10008_5_1_4_1_1_1_3_1, 1189
uid_1_2_840_10008_5_1_4_1_1_2, 1189
uid_1_2_840_10008_5_1_4_1_1_20, 1190
uid_1_2_840_10008_5_1_4_1_1_200_1, 1194
uid_1_2_840_10008_5_1_4_1_1_200_2, 1194
uid_1_2_840_10008_5_1_4_1_1_200_3, 1194
uid_1_2_840_10008_5_1_4_1_1_200_4, 1194
uid_1_2_840_10008_5_1_4_1_1_200_5, 1194
uid_1_2_840_10008_5_1_4_1_1_200_6, 1194
uid_1_2_840_10008_5_1_4_1_1_2_1, 1189
uid_1_2_840_10008_5_1_4_1_1_2_2, 1192
uid_1_2_840_10008_5_1_4_1_1_3, 1189
uid_1_2_840_10008_5_1_4_1_1_30, 1193
uid_1_2_840_10008_5_1_4_1_1_3_1, 1189
uid_1_2_840_10008_5_1_4_1_1_4, 1189
uid_1_2_840_10008_5_1_4_1_1_40, 1193
uid_1_2_840_10008_5_1_4_1_1_481_1, 1191
uid_1_2_840_10008_5_1_4_1_1_481_10, 1194
uid_1_2_840_10008_5_1_4_1_1_481_11, 1194
uid_1_2_840_10008_5_1_4_1_1_481_2, 1191
uid_1_2_840_10008_5_1_4_1_1_481_3, 1191
uid_1_2_840_10008_5_1_4_1_1_481_4, 1191
uid_1_2_840_10008_5_1_4_1_1_481_5, 1191
uid_1_2_840_10008_5_1_4_1_1_481_6, 1191
uid_1_2_840_10008_5_1_4_1_1_481_7, 1191
uid_1_2_840_10008_5_1_4_1_1_481_8, 1191
uid_1_2_840_10008_5_1_4_1_1_481_9, 1191
uid_1_2_840_10008_5_1_4_1_1_4_1, 1189
uid_1_2_840_10008_5_1_4_1_1_4_2, 1189
uid_1_2_840_10008_5_1_4_1_1_4_3, 1195
uid_1_2_840_10008_5_1_4_1_1_4_4, 1192
uid_1_2_840_10008_5_1_4_1_1_5, 1189
uid_1_2_840_10008_5_1_4_1_1_501_1, 1194
uid_1_2_840_10008_5_1_4_1_1_501_2_1, 1194
uid_1_2_840_10008_5_1_4_1_1_501_2_2, 1195
uid_1_2_840_10008_5_1_4_1_1_501_3, 1195
uid_1_2_840_10008_5_1_4_1_1_501_4, 1195
uid_1_2_840_10008_5_1_4_1_1_501_5, 1195
uid_1_2_840_10008_5_1_4_1_1_501_6, 1195
uid_1_2_840_10008_5_1_4_1_1_6, 1189
uid_1_2_840_10008_5_1_4_1_1_601_1, 1195
uid_1_2_840_10008_5_1_4_1_1_601_2, 1195
uid_1_2_840_10008_5_1_4_1_1_66, 1190
uid_1_2_840_10008_5_1_4_1_1_66_1, 1190
uid_1_2_840_10008_5_1_4_1_1_66_2, 1190
uid_1_2_840_10008_5_1_4_1_1_66_3, 1190
uid_1_2_840_10008_5_1_4_1_1_66_4, 1190
uid_1_2_840_10008_5_1_4_1_1_66_5, 1192
uid_1_2_840_10008_5_1_4_1_1_66_6, 1194
uid_1_2_840_10008_5_1_4_1_1_67, 1190
uid_1_2_840_10008_5_1_4_1_1_68_1, 1194
uid_1_2_840_10008_5_1_4_1_1_68_2, 1194
uid_1_2_840_10008_5_1_4_1_1_6_1, 1189
uid_1_2_840_10008_5_1_4_1_1_6_2, 1192
uid_1_2_840_10008_5_1_4_1_1_7, 1189
uid_1_2_840_10008_5_1_4_1_1_77_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_2, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_3, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_4, 1190

uid_1_2_840_10008_5_1_4_1_1_77_1_4_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_4, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_6, 1192
uid_1_2_840_10008_5_1_4_1_1_77_2, 1190
uid_1_2_840_10008_5_1_4_1_1_78_1, 1194
uid_1_2_840_10008_5_1_4_1_1_78_2, 1194
uid_1_2_840_10008_5_1_4_1_1_78_3, 1194
uid_1_2_840_10008_5_1_4_1_1_78_4, 1194
uid_1_2_840_10008_5_1_4_1_1_78_5, 1194
uid_1_2_840_10008_5_1_4_1_1_78_6, 1194
uid_1_2_840_10008_5_1_4_1_1_78_7, 1194
uid_1_2_840_10008_5_1_4_1_1_78_8, 1194
uid_1_2_840_10008_5_1_4_1_1_79_1, 1194
uid_1_2_840_10008_5_1_4_1_1_7_1, 1189
uid_1_2_840_10008_5_1_4_1_1_7_2, 1189
uid_1_2_840_10008_5_1_4_1_1_7_3, 1189
uid_1_2_840_10008_5_1_4_1_1_7_4, 1189
uid_1_2_840_10008_5_1_4_1_1_8, 1189
uid_1_2_840_10008_5_1_4_1_1_80_1, 1194
uid_1_2_840_10008_5_1_4_1_1_81_1, 1194
uid_1_2_840_10008_5_1_4_1_1_82_1, 1194
uid_1_2_840_10008_5_1_4_1_1_88_1, 1190
uid_1_2_840_10008_5_1_4_1_1_88_11, 1190
uid_1_2_840_10008_5_1_4_1_1_88_2, 1190
uid_1_2_840_10008_5_1_4_1_1_88_22, 1190
uid_1_2_840_10008_5_1_4_1_1_88_3, 1190
uid_1_2_840_10008_5_1_4_1_1_88_33, 1190
uid_1_2_840_10008_5_1_4_1_1_88_34, 1194
uid_1_2_840_10008_5_1_4_1_1_88_35, 1194
uid_1_2_840_10008_5_1_4_1_1_88_4, 1190
uid_1_2_840_10008_5_1_4_1_1_88_40, 1190
uid_1_2_840_10008_5_1_4_1_1_88_50, 1190
uid_1_2_840_10008_5_1_4_1_1_88_59, 1190
uid_1_2_840_10008_5_1_4_1_1_88_65, 1190
uid_1_2_840_10008_5_1_4_1_1_88_67, 1191
uid_1_2_840_10008_5_1_4_1_1_88_68, 1194
uid_1_2_840_10008_5_1_4_1_1_88_69, 1194
uid_1_2_840_10008_5_1_4_1_1_88_70, 1194
uid_1_2_840_10008_5_1_4_1_1_88_71, 1194
uid_1_2_840_10008_5_1_4_1_1_88_72, 1194
uid_1_2_840_10008_5_1_4_1_1_88_73, 1194
uid_1_2_840_10008_5_1_4_1_1_88_74, 1194
uid_1_2_840_10008_5_1_4_1_1_88_75, 1194
uid_1_2_840_10008_5_1_4_1_1_9, 1189
uid_1_2_840_10008_5_1_4_1_1_90_1, 1194
uid_1_2_840_10008_5_1_4_1_1_9_1, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_1, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_2, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_3, 1189
uid_1_2_840_10008_5_1_4_1_1_9_2_1, 1189
uid_1_2_840_10008_5_1_4_1_1_9_3_1, 1189
uid_1_2_840_10008_5_1_4_1_1_9_4_1, 1189
uid_1_2_840_10008_5_1_4_1_1_9_4_2, 1193
uid_1_2_840_10008_5_1_4_1_1_9_5_1, 1193
uid_1_2_840_10008_5_1_4_1_1_9_6_1, 1193
uid_1_2_840_10008_5_1_4_1_2_1_1, 1191
uid_1_2_840_10008_5_1_4_1_2_1_2, 1191
uid_1_2_840_10008_5_1_4_1_2_1_3, 1191
uid_1_2_840_10008_5_1_4_1_2_2_1, 1191
uid_1_2_840_10008_5_1_4_1_2_2_2, 1191
uid_1_2_840_10008_5_1_4_1_2_2_3, 1191
uid_1_2_840_10008_5_1_4_1_2_3_1, 1191
uid_1_2_840_10008_5_1_4_1_2_3_2, 1191
uid_1_2_840_10008_5_1_4_1_2_3_3, 1191
uid_1_2_840_10008_5_1_4_1_2_4_2, 1195
uid_1_2_840_10008_5_1_4_1_2_4_3, 1195
uid_1_2_840_10008_5_1_4_1_2_5_3, 1195
uid_1_2_840_10008_5_1_4_20_1, 1195
uid_1_2_840_10008_5_1_4_20_2, 1195
uid_1_2_840_10008_5_1_4_20_3, 1195
uid_1_2_840_10008_5_1_4_31, 1191
uid_1_2_840_10008_5_1_4_32, 1191
uid_1_2_840_10008_5_1_4_32_1, 1191
uid_1_2_840_10008_5_1_4_32_2, 1191
uid_1_2_840_10008_5_1_4_32_3, 1191
uid_1_2_840_10008_5_1_4_33, 1191
uid_1_2_840_10008_5_1_4_34_1, 1191
uid_1_2_840_10008_5_1_4_34_10, 1195
uid_1_2_840_10008_5_1_4_34_2, 1191
uid_1_2_840_10008_5_1_4_34_3, 1191
uid_1_2_840_10008_5_1_4_34_4, 1191
uid_1_2_840_10008_5_1_4_34_4_1, 1191
uid_1_2_840_10008_5_1_4_34_4_2, 1191
uid_1_2_840_10008_5_1_4_34_4_3, 1191
uid_1_2_840_10008_5_1_4_34_4_4, 1191
uid_1_2_840_10008_5_1_4_34_5, 1191
uid_1_2_840_10008_5_1_4_34_5_1, 1195
uid_1_2_840_10008_5_1_4_34_6, 1195
uid_1_2_840_10008_5_1_4_34_6_1, 1195
uid_1_2_840_10008_5_1_4_34_6_2, 1195
uid_1_2_840_10008_5_1_4_34_6_3, 1195
uid_1_2_840_10008_5_1_4_34_6_4, 1195
uid_1_2_840_10008_5_1_4_34_7, 1195
uid_1_2_840_10008_5_1_4_34_8, 1195
uid_1_2_840_10008_5_1_4_34_9, 1195
uid_1_2_840_10008_5_1_4_37_1, 1191
uid_1_2_840_10008_5_1_4_37_2, 1191
uid_1_2_840_10008_5_1_4_37_3, 1191
uid_1_2_840_10008_5_1_4_38_1, 1191
uid_1_2_840_10008_5_1_4_38_2, 1191
uid_1_2_840_10008_5_1_4_38_3, 1191

uid_1_2_840_10008_5_1_4_38_4, 1195
uid_1_2_840_10008_5_1_4_39_1, 1195
uid_1_2_840_10008_5_1_4_39_2, 1195
uid_1_2_840_10008_5_1_4_39_3, 1195
uid_1_2_840_10008_5_1_4_39_4, 1195
uid_1_2_840_10008_5_1_4_41, 1191
uid_1_2_840_10008_5_1_4_42, 1191
uid_1_2_840_10008_5_1_4_43_1, 1195
uid_1_2_840_10008_5_1_4_43_2, 1195
uid_1_2_840_10008_5_1_4_43_3, 1195
uid_1_2_840_10008_5_1_4_43_4, 1195
uid_1_2_840_10008_5_1_4_44_1, 1195
uid_1_2_840_10008_5_1_4_44_2, 1195
uid_1_2_840_10008_5_1_4_44_3, 1195
uid_1_2_840_10008_5_1_4_44_4, 1195
uid_1_2_840_10008_5_1_4_45_1, 1195
uid_1_2_840_10008_5_1_4_45_2, 1195
uid_1_2_840_10008_5_1_4_45_3, 1195
uid_1_2_840_10008_5_1_4_45_4, 1195
uid_1_2_840_10008_7_1_1, 1195
uid_1_2_840_10008_7_1_2, 1195
uid_1_2_840_10008_8_1_1, 1195
UltrasoundImageStorage, 1180
UltrasoundImageStorageRetired, 1180
UltrasoundMultiframeImageStorage, 1180
UltrasoundMultiframeImageStorageRetired, 1179
UnifiedProcedureStepEventSOPClass, 1182
UnifiedProcedureStepEventSOPClass1, 1186
UnifiedProcedureStepPullSOPClass, 1182
UnifiedProcedureStepPullSOPClass1, 1186
UnifiedProcedureStepPushSOPClass, 1182
UnifiedProcedureStepPushSOPClass1, 1186
UnifiedProcedureStepWatchSOPClass, 1182
UnifiedProcedureStepWatchSOPClass1, 1186
UnifiedWorklistandProcedureStepServiceClass, 1182
UnifiedWorklistandProcedureStepServiceClass1, 1186
UnifiedWorklistandProcedureStepSOPInstance, 1182
UniversalCoordinatedTime, 1186
UPSFilteredGlobalSubscriptionSOPInstance, 1185
VerificationSOPClass, 1177
VideoEndoscopicImageStorage, 1181
VideoMicroscopicImageStorage, 1181
VideoPhotographicImageStorage, 1181
VisualAcuityMeasurementsStorage, 1184
VLEndoscopicImageStorage, 1181
VLImageStorageTrialRetired, 1180
VLMicroscopicImageStorage, 1181
VLMultiframeImageStorageTrialRetired, 1180
VLPhotographicImageStorage, 1181
VLSlideCoordinatesMicroscopicImageStorage, 1181
VLWholeSlideMicroscopyImageStorage, 1183
VOILUTBoxSOPClass, 1179
VolumeRenderingVolumetricPresentationStateStorage, 1184
WaveformStorageTrialRetired, 1180
WideFieldOphthalmicPhotography3DCoordinatesImageStorage, 1184
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage, 1184
WinterColorPaletteSOPInstance, 1183
XAXRFGrayscaleSoftcopyPresentationStateStorage, 1184
XMLEncoding, 1178
XRay3DAngiographicImageStorage, 1180
XRay3DCraniofacialImageStorage, 1180
XRayAngiographicBiPlaneImageStorageRetired, 1180
XRayAngiographicImageStorage, 1180
XRayRadiationDoseSRStorage, 1181
XRayRadiofluoroscopicImageStorage, 1180
gdcm::UNExplicitDataElement, 1262
GetLength, 1264
Read, 1264
ReadPreValue, 1265
ReadValue, 1265
ReadWithLength, 1265
gdcm::UNExplicitImplicitDataElement, 1265
GetLength, 1268
Read, 1268
ReadPreValue, 1268
ReadValue, 1269
gdcm::Unpacker12Bits, 1269
Pack, 1270
Unpack, 1270
gdcm::Usage, 1270
Conditional, 1271
GetUsageString, 1272
GetUsageType, 1272
Invalid, 1271
Mandatory, 1271
operator UsageType, 1272
operator<<, 1272
Usage, 1272
UsageType, 1271
UserOption, 1271
gdcm::UserEvent, 1273
gdcm::UUIDGenerator, 1276
Generate, 1277
IsValid, 1277
gdcm::Validate, 1277
~Validate, 1278
F, 1279
GetValidatedFile, 1278
SetFile, 1278
V, 1279

Validate, 1278
Validation, 1278
gdcm::Value, 1279
~Value, 1280
Clear, 1281
DataElement, 1282
GetLength, 1281
operator==, 1281
SetLength, 1281
SetLengthOnly, 1281
Value, 1280
gdcm::ValueIO< TDE, TSwap, TType >, 1282
Read, 1282
Write, 1282
gdcm::Version, 1284
~Version, 1284
GetBuildVersion, 1284
GetMajorVersion, 1284
GetMinorVersion, 1285
GetVersion, 1285
operator<<, 1285
Print, 1285
Version, 1284
gdcm::VL, 1285
GetLength, 1287
GetVL16Max, 1287
GetVL32Max, 1287
IsOdd, 1287
IsUndefined, 1287
operator uint32_t, 1287
operator<<, 1289
operator++, 1287, 1288
operator+=, 1288
Read, 1288
Read16, 1288
SetToUndefined, 1288
Type, 1286
VL, 1287
Write, 1288
Write16, 1288
gdcm::VM, 1289
Compatible, 1292
GetIndex, 1292
GetLength, 1292
GetNumberOfElementsFromArray, 1292
GetVMString, 1293
GetVMType, 1293
GetVMTypeFromLength, 1293
IsValid, 1293
operator VMType, 1293
operator<<, 1293
VM, 1292
VM0, 1291
VM1, 1291
VM10, 1291
VM12, 1291
VM16, 1291
VM18, 1291
VM1_2, 1291
VM1_3, 1291
VM1_32, 1291
VM1_4, 1291
VM1_5, 1291
VM1_8, 1291
VM1_99, 1291
VM1_n, 1291
VM2, 1291
VM24, 1291
VM256, 1291
VM28, 1291
VM2_2n, 1291
VM2_n, 1292
VM3, 1291
VM30_30n, 1292
VM32, 1291
VM35, 1291
VM3_3n, 1292
VM3_4, 1292
VM3_n, 1292
VM4, 1291
VM47_47n, 1292
VM4_4n, 1292
VM5, 1291
VM6, 1291
VM6_6n, 1292
VM6_n, 1292
VM7_7n, 1292
VM8, 1291
VM9, 1291
VM99, 1291
VM_END, 1292
VMType, 1291
gdcm::VMToLength< T >, 1294
gdcm::VR, 1294
AE, 1296
AS, 1296
AT, 1296
CanDisplay, 1297
Compatible, 1297
CS, 1296
DA, 1296
DS, 1296
DT, 1296
FD, 1296
FL, 1296
GetLength, 1298
GetSize, 1298
GetSizeof, 1298

GetVRString, 1298
GetVRStringFromFile, 1298
GetVRType, 1298
GetVRTypeFromFile, 1299
INVALID, 1296
IS, 1296
IsASCII, 1299
IsASCII2, 1299
IsBinary, 1299
IsBinary2, 1299
IsDual, 1299
IsSwap, 1299
IsValid, 1299, 1300
IsVRFile, 1300
LO, 1296
LT, 1296
OB, 1296
OB_OW, 1297
OD, 1296
OF, 1296
OL, 1296
operator VRType, 1300
operator<<, 1300
OV, 1296
OW, 1296
PN, 1296
Read, 1300
SH, 1296
SL, 1296
SQ, 1296
SS, 1296
ST, 1297
SV, 1297
TM, 1297
UC, 1297
UI, 1297
UL, 1297
UN, 1297
UR, 1297
US, 1297
US_OW, 1297
US_SS, 1297
US_SS_OW, 1297
UT, 1297
UV, 1297
VL16, 1297
VL32, 1297
VR, 1297
VR_END, 1297
VR_VM1, 1297
VRALL, 1297
VRASCII, 1297
VRBINARY, 1297
VRType, 1296
Write, 1300
gdcm::VR16ExplicitDataElement, 1301
GetLength, 1303
Read, 1303
ReadPreValue, 1304
ReadValue, 1304
ReadWithLength, 1304
gdcm::VRToEncoding< T >, 1304
gdcm::VRToType< T >, 1305
gdcm::VRVLSize< 0 >, 1305
Read, 1306
Write, 1306
gdcm::VRVLSize< 1 >, 1306
Read, 1306
Write, 1306
gdcm::VRVLSize< T >, 1305
gdcm::Waveform, 1406
Waveform, 1406
gdcm::WLMFindQuery, 1406
GetAbstractSyntaxUID, 1409
GetTagListByLevel, 1409
GetValidDataSet, 1410
InitializeDataSet, 1410
QueryFactory, 1410
ValidateQuery, 1410
WLMFindQuery, 1409
gdcm::Writer, 1411
~Writer, 1414
CheckFileMetaInformationOff, 1414
CheckFileMetaInformationOn, 1414
GetCheckFileMetaInformation, 1414
GetFile, 1414
GetStreamPtr, 1414
Ofstream, 1416
SetCheckFileMetaInformation, 1414
SetFile, 1415
SetFileName, 1415
SetStream, 1415
SetWriteDataSetOnly, 1416
Stream, 1416
StreamImageWriter, 1416
Write, 1416
Writer, 1414
gdcm::XMLDictReader, 1417
~XMLDictReader, 1418
CharacterDataHandler, 1419
EndElement, 1419
GetDict, 1419
HandleDescription, 1419
HandleEntry, 1419
StartElement, 1419
XMLDictReader, 1418
gdcm::XMLPrinter, 1420
~XMLPrinter, 1421

F, 1422
GetPrintStyle, 1421
HandleBulkData, 1421
LOADBULKDATA, 1421
OnlyUUID, 1421
Print, 1421
PrintDataElement, 1422
PrintDataSet, 1422
PrintSQ, 1422
PrintStyle, 1422
PrintStyles, 1421
SetFile, 1422
SetStyle, 1422
XMLPrinter, 1421
gdcm::XMLPrivateDictReader, 1423
~XMLPrivateDictReader, 1424
CharacterDataHandler, 1425
EndElement, 1425
GetPrivateDict, 1425
HandleDescription, 1425
HandleEntry, 1425
StartElement, 1425
XMLPrivateDictReader, 1424
GDCM_DIFFERENT
gdcm, 60
GDCM_DO_JOIN
gdcmStaticAssert.h, 1479
GDCM_DO_JOIN2
gdcmStaticAssert.h, 1479
GDCM_EQUAL
gdcm, 60
GDCM_EXPORT
gdcmWin32.h, 1505
GDCM_FUNCTION
gdcmTrace.h, 1497
GDCM_GREATER
gdcm, 60
GDCM_GREATEROREQUAL
gdcm, 60
GDCM_JOIN
gdcmStaticAssert.h, 1479
GDCM_LEGACY
gdcmLegacyMacro.h, 1459
GDCM_LEGACY_BODY
gdcmLegacyMacro.h, 1459
GDCM_LEGACY_REPLACED_BODY
gdcmLegacyMacro.h, 1459
GDCM_LESS
gdcm, 60
GDCM_LESSOREQUAL
gdcm, 60
GDCM_NOOP_STATEMENT
gdcmLegacyMacro.h, 1460
GDCM_STATIC_ASSERT
gdcm::Attribute< Group, Element, TVR, TVM >, 132
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 139, 140
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
gdcmStaticAssert.h, 1479
gdcmAAbortPDU.h, 1920
gdcmAAssociateACPDU.h, 1921, 1922
gdcmAAssociateRJPDU.h, 1923, 1924
gdcmAAssociateRQPDU.h, 1925
gdcmAbstractSyntax.h, 1927, 1928
gdcmAnonymizeEvent.h, 1729, 1731
gdcmAnonymizer.h, 1731, 1732
gdcmApplicationContext.h, 1929, 1930
gdcmApplicationEntity.h, 1733, 1734
gdcmAReleaseRPPDU.h, 1931, 1932
gdcmAReleaseRQPDU.h, 1932, 1933
gdcmARTIMTimer.h, 1934, 1935
gdcmASN1.h, 1427, 1428
gdcmAssertAlwaysMacro
gdcmTrace.h, 1497
gdcmAssertMacro
gdcmTrace.h, 1497
gdcmAsynchronousOperationsWindowSub.h, 1936
gdcmAttribute.h, 1543, 1544
gdcmAudioCodec.h, 1735, 1736
gdcmBase64.h, 1429
gdcmBaseCompositeMessage.h, 1937, 1938
gdcmBaseNormalizedMessage.h, 1939
gdcmBasePDU.h, 1940, 1941
gdcmBaseQuery.h, 1942, 1943
gdcmBaseRootQuery.h, 1944, 1945
gdcmBasicOffsetTable.h, 1557, 1558
gdcmBitmap.h, 1736, 1737
gdcmBitmapToBitmapFilter.h, 1740
gdcmBoxRegion.h, 1430, 1431
gdcmByteBuffer.h, 1560, 1561
gdcmByteSwap.h, 1431, 1432
gdcmByteSwapFilter.h, 1563
gdcmByteValue.h, 1564, 1565
gdcmCAPICryptoFactory.h, 1433, 1434
gdcmCAPICryptographicMessageSyntax.h, 1434, 1435
gdcmCEchoMessages.h, 1946, 1947
gdcmCFindMessages.h, 1947, 1948
gdcmCleaner.h, 1741, 1742
gdcmCMoveMessages.h, 1949, 1950
gdcmCodec.h, 1743, 1744
gdcmCoder.h, 1744, 1745
gdcmCodeString.h, 1568, 1569
gdcmCommand.h, 1436, 1437
gdcmCommandDataSet.h, 1950, 1951
gdcmCompositeMessageFactory.h, 1952, 1953
gdcmCompositeNetworkFunctions.h, 1953, 1954
gdcmConstCharWrapper.h, 1746

gdcmCP246ExplicitDataElement.h, 1570
gdcmCryptoFactory.h, 1439, 1440
gdcmCryptographicMessageSyntax.h, 1441
gdcmCSAElement.h, 1571, 1572
gdcmCSAHeader.h, 1574, 1575
gdcmCSAHeaderDict.h, 1506, 1507
gdcmCSAHeaderDictEntry.h, 1509, 1510
gdcmCStoreMessages.h, 1955, 1956
gdcmCurve.h, 1747, 1748
gdcmDataElement.h, 1577, 1578
gdcmDataEvent.h, 1443, 1444
gdcmDataSet.h, 1580, 1581
gdcmDataSetEvent.h, 1585, 1586
gdcmDataSetHelper.h, 1749
gdcmDebugMacro
    gdcmTrace.h, 1497
gdcmDecoder.h, 1750, 1751
gdcmDefinedTerms.h, 1682, 1683
gdcmDeflateStream.h, 1445
gdcmDefs.h, 1683, 1684
gdcmDeltaEncodingCodec.h, 1752
gdcmDICOMDIR.h, 1753, 1754
gdcmDICOMDIRGenerator.h, 1754, 1755
gdcmDict.h, 1512, 1513
gdcmDictConverter.h, 1517, 1518
gdcmDictEntry.h, 1519, 1520
gdcmDictPrinter.h, 1756, 1757
gdcmDicts.h, 1521, 1523
gdcmDIMSE.h, 1957
gdcmDirectionCosines.h, 1757, 1758
gdcmDirectory.h, 1445, 1446
gdcmDirectoryHelper.h, 1759
gdcmDPath.h, 1760, 1761
gdcmDummyValueGenerator.h, 1448
gdcmDumper.h, 1762, 1763
gdcmElement.h, 1587, 1588
gdcmEmptyMaskGenerator.h, 1763, 1764
gdcmEncapsulatedDocument.h, 1765
gdcmEnumeratedValues.h, 1685, 1686
gdcmEquipmentManufacturer.h, 1766
gdcmErrorMacro
    gdcmTrace.h, 1498
gdcmEvent.h, 1449, 1451
    gdcmEventMacro, 1450
gdcmEventMacro
    gdcmEvent.h, 1450
gdcmException.h, 1452, 1453
gdcmExplicitDataElement.h, 1599, 1600
gdcmExplicitImplicitDataElement.h, 1601, 1602
gdcmFiducials.h, 1767, 1768
gdcmFile.h, 1602, 1603
gdcmFileAnonymizer.h, 1768, 1769
gdcmFileChangeTransferSyntax.h, 1770, 1771
gdcmFileDecompressLookupTable.h, 1772
gdcmFileDerivation.h, 1773, 1774
gdcmFileExplicitFilter.h, 1775
gdcmFileMetaInformation.h, 1604, 1605
gdcmFilename.h, 1454, 1455
gdcmFileNameEvent.h, 1455, 1456
gdcmFilenameGenerator.h, 1457, 1458
gdcmFileSet.h, 1607, 1608
gdcmFileStreamer.h, 1776, 1777
gdcmFindPatientRootQuery.h, 1959, 1960
gdcmFindStudyRootQuery.h, 1961
gdcmFragment.h, 1609, 1610
gdcmGlobal.h, 1524, 1525
gdcmGroupDict.h, 1526, 1527
gdcmIconImage.h, 1778, 1779
gdcmIconImageFilter.h, 1780
gdcmIconImageGenerator.h, 1781, 1782
gdcmImage.h, 1783, 1784
gdcmImageApplyLookupTable.h, 1785
gdcmImageChangePhotometricInterpretation.h, 1786, 1787
gdcmImageChangePlanarConfiguration.h, 1788, 1789
gdcmImageChangeTransferSyntax.h, 1790, 1791
gdcmImageCodec.h, 1791, 1792
gdcmImageConverter.h, 1795
gdcmImageFragmentSplitter.h, 1796, 1797
gdcmImageHelper.h, 1797, 1798
gdcmImageReader.h, 1800, 1801
gdcmImageRegionReader.h, 1801, 1802
gdcmImageToImageFilter.h, 1803, 1804
gdcmImageWriter.h, 1804, 1805
gdcmImplementationClassUIDSub.h, 1962, 1963
gdcmImplementationUIDSub.h, 1964
gdcmImplementationVersionNameSub.h, 1965, 1966
gdcmImplicitDataElement.h, 1613, 1614
gdcmIOD.h, 1686, 1688
gdcmIODEntry.h, 1689, 1691
gdcmIODs.h, 1691, 1693
gdcmIPPSorter.h, 1806, 1807
gdcmItem.h, 1615, 1616
gdcmJPEG12Codec.h, 1808
gdcmJPEG16Codec.h, 1809, 1810
gdcmJPEG2000Codec.h, 1811
gdcmJPEG8Codec.h, 1813
gdcmJPEGCodec.h, 1814, 1815
gdcmJPEGLSCodec.h, 1817
gdcmJSON.h, 1818, 1819
gdcmKAKADUCodec.h, 1820, 1821
gdcmLegacyMacro.h, 1458, 1460
    GDCM_LEGACY, 1459
    GDCM_LEGACY_BODY, 1459
    GDCM_LEGACY_REPLACED_BODY, 1459
    GDCM_NOOP_STATEMENT, 1460
gdcmLO.h, 1621
gdcmLookupTable.h, 1821, 1822

gdcmMacro.h, 1694, 1695
gdcmMacroEntry.h, 1697, 1698
GDCMMACROENTRY_H, 1698
GDCMMACROENTRY_H
gdcmMacroEntry.h, 1698
gdcmMacros.h, 1700, 1701
gdcmMaximumLengthSub.h, 1967, 1968
gdcmMD5.h, 1461, 1462
gdcmMEC_MR3.h, 1824
gdcmMediaStorage.h, 1622, 1623
gdcmMeshPrimitive.h, 1825, 1826
gdcmModalityPerformedProcedureStepCreateQuery.h, 1969
gdcmModalityPerformedProcedureStepSetQuery.h, 1970, 1971
gdcmModule.h, 1702, 1703
gdcmModuleEntry.h, 1705, 1707
gdcmModules.h, 1708, 1709
gdcmMovePatientRootQuery.h, 1971, 1972
gdcmMoveStudyRootQuery.h, 1973
gdcmMrProtocol.h, 1626, 1627
gdcmNActionMessages.h, 1974, 1975
gdcmNCreateMessages.h, 1975, 1976
gdcmNDeleteMessages.h, 1977
gdcmNestedModuleEntries.h, 1710, 1711
gdcmNetworkEvents.h, 1978, 1979
gdcmNetworkStateID.h, 1980, 1981
gdcmNEventReportMessages.h, 1982, 1983
gdcmNGetMessages.h, 1983, 1984
gdcmNormalizedMessageFactory.h, 1984, 1985
gdcmNormalizedNetworkFunctions.h, 1986, 1987
gdcmNSetMessages.h, 1988
gdcmObject.h, 1462, 1463
gdcmOpenSSLCryptoFactory.h, 1464, 1465
gdcmOpenSSLCryptographicMessageSyntax.h, 1466, 1467
gdcmOpenSSLP7CryptoFactory.h, 1468, 1469
gdcmOpenSSLP7CryptographicMessageSyntax.h, 1469, 1471
gdcmOrientation.h, 1828
gdcmOverlay.h, 1829, 1830
gdcmParseException.h, 1628, 1629
gdcmParser.h, 1630, 1631
gdcmPatient.h, 1712
gdcmPDataTFPDU.h, 1989, 1990
gdcmPDBElement.h, 1633, 1634
gdcmPDBHeader.h, 1635
gdcmPDFCodec.h, 1832
gdcmPDUFactory.h, 1991
gdcmPersonName.h, 1833, 1834
gdcmPGXCodec.h, 1835
gdcmPhotometricInterpretation.h, 1836, 1837
gdcmPixelFormat.h, 1838, 1840
gdcmPixmap.h, 1842, 1843
gdcmPixmapReader.h, 1844, 1846
gdcmPixmapToPixmapFilter.h, 1847
gdcmPixmapWriter.h, 1848, 1849
gdcmPNMCodec.h, 1850, 1851
gdcmPreamble.h, 1636, 1638
gdcmPresentationContext.h, 1992, 1993
gdcmPresentationContextAC.h, 1994, 1996
gdcmPresentationContextGenerator.h, 1996, 1997
gdcmPresentationContextRQ.h, 1998, 1999
gdcmPresentationDataValue.h, 2000, 2001
gdcmPrinter.h, 1851, 1853
gdcmPrivateTag.h, 1639, 1640
gdcmProgressEvent.h, 1471, 1472
gdcmPVRGCodec.h, 1854, 1855
gdcmPythonFilter.h, 2094, 2095
gdcmQueryBase.h, 2002, 2004
gdcmQueryFactory.h, 2005, 2006
gdcmQueryImage.h, 2006, 2007
gdcmQueryPatient.h, 2008, 2009
gdcmQuerySeries.h, 2010
gdcmQueryStudy.h, 2011, 2012
gdcmRAWCodec.h, 1855, 1856
gdcmReader.h, 1641, 1642
gdcmRegion.h, 1473, 1474
gdcmRescaler.h, 1857
gdcmRLECodec.h, 1859
gdcmRoleSelectionSub.h, 2013
gdcmScanner.h, 1860, 1861
gdcmScanner2.h, 1863, 1864
gdcmSegment.h, 1866, 1868
gdcmSegmentedPaletteColorLookupTable.h, 1870
gdcmSegmentHelper.h, 1871, 1872
gdcmSegmentReader.h, 1873, 1875
gdcmSegmentWriter.h, 1875, 1877
gdcmSequenceOfFragments.h, 1643, 1644
gdcmSequenceOfItems.h, 1648, 1649
gdcmSerieHelper.h, 1877, 1879
gdcmSeries.h, 1713, 1714
gdcmServiceClassApplicationInformation.h, 2014, 2015
gdcmServiceClassUser.h, 2016, 2017
gdcmSHA1.h, 1475, 1476
gdcmSimpleSubjectWatcher.h, 1880, 1881
gdcmSmartPointer.h, 1476, 1477
gdcmSOPClassExtendedNegociationSub.h, 2018, 2019
gdcmSOPClassUIDToIOD.h, 1528
gdcmSorter.h, 1882, 1884
gdcmSpacing.h, 1885
gdcmSpectroscopy.h, 1886, 1887
gdcmSplitMosaicFilter.h, 1887, 1888
gdcmStaticAssert.h, 1478, 1480
GDCM_DO_JOIN, 1479
GDCM_DO_JOIN2, 1479
GDCM_JOIN, 1479
GDCM_STATIC_ASSERT, 1479

gdcmStreamImageReader.h, 1889, 1890
gdcmStreamImageWriter.h, 1891, 1892
gdcmStrictScanner.h, 1893, 1894
gdcmStrictScanner2.h, 1895, 1896
gdcmString.h, 1480, 1481
gdcmStringFilter.h, 1898, 1899
gdcmStudy.h, 1715, 1716
gdcmSubject.h, 1483, 1484
gdcmSurface.h, 1900, 1901
gdcmSurfaceHelper.h, 1904, 1905
gdcmSurfaceReader.h, 1907, 1908
gdcmSurfaceWriter.h, 1909, 1910
gdcmSwapCode.h, 1485, 1486
gdcmSwapper.h, 1486, 1487
gdcmSystem.h, 1489
gdcmTable.h, 1716, 1717
gdcmTableEntry.h, 1718, 1719
gdcmTableReader.h, 1720, 1721
gdcmTag.h, 1652, 1653
gdcmTagPath.h, 1910, 1911
gdcmTagToVR.h, 1657
gdcmTerminal.h, 1491, 1492
gdcmTestDriver.h, 1493
gdcmTesting.h, 1494
gdcmTrace.h, 1495, 1499
    GDCM_FUNCTION, 1497
    gdcmAssertAlwaysMacro, 1497
    gdcmAssertMacro, 1497
    gdcmDebugMacro, 1497
    gdcmErrorMacro, 1498
    gdcmWarningMacro, 1498
gdcmTransferSyntax.h, 1658, 1659
gdcmTransferSyntaxSub.h, 2019, 2021
gdcmType.h, 1722, 1723
gdcmTypes.h, 1501, 1502
gdcmUIDGenerator.h, 1912, 1913
gdcmUIDs.h, 1529, 1530
gdcmULAction.h, 2021, 2022
gdcmULActionAA.h, 2023, 2024
gdcmULActionAE.h, 2025, 2026
gdcmULActionAR.h, 2027, 2028
gdcmULActionDT.h, 2030
gdcmULBasicCallback.h, 2031, 2032
gdcmULConnection.h, 2032, 2033
gdcmULConnectionCallback.h, 2035, 2036
gdcmULConnectionInfo.h, 2036, 2038
gdcmULConnectionManager.h, 2038, 2039
gdcmULEvent.h, 2041, 2042
gdcmULTransitionTable.h, 2043, 2044
gdcmULWritingCallback.h, 2046
gdcmUNExplicitDataElement.h, 1660, 1661
gdcmUNExplicitImplicitDataElement.h, 1662, 1663
gdcmUnpacker12Bits.h, 1502, 1503
gdcmUsage.h, 1724, 1726
gdcmUserInformation.h, 2047, 2048
gdcmUUIDGenerator.h, 1914
gdcmValidate.h, 1915
gdcmValue.h, 1663, 1664
gdcmValueIO.h, 1665, 1666
gdcmVersion.h, 1503, 1504
gdcmVL.h, 1666, 1667
gdcmVM.h, 1669, 1670
    TYPETOLENGTH, 1670
gdcmVR.h, 1672, 1674
    TYPETOENCODING, 1673
    VRTypeTemplateCase, 1673
gdcmVR16ExplicitDataElement.h, 1678, 1679
gdcmWarningMacro
    gdcmTrace.h, 1498
gdcmWaveform.h, 1916, 1917
gdcmWin32.h, 1504, 1505
    GDCM_EXPORT, 1505
gdcmWLMFindQuery.h, 2049, 2050
gdcmWriter.h, 1680, 1681
gdcmXMLDictReader.h, 1727
gdcmXMLPrinter.h, 1917, 1918
gdcmXMLPrivateDictReader.h, 1728, 1729
GEMS
    gdcm::Dicts, 372
    gdcm::EquipmentManufacturer, 431
GeneralAudioWaveformStorage
    gdcm::UIDs, 1184
GeneralECGWaveformStorage
    gdcm::MediaStorage, 693
    gdcm::UIDs, 1180
GeneralElectricMagneticResonanceImageStorage
    gdcm::MediaStorage, 694
GeneralPurposePerformedProcedureStepSOPClass
    gdcm::UIDs, 1182
GeneralPurposeScheduledProcedureStepSOPClass
    gdcm::UIDs, 1182
GeneralPurposeWorklistInformationModelFIND
    gdcm::UIDs, 1182
GeneralPurposeWorklistManagementMetaSOPClass
    gdcm::UIDs, 1182
GeneralRelevantPatientInformationQuery
    gdcm::UIDs, 1182
Generate
    gdcm::DICOMDIRGenerator, 354
    gdcm::DummyValueGenerator, 388
    gdcm::FilenameGenerator, 489
    gdcm::IconImageGenerator, 525
    gdcm::UIDGenerator, 1159
    gdcm::UUIDGenerator, 1277
GenerateFromFilenames
    gdcm::PresentationContextGenerator, 863
GenerateFromUID
    gdcm::PresentationContextGenerator, 863

GenerateUUID
gdcm::UIDGenerator, 1159
GenericImplantTemplateInformationModelFIND
gdcm::UIDs, 1186
GenericImplantTemplateInformationModelGET
gdcm::UIDs, 1186
GenericImplantTemplateInformationModelMOVE
gdcm::UIDs, 1186
GenericImplantTemplateStorage
gdcm::UIDs, 1186
GEPrivate3DModelStorage
gdcm::MediaStorage, 694
Get
gdcm::ByteBuffer, 214
GetAbbreviation
gdcm::GroupDict, 519
GetAbstractSyntax
gdcm::network::PresentationContextRQ, 865, 866
gdcm::PresentationContext, 857
GetAbstractSyntaxUID
gdcm::BaseQuery, 177
gdcm::FindPatientRootQuery, 504
gdcm::FindStudyRootQuery, 508
gdcm::ModalityPerformedProcedureStepCreateQuery, 713
gdcm::ModalityPerformedProcedureStepSetQuery, 716
gdcm::MovePatientRootQuery, 729
gdcm::MoveStudyRootQuery, 733
gdcm::WLMFindQuery, 1409
GetAcceptedPresentationContexts
gdcm::network::ULConnection, 1242
GetAcquisitionSize
gdcm::SplitMosaicFilter, 1033
GetAETitle
gdcm::ServiceClassUser, 1000
GetAlgorithmFamily
gdcm::Surface, 1085
GetAlgorithmName
gdcm::Surface, 1085
GetAlgorithmVersion
gdcm::Surface, 1085
GetALGOType
gdcm::Segment, 957
GetALGOTypeString
gdcm::Segment, 957
GetAllFilenamesFromPrivateTagToValue
gdcm::Scanner2, 949
gdcm::StrictScanner2, 1062
GetAllFilenamesFromPublicTagToValue
gdcm::Scanner2, 949
gdcm::StrictScanner2, 1063
GetAllFilenamesFromTagToValue
gdcm::Scanner, 939
gdcm::StrictScanner, 1053
GetAllRequiredTags
gdcm::QueryBase, 893
GetAllTags
gdcm::QueryBase, 893
GetAnatomicRegion
gdcm::Segment, 957
GetAnatomicRegionModifiers
gdcm::Segment, 958
GetAsDataElement
gdcm::Attribute< Group, Element, TVR, TVM >, 132
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 140
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
gdcm::Element< TVR, TVM >, 393
gdcm::Element< TVR, VM::VM1_n >, 401
gdcm::network::AbstractSyntax, 101
gdcm::PrivateTag, 881
GetAsPoints
gdcm::Curve, 305
GetAsString
gdcm::CodeString, 256
GetAxisOfRotation
gdcm::Surface, 1085
GetBasicApplicationLevelConfidentialityProfileAttributes
gdcm::Anonymizer, 111
GetBitPosition
gdcm::Overlay, 783
GetBitsAllocated
gdcm::Overlay, 783
gdcm::PixelFormat, 823
GetBitSample
gdcm::LookupTable, 676
GetBitsStored
gdcm::PixelFormat, 823
GetBlob
gdcm::network::PresentationDataValue, 869
GetBuffer
gdcm::Bitmap, 196
gdcm::ByteValue, 221
gdcm::Parser, 793
gdcm::SequenceOfFragments, 978
GetBuffer2
gdcm::Bitmap, 196
GetBufferAsRGBA
gdcm::LookupTable, 676
GetBufferLength
gdcm::Bitmap, 196
gdcm::JPEGLSCodec, 660
gdcm::PNMCodec, 851
gdcm::RLECodec, 931
GetBuildVersion
gdcm::Version, 1284

GetByteValue
gdcm::CSAElement, 283
gdcm::DataElement, 312
GetCalledAETitle
gdcm::network::AAssociateRQPDU, 96
gdcm::network::ULConnectionInfo, 1248
gdcm::ServiceClassUser, 1000
GetCalledComputerName
gdcm::network::ULConnectionInfo, 1248
GetCalledIPAddress
gdcm::network::ULConnectionInfo, 1248
GetCalledIPPort
gdcm::network::ULConnectionInfo, 1248
GetCallingAETitle
gdcm::network::AAssociateRQPDU, 96
gdcm::network::ULConnectionInfo, 1248
GetCanonMECMR3Tag
gdcm::MEC_MR3, 688
GetCenterOfRotation
gdcm::Surface, 1085
GetCharacterFromCurrentLocale
gdcm::QueryFactory, 895
GetCheckFileMetaInformation
gdcm::Writer, 1414
GetCipherType
gdcm::CAPICryptographicMessageSyntax, 229
gdcm::CryptographicMessageSyntax, 280
gdcm::OpenSSLCryptographicMessageSyntax, 770
gdcm::OpenSSLP7CryptographicMessageSyntax, 775
GetCodec
gdcm::FileChangeTransferSyntax, 460
GetColorLevel
vtkImageColorViewer, 1370
GetColorWindow
vtkImageColorViewer, 1370
GetColumns
gdcm::Bitmap, 197
gdcm::Overlay, 783
GetCommand
gdcm::Subject, 1079
GetConnectionInfo
gdcm::network::ULConnection, 1242
GetConstructorString
gdcm::Dicts, 373
GetContourReferencedFrameOfReferenceClassUID
vtkRTStructSetProperties, 1400
GetContourReferencedFrameOfReferenceInstanceUID
vtkRTStructSetProperties, 1400
GetCryptographicMessageSyntax
gdcm::Anonymizer, 111
GetCSADataInfo
gdcm::CSAHeader, 290
GetCSAEEnd
gdcm::CSAHeader, 290
GetCSAElementByName
gdcm::CSAHeader, 291
GetCSAHeaderDict
gdcm::Dicts, 373
GetCSAHeaderDictEntry
gdcm::CSAHeaderDict, 295
GetCSAImageHeaderInfoTag
gdcm::CSAHeader, 291
GetCSASeriesHeaderInfoTag
gdcm::CSAHeader, 291
GetCTImageSeriesUIDs
gdcm::DirectoryHelper, 384
GetCurrentByteIndex
gdcm::Parser, 793
GetCurrentDateTime
gdcm::System, 1111
GetCurrentModuleFileName
gdcm::System, 1111
GetCurrentProcessFileName
gdcm::System, 1111
GetCurrentResourcesDirectory
gdcm::System, 1111
GetCurve
gdcm::Pixmap, 832
GetCurveDataDescriptor
gdcm::Curve, 305
GetCWD
gdcm::System, 1111
GetData
gdcm::DataEvent, 324
GetDataElement
gdcm::Bitmap, 197
gdcm::DataSet, 330
gdcm::Item, 620
GetDataExtraRoot
gdcm::Testing, 1137
GetDataLength
gdcm::DataEvent, 324
GetDataRoot
gdcm::Testing, 1137
GetDataSet
gdcm::CSAHeader, 291
gdcm::DataSetEvent, 339
gdcm::File, 450
GetDataSetPos
gdcm::network::ULEvent, 1257
GetDataSets
gdcm::network::ULBasicCallback, 1239
GetDataSetTransferSyntax
gdcm::FileMetaInformation, 476
GetDataValueRepresentation
gdcm::Curve, 305
GetDebugFlag

gdcm::Trace, 1143
GetDebugStream
gdcm::Trace, 1144
GetDecodeLength
gdcm::Base64, 168
GetDEEnd
gdcm::DataSet, 331
GetDefaultTransferSyntax
gdcm::PresentationContextGenerator, 863
GetDefs
gdcm::Global, 516
gdcm::TableReader, 1120
GetDES
gdcm::DataSet, 331
GetDescription
gdcm::CSAHeaderDictEntry, 297
gdcm::Exception, 437
gdcm::ModuleEntry, 723
gdcm::Overlay, 783
GetDescriptiveName
vtkGDCMImageReader, 1310
vtkGDCMImageReader2, 1323
vtkGDCMImageWriter, 1334
GetDict
gdcm::XMLDictReader, 1419
GetDictEntry
gdcm::Dict, 358
gdcm::Dicts, 373
gdcm::PrivateDict, 876
GetDictEntryByKeyword
gdcm::Dict, 358
GetDictEntryByName
gdcm::Dict, 359
GetDictName
gdcm::DictConverter, 362
GetDicts
gdcm::Global, 516
GetDictVM
gdcm::Attribute< Group, Element, TVR, TVM >, 133
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 140
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
GetDictVR
gdcm::Attribute< Group, Element, TVR, TVM >, 133
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 140
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
GetDimension
gdcm::Bitmap, 197
GetDimensions
gdcm::Bitmap, 197
gdcm::Curve, 305
gdcm::ImageCodec, 560
GetDimensionsValue
gdcm::ImageHelper, 572
GetDimensionsValueForResolution
gdcm::StreamImageReader, 1039
GetDirectionCosines
gdcm::Image, 533
GetDirectionCosinesFromDataSet
gdcm::ImageHelper, 572
GetDirectionCosinesTolerance
gdcm::IPPSorter, 613
GetDirectionCosinesValue
gdcm::ImageHelper, 573
GetDirectories
gdcm::Directory, 382
GetElapsedTime
gdcm::network::ARTIMTimer, 126
GetElement
gdcm::Tag, 1126
GetElementTag
gdcm::Tag, 1126
GetEncodeLength
gdcm::Base64, 168
GetErrorCode
gdcm::Parser, 793
GetErrorFlag
gdcm::Trace, 1144
GetErrorStream
gdcm::Trace, 1144
GetErrorString
gdcm::Parser, 793
GetEvent
gdcm::network::ULEvent, 1257
GetEventName
gdcm::AnonymizeEvent, 105
gdcm::DataEvent, 324
gdcm::DataSetEvent, 339
gdcm::Event, 434
gdcm::FileNameEvent, 486
gdcm::ProgressEvent, 885
GetExtension
gdcm::Filename, 482
GetFactoryInstance
gdcm::CryptoFactory, 277
GetFile
gdcm::Anonymizer, 112
gdcm::Cleaner, 243
gdcm::DICOMDIRGenerator, 355
gdcm::FileDecompressLookupTable, 463
gdcm::FileDerivation, 466, 467
gdcm::FileExplicitFilter, 470
gdcm::IconImageFilter, 522
gdcm::PythonFilter, 891
gdcm::Reader, 914

gdcm::SplitMosaicFilter, 1034
gdcm::StreamImageReader, 1040
gdcm::StringFilter, 1074
gdcm::Writer, 1414
vtkGDCMMedicalImageProperties, 1341
GetFileExtensions
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1323
vtkGDCMImageWriter, 1334
GetFileMetaInformationVersion
gdcm::FileMetaInformation, 476
GetFileName
gdcm::Filename, 482
gdcm::FileNameEvent, 486
gdcm::Testing, 1137
vtkGDCMImageWriter, 1334
vtkGDCMThreadedImageReader2, 1361
GetFilename
gdcm::FilenameGenerator, 489
gdcm::TableReader, 1120
GetFilenameFromPrivateTagToValue
gdcm::Scanner2, 949
gdcm::StrictScanner2, 1063
GetFilenameFromPublicTagToValue
gdcm::Scanner2, 949
gdcm::StrictScanner2, 1063
GetFilenameFromTagToValue
gdcm::Scanner, 939
gdcm::StrictScanner, 1053
GetFileNames
gdcm::Testing, 1137
GetFilenames
gdcm::Directory, 382
gdcm::FilenameGenerator, 489
gdcm::Scanner, 940
gdcm::Scanner2, 949
gdcm::Sorter, 1026
gdcm::StrictScanner, 1053
gdcm::StrictScanner2, 1063
GetFilenamesFromSeriesUIDs
gdcm::DirectoryHelper, 384
GetFiles
gdcm::FileSet, 492
GetFiniteVolume
gdcm::Surface, 1085
GetFirstSingleSerieUIDFileSet
gdcm::SerieHelper, 993
GetForcePixelSpacing
gdcm::ImageHelper, 573
GetForceRescaleInterceptSlope
gdcm::ImageHelper, 573
GetFormat
gdcm::CSAHeader, 291
GetFragBuffer
gdcm::SequenceOfFragments, 979
GetFragment
gdcm::SequenceOfFragments, 979
GetFragmentSizeMax
gdcm::ImageFragmentSplitter, 570
GetFrameOfReference
gdcm::DirectoryHelper, 384
GetFullLength
gdcm::FileMetaInformation, 476
GetGDCMDataRoot
vtkGDCMTesting, 1352
GetGDCMImplementationClassUID
gdcm::FileMetaInformation, 476
GetGDCMImplementationVersionName
gdcm::FileMetaInformation, 476
GetGDCMSourceApplicationEntityTitle
gdcm::FileMetaInformation, 477
GetGDCMUID
gdcm::UIDGenerator, 1160
GetGroup
gdcm::Curve, 305
gdcm::Overlay, 783
gdcm::Tag, 1126
GetHasExpired
gdcm::network::ARTIMTimer, 126
GetHeader
gdcm::File, 451
GetHeaderInfo
gdcm::ImageCodec, 560
gdcm::JPEG12Codec, 627
gdcm::JPEG16Codec, 632
gdcm::JPEG2000Codec, 638
gdcm::JPEG8Codec, 645
gdcm::JPEGCodec, 652
gdcm::JPEGLSCodec, 660
gdcm::PGXCodec, 815
gdcm::PNMCodec, 851
gdcm::RAWCodec, 910
gdcm::RLECodec, 931
GetHierachicalSearchTags
gdcm::QueryBase, 893
gdcm::QueryImage, 897
gdcm::QueryPatient, 900
gdcm::QuerySeries, 902
gdcm::QueryStudy, 905
GetHighBit
gdcm::PixelFormat, 823
GetHostName
gdcm::System, 1111
GetIconImage
gdcm::IconImageFilter, 522
gdcm::IconImageGenerator, 525
gdcm::Pixmap, 832
vtkGDCMImageReader, 1311

vtkGDCMImageReader2, 1323
GetIconImagePort
vtkGDCMImageReader2, 1323
GetIE
gdcm::IODEntry, 607
GetImage
gdcm::ImageReader, 580
gdcm::ImageWriter, 593, 594
gdcm::PixmapWriter, 845
gdcm::SplitMosaicFilter, 1034
GetImplementationClassUID
gdcm::FileMetaInformation, 477
GetImplementationVersionName
gdcm::FileMetaInformation, 477
GetIndex
gdcm::SwapCode, 1105
gdcm::VM, 1292
GetInitialized
gdcm::CAPICryptographicMessageSyntax, 229
GetInput
gdcm::ImageToImageFilter, 589
gdcm::PixmapToPixmapFilter, 841
vtkImageColorViewer, 1370
GetInputFilename
gdcm::DictConverter, 362
GetInstance
gdcm::Global, 516
GetIntercept
gdcm::Image, 533
gdcm::Rescaler, 924
GetInterfile
gdcm::CSAHeader, 292
GetInternal
gdcm::Preamble, 853
GetIOD
gdcm::IODs, 610
gdcm::SOPClassUIDToIOD, 1023
GetIODEntry
gdcm::IOD, 605
GetIODFromFile
gdcm::Defs, 345
GetIODFromSOPClassUID
gdcm::SOPClassUIDToIOD, 1023
GetIODNameFromMediaStorage
gdcm::Defs, 345
GetIODs
gdcm::Defs, 345
GetIsCommand
gdcm::network::PresentationDataValue, 869
GetIsLastFragment
gdcm::network::PresentationDataValue, 869
GetIStream
gdcm::network::ULEvent, 1257
GetItem
gdcm::SequenceOfItems, 986, 987
GetKey
gdcm::CSAElement, 283
GetKeys
gdcm::Scanner, 940
gdcm::Scanner2, 950
gdcm::StrictScanner, 1053
gdcm::StrictScanner2, 1063
GetKeyword
gdcm::DictEntry, 365
GetKeywordFromTag
gdcm::Dict, 359
GetLabel
gdcm::Orientation, 778
GetLastElement
gdcm::ParseException, 790
GetLastSystemError
gdcm::System, 1112
GetLength
gdcm::ByteValue, 221
gdcm::CP246ExplicitDataElement, 274
gdcm::DataElement, 312
gdcm::DataSet, 331
gdcm::Element< TVR, TVM >, 393
gdcm::Element< TVR, VM::VM1_n >, 401
gdcm::Element< VR::AS, VM::VM5 >, 416
gdcm::ExplicitDataElement, 442
gdcm::ExplicitImplicitDataElement, 446
gdcm::Fragment, 513
gdcm::ImplicitDataElement, 601
gdcm::Item, 620
gdcm::Preamble, 853
gdcm::SequenceOfFragments, 979
gdcm::SequenceOfItems, 987
gdcm::Tag, 1126
gdcm::UNExplicitDataElement, 1264
gdcm::UNExplicitImplicitDataElement, 1268
gdcm::Value, 1281
gdcm::VL, 1287
gdcm::VM, 1292
gdcm::VR, 1298
gdcm::VR16ExplicitDataElement, 1303
GetLocaleCharset
gdcm::System, 1112
GetLossless
gdcm::JPEGCodec, 652
gdcm::JPEGLSCodec, 660
GetLossyFlag
gdcm::ImageCodec, 560
GetLossyFlagFromFile
gdcm::Testing, 1138
GetLUT
gdcm::Bitmap, 198
gdcm::ImageCodec, 560

gdcm::ImageHelper, 573
gdcm::LookupTable, 676
GetLUTDescriptor
gdcm::LookupTable, 676
GetLUTLength
gdcm::LookupTable, 676
GetMacro
gdcm::Macros, 685
GetMacroEntry
gdcm::Macro, 683
GetMacros
gdcm::Defs, 345, 346
GetMajorAxisFromPatientRelativeDirectionCosine
gdcm::Orientation, 778
GetMajorVersion
gdcm::Version, 1284
GetManifold
gdcm::Surface, 1085
GetMapping
gdcm::Scanner, 940
gdcm::StrictScanner, 1053
GetMappingFromPrivateTagToValue
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1063
GetMappingFromPublicTagToValue
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1063
GetMappingFromTagToValue
gdcm::Scanner, 940
gdcm::StrictScanner, 1054
GetMappings
gdcm::Scanner, 940
gdcm::StrictScanner, 1054
GetMax
gdcm::PixelFormat, 823
GetMaximumLength
gdcm::network::MaximumLengthSub, 686
GetMaximumLengthSub
gdcm::network::UserInformation, 1275
GetMaximumPointDistance
gdcm::Surface, 1086
GetMaxLength
gdcm::PersonName, 810
GetMaxPDULength
gdcm::network::ULConnectionInfo, 1248
GetMaxPDUSize
gdcm::network::ULConnection, 1242
GetMD5DataImage
gdcm::Testing, 1138
GetMD5DataImages
gdcm::Testing, 1138
GetMD5FromBrokenFile
gdcm::Testing, 1138
GetMD5FromFile
gdcm::Testing, 1138
GetMD5MetaImage
vtkGDCMTesting, 1352
GetMeanPointDistance
gdcm::Surface, 1086
GetMediaStorage
gdcm::DataSet, 331
gdcm::FileMetaInformation, 477
GetMediaStorageAsString
gdcm::FileMetaInformation, 477
GetMediaStorageDataFile
gdcm::Testing, 1138
GetMediaStorageDataFiles
gdcm::Testing, 1138
GetMediaStorageFromFile
gdcm::Testing, 1139
GetMeshPrimitive
gdcm::Surface, 1086
GetMessageHeader
gdcm::network::PresentationDataValue, 869
GetMetaInformationTS
gdcm::FileMetaInformation, 477
GetMHDMD5FromFile
vtkGDCMTesting, 1353
GetMin
gdcm::PixelFormat, 823
GetMinorVersion
gdcm::Version, 1285
GetModality
gdcm::MediaStorage, 696
GetModalityDimension
gdcm::MediaStorage, 696
GetModule
gdcm::Modules, 726
GetModuleEntry
gdcm::NestedModuleEntries, 748
GetModuleEntryInMacros
gdcm::Module, 720
GetModules
gdcm::Defs, 346
GetMPType
gdcm::MeshPrimitive, 708
GetMPTypeString
gdcm::MeshPrimitive, 708
GetMRImageSeriesUIDs
gdcm::DirectoryHelper, 384
GetMrProtocol
gdcm::CSAHeader, 292
GetMrProtocolByName
gdcm::MrProtocol, 736
GetMSString
gdcm::MediaStorage, 696
GetMSType
gdcm::MediaStorage, 696

GetMTime
vtkImageMapToColors16, 1380
GetName
gdcm::CSAElement, 284
gdcm::CSAHeaderDictEntry, 297
gdcm::DictEntry, 365
gdcm::Filename, 482
gdcm::GroupDict, 519
gdcm::IODEntry, 607
gdcm::Macro, 683
gdcm::Module, 720
gdcm::ModuleEntry, 723
gdcm::network::AbstractSyntax, 101
gdcm::network::ApplicationContext, 117
gdcm::network::TransferSyntaxSub, 1153
gdcm::PDBElement, 799
gdcm::QueryBase, 894
gdcm::QueryImage, 897
gdcm::QueryPatient, 900
gdcm::QuerySeries, 902
gdcm::QueryStudy, 905
gdcm::UIDs, 1196
GetNeedByteSwap
gdcm::Bitmap, 198
gdcm::ImageCodec, 561
GetNegociatedType
gdcm::TransferSyntax, 1150
GetNestedDataSet
gdcm::Item, 620
GetNextSingleSerieUIDFileSet
gdcm::SerieHelper, 993
GetNoOfItems
gdcm::CSAElement, 284
GetNumberOfComponents
gdcm::PersonName, 810
GetNumberOfContourReferencedFrameOfReferences
vtkRTStructSetProperties, 1400
GetNumberOfCurves
gdcm::Curve, 306
gdcm::Pixmap, 832
GetNumberOfDimensions
gdcm::Bitmap, 198
gdcm::ImageCodec, 561
GetNumberOfElementsFromArray
gdcm::VM, 1292
GetNumberOfFileNames
gdcm::Testing, 1139
GetNumberOfFilenames
gdcm::FilenameGenerator, 489
GetNumberOfFragments
gdcm::SequenceOfFragments, 979
GetNumberOfIconImages
gdcm::IconImageFilter, 522
GetNumberOfImagesInMosaic
gdcm::SplitMosaicFilter, 1034
GetNumberOfIODs
gdcm::IOD, 605
GetNumberOfItems
gdcm::SequenceOfItems, 987
GetNumberOfMD5DataImages
gdcm::Testing, 1139
GetNumberOfMD5MetaImages
vtkGDCMTesting, 1353
GetNumberOfMediaStorageDataFiles
gdcm::Testing, 1139
GetNumberOfModality
gdcm::MediaStorage, 696
GetNumberOfModuleEntries
gdcm::NestedModuleEntries, 748
GetNumberOfMSString
gdcm::MediaStorage, 696
GetNumberOfMSType
gdcm::MediaStorage, 696
GetNumberOfOverlays
gdcm::Pixmap, 833
GetNumberOfPoints
gdcm::Curve, 306
GetNumberOfPresentationContext
gdcm::network::AAssociateRQPDU, 97
GetNumberOfPresentationContextAC
gdcm::network::AAssociateACPDU, 90
GetNumberOfPresentationDataValues
gdcm::network::PDataTFPDU, 796
GetNumberOfPrimitivesData
gdcm::MeshPrimitive, 708
GetNumberOfReferencedFrameOfReferences
vtkRTStructSetProperties, 1400
GetNumberOfSegments
gdcm::SegmentWriter, 973
GetNumberOfSOPClassToIOD
gdcm::SOPClassUIDToIOD, 1023
GetNumberOfStructureSetROIs
vtkRTStructSetProperties, 1400
GetNumberOfSurfacePoints
gdcm::Surface, 1086
GetNumberOfSurfaces
gdcm::SurfaceReader, 1099
gdcm::SurfaceWriter, 1103
GetNumberOfTransferSyntaxes
gdcm::network::PresentationContextRQ, 866
gdcm::PresentationContext, 857
GetNumberOfTransferSyntaxStrings
gdcm::UIDs, 1196
GetNumberOfValues
gdcm::Attribute< Group, Element, TVR, TVM >, 133
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 140

gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
GetNumberOfVectors
gdcm::Surface, 1086
GetObliquityThresholdCosineValue
gdcm::Orientation, 778
GetOffScreenRendering
vtkImageColorViewer, 1370
GetOptionalTags
gdcm::QueryBase, 894
gdcm::QueryImage, 898
gdcm::QueryPatient, 900
gdcm::QuerySeries, 903
gdcm::QueryStudy, 905
GetOrderedValues
gdcm::Scanner, 941
gdcm::StrictScanner, 1054
GetOrigin
gdcm::Image, 533
gdcm::Overlay, 784
GetOriginValue
gdcm::ImageHelper, 573
GetOuput
gdcm::ImageConverter, 566
GetOutput
gdcm::BitmapToBitmapFilter, 207
gdcm::ImageToImageFilter, 589
gdcm::PixmapToPixmapFilter, 841
GetOutputAsBitmap
gdcm::BitmapToBitmapFilter, 207
GetOutputAsPixmap
gdcm::PixmapToPixmapFilter, 841
GetOutputFilename
gdcm::DictConverter, 362
GetOutputType
gdcm::DictConverter, 362
GetOverlay
gdcm::Pixmap, 833
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1323
GetOverlayData
gdcm::Overlay, 784
GetOverlayPort
vtkGDCMImageReader2, 1323
GetOverlayTypeAsString
gdcm::Overlay, 784
GetOverlayTypeFromString
gdcm::Overlay, 784
GetOverlayVisibility
vtkImageColorViewer, 1370
GetOwner
gdcm::PrivateTag, 881
GetPath
gdcm::Filename, 482
GetPattern
gdcm::FilenameGenerator, 490
GetPDBEEnd
gdcm::PDBHeader, 802
GetPDBElementByName
gdcm::PDBHeader, 802
GetPDBInfoTag
gdcm::PDBHeader, 802
GetPDUs
gdcm::network::ULEvent, 1257
GetPDVs
gdcm::network::PDUFactory, 809
GetPermissions
gdcm::System, 1112
GetPhotometricInterpretation
gdcm::Bitmap, 198
gdcm::ImageChangePhotometricInterpretation, 542
gdcm::ImageCodec, 561
GetPhotometricInterpretationValue
gdcm::ImageHelper, 573
GetPIString
gdcm::PhotometricInterpretation, 818
GetPIType
gdcm::PhotometricInterpretation, 818
GetPixelFormat
gdcm::Bitmap, 199
gdcm::ImageCodec, 561
GetPixelFormatValue
gdcm::ImageHelper, 573
GetPixelRepresentation
gdcm::PixelFormat, 823
GetPixelSize
gdcm::PixelFormat, 824
GetPixelSpacingDataRoot
gdcm::Testing, 1139
GetPixmap
gdcm::FileDecompressLookupTable, 464
gdcm::IconImageGenerator, 525
gdcm::PixmapReader, 838
gdcm::PixmapWriter, 845
GetPlanarConfiguration
gdcm::Bitmap, 199
gdcm::ImageChangePlanarConfiguration, 547
gdcm::ImageCodec, 561
GetPlanarConfigurationValue
gdcm::ImageHelper, 574
GetPMSRescaleInterceptSlope
gdcm::ImageHelper, 574
GetPMTFInformationDataTag
gdcm::MEC_MR3, 688
GetPointCoordinatesData
gdcm::Surface, 1086
GetPointer
gdcm::ByteValue, 222

gdcm::LookupTable, 676
gdcm::SmartPointer< ObjectType >, 1019
vtkLookupTable16, 1395
GetPointerFromElement
gdcm::ImageHelper, 574
GetPointPositionAccuracy
gdcm::Surface, 1086
GetPointsBoundingBoxCoordinates
gdcm::Surface, 1087
GetPosition
vtkImageColorViewer, 1370
GetPreamble
gdcm::FileMetaInformation, 477
GetPrefix
gdcm::FilenameGenerator, 490
GetPresentationContext
gdcm::network::AAssociateRQPDU, 97
GetPresentationContextAC
gdcm::network::AAssociateACPDU, 90
GetPresentationContextACByID
gdcm::network::ULConnection, 1242
GetPresentationContextByAbstractSyntax
gdcm::network::AAssociateRQPDU, 97
GetPresentationContextByID
gdcm::network::AAssociateRQPDU, 97
GetPresentationContextID
gdcm::network::PresentationContextAC, 859
gdcm::network::PresentationContextRQ, 866
gdcm::network::PresentationDataValue, 869
gdcm::PresentationContext, 857
GetPresentationContextIDFromPresentationContext
gdcm::network::ULConnection, 1243
GetPresentationContextRQByID
gdcm::network::ULConnection, 1243
GetPresentationContexts
gdcm::network::AAssociateRQPDU, 97
gdcm::network::ULConnection, 1243
gdcm::PresentationContextGenerator, 863
GetPresentationDataValue
gdcm::network::PDataTFPDU, 796
GetPrettyPrint
gdcm::JSON, 663
GetPrimitiveData
gdcm::MeshPrimitive, 708, 709
GetPrimitivesData
gdcm::MeshPrimitive, 709
GetPrimitiveType
gdcm::MeshPrimitive, 709
GetPrintStyle
gdcm::Printer, 873
gdcm::XMLPrinter, 1421
GetPrivateCreator
gdcm::DataSet, 332
gdcm::Tag, 1127
GetPrivateDict
gdcm::Dicts, 374
gdcm::XMLPrivateDictReader, 1425
GetPrivateMapping
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1064
GetPrivateMappings
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1064
GetPrivateOrderedValues
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1064
GetPrivateTag
gdcm::DataSet, 332
GetPrivateValue
gdcm::Scanner2, 950
gdcm::StrictScanner2, 1064
GetPrivateValues
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1064
GetProcessingAlgorithm
gdcm::Surface, 1087
GetProgress
gdcm::ProgressEvent, 885
GetPropertyCategory
gdcm::Segment, 958
GetPropertyType
gdcm::Segment, 958
GetPropertyTypeModifiers
gdcm::Segment, 958
GetProtocol
gdcm::network::ULConnection, 1243
GetPublicDict
gdcm::Dicts, 374
GetPublicMapping
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1064
GetPublicMappings
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1064
GetPublicOrderedValues
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1065
GetPublicValue
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1065
GetPublicValues
gdcm::Scanner2, 951
gdcm::StrictScanner2, 1065
GetQuality
gdcm::JPEG2000Codec, 638
gdcm::JPEGCodec, 652
GetQueryDataSet
gdcm::BaseQuery, 177, 178

GetQueryLevel
gdcm::QueryBase, 894
gdcm::QueryImage, 898
gdcm::QueryPatient, 900
gdcm::QuerySeries, 903
gdcm::QueryStudy, 905
GetQueryLevelFromQueryRoot
gdcm::BaseRootQuery, 183
GetQueryLevelFromString
gdcm::BaseRootQuery, 183
GetQueryLevelString
gdcm::BaseRootQuery, 183
GetRate
gdcm::JPEG2000Codec, 638
GetRAWMD5FromFile
vtkGDCMTesting, 1353
GetRealWorldValueMappingContent
gdcm::ImageHelper, 574
GetReason
gdcm::network::PresentationContextAC, 859
GetRecommendedDisplayCIELabValue
gdcm::Surface, 1087
GetRecommendedDisplayGrayscaleValue
gdcm::Surface, 1087
GetRecommendedPresentationOpacity
gdcm::Surface, 1087
GetRecommendedPresentationType
gdcm::Surface, 1087
GetRef
gdcm::IODEntry, 607
GetReferencedFrameOfReferenceClassUID
vtkRTStructSetProperties, 1400
GetReferencedFrameOfReferenceInstanceUID
vtkRTStructSetProperties, 1400
GetRegion
gdcm::ImageRegionReader, 586
GetRequiredDataSet
gdcm::ModalityPerformedProcedureStepCreateQuery, 713
gdcm::ModalityPerformedProcedureStepSetQuery, 716
GetRequiredTags
gdcm::QueryBase, 894
gdcm::QueryImage, 898
gdcm::QueryPatient, 900
gdcm::QuerySeries, 903
gdcm::QueryStudy, 905
GetRescaleInterceptSlopeValue
gdcm::ImageHelper, 574
GetReserved43_74
gdcm::network::AAssociateRQPDU, 97
GetResponses
gdcm::network::ULBasicCallback, 1239
GetRetired
gdcm::DictEntry, 366
GetRoot
gdcm::UIDGenerator, 1160
GetRows
gdcm::Bitmap, 199
gdcm::Overlay, 784
GetRTStructSeriesUIDs
gdcm::DirectoryHelper, 384
GetSamplesPerPixel
gdcm::PhotometricInterpretation, 818
gdcm::PixelFormat, 824
GetScalarType
gdcm::PixelFormat, 824
GetScalarTypeAsString
gdcm::PixelFormat, 824
GetScanner
gdcm::DICOMDIRGenerator, 355
GetSecondaryCaptureImagePlaneModule
gdcm::ImageHelper, 574
GetSegment
gdcm::SegmentWriter, 973
GetSegmentAlgorithmName
gdcm::Segment, 958
GetSegmentAlgorithmType
gdcm::Segment, 958
GetSegmentDescription
gdcm::Segment, 959
GetSegmentLabel
gdcm::Segment, 959
GetSegmentNumber
gdcm::Segment, 959
GetSegments
gdcm::SegmentReader, 969
gdcm::SegmentWriter, 973
GetSelectedPrivateGroupOffsetFromFile
gdcm::Testing, 1139
GetSelectedTagsOffsetFromFile
gdcm::Testing, 1139
GetSequenceOfFragments
gdcm::DataElement, 312, 313
GetSeriesUIDsBySOPClassUID
gdcm::DirectoryHelper, 384
GetSize
gdcm::VR, 1298
vtkImageColorViewer, 1370
GetSizeof
gdcm::VR, 1298
GetSliceArray
gdcm::MrProtocol, 736
GetSliceMax
vtkImageColorViewer, 1370
GetSliceMin
vtkImageColorViewer, 1371
GetSliceRange

vtkImageColorViewer, 1371
GetSlope
gdcm::Image, 533
gdcm::Rescaler, 924
GetSOPClassUID
gdcm::DirectoryHelper, 384
GetSOPClassUIDFromIOD
gdcm::SOPClassUIDToIOD, 1023
GetSOPClassUIDToIOD
gdcm::SOPClassUIDToIOD, 1023
GetSOPClassUIDToIODs
gdcm::SOPClassUIDToIOD, 1024
GetSOPInstanceUID
gdcm::BaseQuery, 178
GetSourceApplicationEntityTitle
gdcm::FileMetaInformation, 477
GetSourceDirectory
gdcm::Testing, 1140
GetSpacing
gdcm::Image, 533
GetSpacingTagFromMediaStorage
gdcm::ImageHelper, 575
GetSpacingValue
gdcm::ImageHelper, 575
GetStart
gdcm::ByteBuffer, 214
GetState
gdcm::network::ULConnection, 1243
GetStateIndex
gdcm::network, 80
GetSTATES
gdcm::Surface, 1088
GetSTATESString
gdcm::Surface, 1088
GetStream
gdcm::Trace, 1144
GetStreamCurrentPosition
gdcm::Reader, 914
GetStreamOffsetFromFile
gdcm::Testing, 1140
GetStreamPtr
gdcm::Reader, 915
gdcm::Writer, 1414
GetString
gdcm::MediaStorage, 696
gdcm::PhotometricInterpretation, 818
gdcm::TransferSyntax, 1150
gdcm::UIDs, 1196
GetStringValueFromTag
gdcm::DirectoryHelper, 385
GetStructureSetObservationNumber
vtkRTStructSetProperties, 1401
GetStructureSetROIDescription
vtkRTStructSetProperties, 1401
GetStructureSetROIGenerationAlgorithm
vtkRTStructSetProperties, 1401
GetStructureSetROIName
vtkRTStructSetProperties, 1401
GetStructureSetROINumber
vtkRTStructSetProperties, 1401
GetStructureSetROIObservationLabel
vtkRTStructSetProperties, 1401
GetStructureSetROIRefFrameRefUID
vtkRTStructSetProperties, 1401
GetStructureSetRTROIInterpretedType
vtkRTStructSetProperties, 1401
GetSurface
gdcm::Segment, 959
GetSurfaceComments
gdcm::Surface, 1088
GetSurfaceCount
gdcm::Segment, 959
GetSurfaceNumber
gdcm::Surface, 1088
GetSurfaceProcessing
gdcm::Surface, 1088
GetSurfaceProcessingDescription
gdcm::Surface, 1088
GetSurfaceProcessingRatio
gdcm::Surface, 1088
GetSurfaces
gdcm::Segment, 959
GetSwapCode
gdcm::TransferSyntax, 1150
GetSwapCodeString
gdcm::SwapCode, 1105
GetSyngoDT
gdcm::CSAElement, 284
GetTable
gdcm::SequenceOfFragments, 979
GetTableEntry
gdcm::Table, 1116
GetTag
gdcm::AnonymizeEvent, 105
gdcm::Attribute< Group, Element, TVR, TVM >, 133
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 140
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 150
gdcm::DataElement, 313
GetTagListByLevel
gdcm::BaseRootQuery, 183
gdcm::FindPatientRootQuery, 504
gdcm::FindStudyRootQuery, 508
gdcm::MovePatientRootQuery, 729
gdcm::MoveStudyRootQuery, 733
gdcm::WLMFindQuery, 1409
GetTempDirectory

gdcm::Testing, 1140
GetTempDirectoryW
gdcm::Testing, 1140
GetTempFilename
gdcm::Testing, 1140
GetTempFilenameW
gdcm::Testing, 1141
GetTimeout
gdcm::network::ARTIMTimer, 126
gdcm::ServiceClassUser, 1001
GetTimer
gdcm::network::ULConnection, 1243
GetTimezoneOffsetFromUTC
gdcm::System, 1112
GetToplevel
gdcm::Directory, 382
GetToshibaMECMR3Tag
gdcm::MEC_MR3, 689
GetTransferSyntax
gdcm::Bitmap, 199
gdcm::ImageChangeTransferSyntax, 551
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 866
gdcm::PresentationContext, 857
GetTransferSyntaxes
gdcm::network::PresentationContextRQ, 866
GetTransferSyntaxString
gdcm::UIDs, 1196
GetTransferSyntaxStrings
gdcm::UIDs, 1196
GetTSString
gdcm::TransferSyntax, 1150
GetTSType
gdcm::TransferSyntax, 1150
GetType
gdcm::ModuleEntry, 724
gdcm::Orientation, 778
gdcm::Overlay, 784
gdcm::PhotometricInterpretation, 819
GetTypeAsEnum
gdcm::Overlay, 784
GetTypeFromTag
gdcm::Defs, 346
gdcm::IOD, 605
GetTypeOfData
gdcm::Curve, 306
GetTypeOfDataDescription
gdcm::Curve, 306
GetTypeString
gdcm::Type, 1157
GetTypeType
gdcm::Type, 1157
GetUIDName
gdcm::UIDs, 1196
GetUIDString
gdcm::UIDs, 1196
GetUniqueTags
gdcm::QueryBase, 894
gdcm::QueryImage, 898
gdcm::QueryPatient, 901
gdcm::QuerySeries, 903
gdcm::QueryStudy, 906
GetUnpackBuffer
gdcm::Overlay, 785
GetUnpackBufferLength
gdcm::Overlay, 785
GetUsage
gdcm::IODEntry, 607
GetUsageString
gdcm::Usage, 1272
GetUsageType
gdcm::IODEntry, 607
gdcm::Usage, 1272
GetUserData
gdcm::Parser, 793
GetUserInformation
gdcm::network::AAssociateACPDU, 90
gdcm::network::AAssociateRQPDU, 97
GetValidatedFile
gdcm::Validate, 1278
GetValidDataSet
gdcm::WLMFindQuery, 1410
GetValue
gdcm::Attribute< Group, Element, TVR, TVM >, 133, 134
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151
gdcm::CSAElement, 284
gdcm::DataElement, 313
gdcm::Element< TVR, TVM >, 394
gdcm::Element< TVR, VM::VM1_n >, 401
gdcm::PDBElement, 799
gdcm::Scanner, 941
gdcm::StrictScanner, 1054
GetValueAsSQ
gdcm::DataElement, 314
GetValues
gdcm::Attribute< Group, Element, TVR, TVM >, 134
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151
gdcm::Element< TVR, TVM >, 394
gdcm::Scanner, 941
gdcm::Scanner2, 952
gdcm::StrictScanner, 1054, 1055

gdcm::StrictScanner2, 1065
GetVectorAccuracy
gdcm::Surface, 1088
GetVectorCoordinateData
gdcm::Surface, 1088, 1089
GetVectorDimensionality
gdcm::Surface, 1089
GetVersion
gdcm::MrProtocol, 736
gdcm::Version, 1285
GetVIEWType
gdcm::Surface, 1089
GetVIEWTypeString
gdcm::Surface, 1089
GetVL
gdcm::DataElement, 314
GetVL16Max
gdcm::VL, 1287
GetVL32Max
gdcm::VL, 1287
GetVM
gdcm::Attribute< Group, Element, TVR, TVM >, 134
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 146
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 148
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 156
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 158
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 161
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 163
gdcm::CSAElement, 284
gdcm::CSAHeaderDictEntry, 297
gdcm::DictEntry, 366
gdcm::Element< TVR, TVM >, 394
gdcm::Element< TVR, VM::VM1_n >, 401
GetVMString
gdcm::VM, 1293
GetVMType
gdcm::VM, 1293
GetVMTypeFromLength
gdcm::VM, 1293
GetVoidPointer
gdcm::ByteValue, 222
GetVR
gdcm::Attribute< Group, Element, TVR, TVM >, 134
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151
gdcm::CSAElement, 285
gdcm::CSAHeaderDictEntry, 298
gdcm::DataElement, 314
gdcm::DictEntry, 366
gdcm::Element< TVR, TVM >, 394
gdcm::Element< TVR, VM::VM1_n >, 401
GetVRFromTag
gdcm, 64
GetVRString
gdcm::VR, 1298
GetVRStringFromFile
gdcm::VR, 1298
GetVRType
gdcm::VR, 1298
GetVRTypeFromFile
gdcm::VR, 1299
GetVTKDataRoot
vtkGDCMTesting, 1353
GetWarningFlag
gdcm::Trace, 1144
GetWarningStream
gdcm::Trace, 1144
GetWindowName
vtkImageColorViewer, 1371
GetXMax
gdcm::BoxRegion, 211
GetXMin
gdcm::BoxRegion, 211
GetYMax
gdcm::BoxRegion, 211
GetYMin
gdcm::BoxRegion, 211
GetZMax
gdcm::BoxRegion, 212
GetZMin
gdcm::BoxRegion, 212
GetZSpacing
gdcm::IPPSorter, 613
GetZSpacingTagFromMediaStorage
gdcm::ImageHelper, 575
GetZSpacingTolerance
gdcm::IPPSorter, 614
Global
gdcm::Defs, 347
gdcm::Dicts, 375
gdcm::Global, 515
GlobalInstance
gdcm, 74
GrabOverlayFromPixelData
gdcm::Overlay, 785

Graphics
gdcm::Overlay, 782
GRAY
gdcm::LookupTable, 674
GrayscalePlanarMPRVolumetricPresentationStateStorage
gdcm::UIDs, 1184
GrayscaleSoftcopyPresentationStateStorageSOPClass
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
GREEN
gdcm::LookupTable, 674
green
gdcm::terminal, 82
GroupDict
gdcm::GroupDict, 519
GroupStringVector
gdcm::GroupDict, 518
GuessFromModality
gdcm::MediaStorage, 697

HandleBulkData
gdcm::XMLPrinter, 1421
HandleDataSet
gdcm::network::ULBasicCallback, 1240
gdcm::network::ULConnectionCallback, 1246
gdcm::network::ULWritingCallback, 1261
HandleDescription
gdcm::XMLDictReader, 1419
gdcm::XMLPrivateDictReader, 1425
HandleEntry
gdcm::XMLDictReader, 1419
gdcm::XMLPrivateDictReader, 1425
HandleEvent
gdcm::network::ULTransitionTable, 1259
HandleIOD
gdcm::TableReader, 1120
HandleIODEntry
gdcm::TableReader, 1120
HandleMacro
gdcm::TableReader, 1120
HandleMacroEntry
gdcm::TableReader, 1120
HandleMacroEntryDescription
gdcm::TableReader, 1120
HandleModule
gdcm::TableReader, 1120
HandleModuleEntry
gdcm::TableReader, 1121
HandleModuleEntryDescription
gdcm::TableReader, 1121
HandleModuleInclude
gdcm::TableReader, 1121
HandleResponse
gdcm::network::ULBasicCallback, 1240
gdcm::network::ULConnectionCallback, 1246
gdcm::network::ULWritingCallback, 1261
HangingProtocolInformationModelFIND
gdcm::UIDs, 1182
HangingProtocolInformationModelGET
gdcm::UIDs, 1186
HangingProtocolInformationModelMOVE
gdcm::UIDs, 1182
HangingProtocolStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1182
HardcopyColorImageStorage
gdcm::MediaStorage, 695
HardcopyColorImageStorageSOPClassRetired
gdcm::UIDs, 1179
HardcopyGrayscaleImageStorage
gdcm::MediaStorage, 694
HardcopyGrayscaleImageStorageSOPClassRetired
gdcm::UIDs, 1179
HasObserver
gdcm::Subject, 1079
HemodynamicWaveformStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
HEVCH_265Main10ProfileLevel5_1
gdcm::UIDs, 1184
HEVCH_265MainProfileLevel5_1
gdcm::UIDs, 1184
hidden
gdcm::terminal, 82
HITACHI
gdcm::EquipmentManufacturer, 431
HotIronColorPaletteSOPInstance
gdcm::UIDs, 1184
HotMetalBlueColorPaletteSOPInstance
gdcm::UIDs, 1183
HSV
gdcm::PhotometricInterpretation, 817

ICBM452T1FrameofReference
gdcm::UIDs, 1178
ICBMSingleSubjectMRIFrameofReference
gdcm::UIDs, 1178
ICD11
gdcm::UIDs, 1183
Icon
gdcm::Pixmap, 834
IconDataScalarType
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
IconImage
gdcm, 59
IconImageDataExtent
vtkGDCMImageReader, 1318

vtkGDCMImageReader2, 1330
IconImageFilter
gdcm::IconImageFilter, 521
IconImageGenerator
gdcm::IconImageGenerator, 524
IconNumberOfScalarComponents
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
ID
gdcm::PresentationContext, 858
ignore_char
gdcm::ignore_char, 527
Image
gdcm::Image, 532
ImageActor
vtkImageColorViewer, 1377
ImageApplyLookupTable
gdcm::ImageApplyLookupTable, 538
ImageBiomarkerStandardisationInitiative
gdcm::UIDs, 1184
ImageChangePhotometricInterpretation
gdcm::ImageChangePhotometricInterpretation, 542
gdcm::ImageCodec, 564
ImageChangePlanarConfiguration
gdcm::ImageChangePlanarConfiguration, 547
ImageChangeTransferSyntax
gdcm::Bitmap, 204
gdcm::ImageChangeTransferSyntax, 551
ImageCodec
gdcm::ImageCodec, 557
ImageConverter
gdcm::ImageConverter, 566
ImageFormat
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
ImageFragmentSplitter
gdcm::ImageFragmentSplitter, 569
ImageNumberOrdering
gdcm::SerieHelper, 993
ImageOrientationPatient
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
ImageOverlayBoxSOPClassRetired
gdcm::UIDs, 1179
ImagePositionPatient
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
ImagePositionPatientOrdering
gdcm::SerieHelper, 994
ImageReader
gdcm::ImageReader, 580
ImageRegionReader
gdcm::ImageRegionReader, 585
gdcm::JPEG2000Codec, 640
gdcm::JPEGCodec, 654
gdcm::JPEGLSCodec, 662
gdcm::RLECodec, 933
ImageToImageFilter
gdcm::ImageToImageFilter, 589
ImageWriter
gdcm::ImageWriter, 593
ImplantAssemblyTemplateInformationModelFIND
gdcm::UIDs, 1186
ImplantAssemblyTemplateInformationModelGET
gdcm::UIDs, 1186
ImplantAssemblyTemplateInformationModelMOVE
gdcm::UIDs, 1186
ImplantAssemblyTemplateStorage
gdcm::UIDs, 1186
ImplantationPlanSRStorage
gdcm::UIDs, 1185
ImplantTemplateGroupInformationModelFIND
gdcm::UIDs, 1186
ImplantTemplateGroupInformationModelGET
gdcm::UIDs, 1186
ImplantTemplateGroupInformationModelMOVE
gdcm::UIDs, 1186
ImplantTemplateGroupStorage
gdcm::UIDs, 1186
ImplementationClassUIDSub
gdcm::network::ImplementationClassUIDSub, 595
ImplementationUIDSub
gdcm::network::ImplementationUIDSub, 596
ImplementationVersionNameSub
gdcm::network::ImplementationVersionNameSub, 597
Implicit
gdcm::TransferSyntax, 1148
ImplicitVRBigEndianACRNEMA
gdcm::TransferSyntax, 1149
ImplicitVRBigEndianPrivateGE
gdcm::TransferSyntax, 1149
ImplicitVRLittleEndian
gdcm::TransferSyntax, 1149
ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM
gdcm::UIDs, 1177
IncompleteLUT
gdcm::LookupTable, 679
InitFromRQ
gdcm::network::AAssociateACPDU, 90
Initialize
gdcm::network::ULConnectionInfo, 1248
InitializeBlueLUT
gdcm::LookupTable, 677
InitializeConnection
gdcm::network::ULConnection, 1243
gdcm::ServiceClassUser, 1001
Initialized

gdcm::LookupTable, 677
InitializeDataSet
gdcm::BaseRootQuery, 183
gdcm::FindPatientRootQuery, 505
gdcm::FindStudyRootQuery, 509
gdcm::MovePatientRootQuery, 730
gdcm::MoveStudyRootQuery, 734
gdcm::WLMFindQuery, 1410
InitializeGreenLUT
gdcm::LookupTable, 677
InitializeIncomingConnection
gdcm::network::ULConnection, 1243
InitializeLUT
gdcm::LookupTable, 677
InitializeRedLUT
gdcm::LookupTable, 677
InitializeRTStructSet
vtkGDCMPolyDataWriter, 1349
InitOpenSSL
gdcm::OpenSSLCryptoFactory, 767
Input
gdcm::BitmapToBitmapFilter, 208
Insert
gdcm::CommandDataSet, 263
gdcm::DataSet, 332
gdcm::FileMetaInformation, 478
gdcm::GroupDict, 519
InsertDataElement
gdcm::DataSet, 332
gdcm::Item, 620
InsertEntry
gdcm::Table, 1116
InstallPipeline
vtkImageColorViewer, 1371
InstanceAvailabilityNotificationSOPClass
gdcm::UIDs, 1182
INT12
gdcm::PixelFormat, 822
INT16
gdcm::PixelFormat, 822
INT32
gdcm::PixelFormat, 822
INT64
gdcm::PixelFormat, 822
INT8
gdcm::PixelFormat, 822
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumber16bit
gdcm::UIDs, 1183
Interactor
vtkImageColorViewer, 1377
InteractorStyle
vtkImageColorViewer, 1377
INTERFILE
gdcm::CSAHeader, 290
Internal
gdcm::ApplicationEntity, 120
gdcm::Attribute< Group, Element, TVR, TVM >, 137
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 143
gdcm::Element< TVR, TVM >, 396
gdcm::Element< VR::AS, VM::VM5 >, 417
gdcm::LookupTable, 679
gdcm::UI, 1158
InternalCode
gdcm::Coder, 252
gdcm::JPEG12Codec, 627
gdcm::JPEG16Codec, 632
gdcm::JPEG8Codec, 645
Internals
vtkRTStructSetProperties, 1404
IntraocularLensCalculationsStorage
gdcm::UIDs, 1185
IntravascularOpticalCoherenceTomographyImageStorageForPresentation
gdcm::UIDs, 1184
IntravascularOpticalCoherenceTomographyImageStorageForProcessing
gdcm::UIDs, 1184
INVALID
gdcm::VR, 1296
Invalid
gdcm::Overlay, 782
gdcm::Usage, 1271
InverseRescale
gdcm::Rescaler, 924
InverseRescaleFunctionIntoBestFit
gdcm::Rescaler, 924
InvokeEvent
gdcm::Subject, 1079, 1080
IOD
gdcm::IOD, 604
IODEntry
gdcm::IODEntry, 607
IODMapType
gdcm::IODs, 609
IODMapTypeConstIterator
gdcm::IODs, 609
IODName
gdcm::IODs, 609
IODs
gdcm::IODs, 610
IPPSorter
gdcm::IPPSorter, 613
IS
gdcm::VR, 1296
IsAETitleValid
gdcm::network::AAssociateRQPDU, 97
IsASCII
gdcm::VR, 1299
IsASCII2

gdcm::VR, 1299
IsBinary
gdcm::VR, 1299
IsBinary2
gdcm::VR, 1299
IsCompatible
gdcm::PixelFormat, 825
IsDual
gdcm::VR, 1299
IsEmpty
gdcm::Bitmap, 199
gdcm::ByteValue, 222
gdcm::CSAElement, 285
gdcm::CSAHeaderDict, 295
gdcm::Curve, 306
gdcm::DataElement, 315
gdcm::DataSet, 333
gdcm::Defs, 346
gdcm::Dict, 359
gdcm::Dicts, 374
gdcm::Filename, 482
gdcm::Macros, 685
gdcm::Modules, 726
gdcm::Overlay, 785
gdcm::Preamble, 853
gdcm::PrivateDict, 876
gdcm::SegmentHelper::BasicCodedEntry, 187
gdcm::SequenceOfItems, 987
IsEncapsulated
gdcm::TransferSyntax, 1150
IsEncoded
gdcm::TransferSyntax, 1151
IsExplicit
gdcm::TransferSyntax, 1151
IsFrameEncoder
gdcm::ImageCodec, 561
gdcm::JPEG2000Codec, 638
gdcm::JPEGCodec, 652
gdcm::JPEGLSCodec, 661
gdcm::RLECodec, 932
IsGroupLength
gdcm::Tag, 1127
IsGroupXX
gdcm::Tag, 1127
IsIdentical
gdcm::Filename, 483
IsIllegal
gdcm::Tag, 1127
IsImage
gdcm::MediaStorage, 697
IsImplicit
gdcm::TransferSyntax, 1151
IsInPixelData
gdcm::Overlay, 785
IsKey
gdcm::Scanner, 941
gdcm::Scanner2, 952
gdcm::StrictScanner, 1055
gdcm::StrictScanner2, 1065
IsLastFragment
gdcm::network::AAbortPDU, 86
gdcm::network::AAssociateACPDU, 90
gdcm::network::AAssociateRJPDU, 93
gdcm::network::AAssociateRQPDU, 98
gdcm::network::AReleaseRPPDU, 122
gdcm::network::AReleaseRQPDU, 124
gdcm::network::BasePDU, 174
gdcm::network::PDataTFPDU, 796
IsLossless
gdcm::PhotometricInterpretation, 819
gdcm::TransferSyntax, 1151
IsLossy
gdcm::Bitmap, 200
gdcm::ImageCodec, 561
gdcm::PhotometricInterpretation, 819
gdcm::TransferSyntax, 1151
IsOdd
gdcm::VL, 1287
IsPresentationContextAccepted
gdcm::ServiceClassUser, 1001
IsPrintable
gdcm::ByteValue, 223
IsPrivate
gdcm::Tag, 1127
IsPrivateCreator
gdcm::Tag, 1127
IsPublic
gdcm::Tag, 1128
IsRetired
gdcm::PhotometricInterpretation, 819
IsRGB8
gdcm::LookupTable, 677
IsRowEncoder
gdcm::ImageCodec, 562
gdcm::JPEG2000Codec, 639
gdcm::JPEGCodec, 652
gdcm::JPEGLSCodec, 661
gdcm::RLECodec, 932
IsSameColorSpace
gdcm::PhotometricInterpretation, 819
IsStateSuspension
gdcm::JPEG12Codec, 627
gdcm::JPEG16Codec, 632
gdcm::JPEG8Codec, 645
gdcm::JPEGCodec, 652
IsSwap
gdcm::VR, 1299
IsTransferSyntaxCompatible

gdcm::Bitmap, 200
IsUndefined
gdcm::MediaStorage, 697
gdcm::VL, 1287
IsUndefinedLength
gdcm::DataElement, 315
gdcm::SequenceOfItems, 987
IsUnique
gdcm::DictEntry, 366
IsValid
gdcm::ApplicationEntity, 119
gdcm::BoxRegion, 212
gdcm::CodeString, 256
gdcm::DirectionCosines, 379
gdcm::DPath, 387
gdcm::FileMetaInformation, 478
gdcm::ImageCodec, 562
gdcm::JPEGCodec, 653
gdcm::LO, 671
gdcm::PixelFormat, 825
gdcm::Preamble, 854
gdcm::Region, 921
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1071
gdcm::TagPath, 1134
gdcm::TransferSyntax, 1151
gdcm::UIDGenerator, 1160
gdcm::UUIDGenerator, 1277
gdcm::VM, 1293
gdcm::VR, 1299, 1300
IsVRFile
gdcm::VR, 1300
IsZero
gdcm::Overlay, 785
Item
gdcm::Item, 619
Items
gdcm::SequenceOfItems, 989
ItemVector
gdcm::SequenceOfItems, 985
Iterator
gdcm::CSAHeaderDict, 294
gdcm::DataSet, 328
gdcm::Dict, 357
gdcm::SequenceOfFragments, 977
gdcm::SequenceOfItems, 985
iterator
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1069
ItFileSetHt
gdcm::SerieHelper, 994
IVOCTForPresentation
gdcm::MediaStorage, 695
IVOCTForProcessing
gdcm::MediaStorage, 695

Join
gdcm::Filename, 483
JPEG12Codec
gdcm::JPEG12Codec, 627
JPEG16Codec
gdcm::JPEG16Codec, 632
JPEG2000
gdcm::TransferSyntax, 1149
JPEG2000_COMPRESSION
vtkGDCMImageWriter, 1334
JPEG2000Codec
gdcm::JPEG2000Codec, 636
JPEG2000ImageCompression
gdcm::UIDs, 1177
JPEG2000ImageCompressionLosslessOnly
gdcm::UIDs, 1177
JPEG2000Lossless
gdcm::TransferSyntax, 1149
JPEG2000Part2
gdcm::TransferSyntax, 1149
JPEG2000Part2Lossless
gdcm::TransferSyntax, 1149
JPEG2000Part2MulticomponentImageCompression
gdcm::UIDs, 1177
JPEG2000Part2MulticomponentImageCompressionLosslessOnly
gdcm::UIDs, 1177
JPEG8Codec
gdcm::JPEG8Codec, 644
JPEG_COMPRESSION
vtkGDCMImageWriter, 1334
JPEGBaselineProcess1
gdcm::TransferSyntax, 1149
JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageComp
gdcm::UIDs, 1177
JPEGCodec
gdcm::JPEGCodec, 649
JPEGExtendedHierarchicalProcess1618Retired
gdcm::UIDs, 1177
JPEGExtendedHierarchicalProcess1719Retired
gdcm::UIDs, 1177
JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageC
gdcm::UIDs, 1177
JPEGExtendedProcess2_4
gdcm::TransferSyntax, 1149
JPEGExtendedProcess35Retired
gdcm::UIDs, 1177
JPEGExtendedProcess3_5
gdcm::TransferSyntax, 1149
JPEGFullProgressionHierarchicalProcess2426Retired
gdcm::UIDs, 1177

JPEGFullProgressionHierarchicalProcess2527Retired
gdcm::UIDs, 1177
JPEGFullProgressionNonHierarchicalProcess1012Retired
gdcm::UIDs, 1177
JPEGFullProgressionNonHierarchicalProcess1113Retired
gdcm::UIDs, 1177
JPEGFullProgressionProcess10_12
gdcm::TransferSyntax, 1149
JPEGLosslessHierarchicalProcess28Retired
gdcm::UIDs, 1177
JPEGLosslessHierarchicalProcess29Retired
gdcm::UIDs, 1177
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1
gdcm::UIDs, 1177
JPEGLosslessNonHierarchicalProcess14
gdcm::UIDs, 1177
JPEGLosslessNonHierarchicalProcess15Retired
gdcm::UIDs, 1177
JPEGLosslessProcess14
gdcm::TransferSyntax, 1149
JPEGLosslessProcess14_1
gdcm::TransferSyntax, 1149
JPEGLS_COMPRESSION
vtkGDCMImageWriter, 1334
JPEGLSCodec
gdcm::JPEGLSCodec, 658
JPEGLSLossless
gdcm::TransferSyntax, 1149
JPEGLSLosslessImageCompression
gdcm::UIDs, 1177
JPEGLSLossyNearLosslessImageCompression
gdcm::UIDs, 1177
JPEGLSNearLossless
gdcm::TransferSyntax, 1149
JPEGSpectralSelectionHierarchicalProcess2022Retired
gdcm::UIDs, 1177
JPEGSpectralSelectionHierarchicalProcess2123Retired
gdcm::UIDs, 1177
JPEGSpectralSelectionNonHierarchicalProcess68Retired
gdcm::UIDs, 1177
JPEGSpectralSelectionNonHierarchicalProcess79Retired
gdcm::UIDs, 1177
JPEGSpectralSelectionProcess6_8
gdcm::TransferSyntax, 1149
JPIPReferenced
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1177
JPIPReferencedDeflate
gdcm::UIDs, 1178
JSON
gdcm::JSON, 662
JunkAfterDocElementError
gdcm::Parser, 792

KAKADUCodec
gdcm::KAKADUCodec, 667
KeratometryMeasurementsStorage
gdcm::UIDs, 1184
KeyField
gdcm::CSAElement, 287
KeyObjectSelectionDocument
gdcm::MediaStorage, 694
KeyObjectSelectionDocumentStorage
gdcm::UIDs, 1181
KeyValuePairArrayType
gdcm::CompositeNetworkFunctions, 267
KeyValuePairArrayTypeDefaultTransferSyntaxforLosslessJPEGImageCompression
gdcm::CompositeNetworkFunctions, 267
KODAK
gdcm::EquipmentManufacturer, 431

LD_ALL
gdcm, 63
LD_NOSEQ
gdcm, 63
LD_NOSHADOW
gdcm, 63
LD_NOSHADOWSEQ
gdcm, 63
LeadECGWaveformStorage
gdcm::MediaStorage, 693
LegacyConvertedEnhancedCTImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1183
LegacyConvertedEnhancedMRImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1183
LegacyConvertedEnhancedPETImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1183
LensometryMeasurementsStorage
gdcm::UIDs, 1184
Level
vtkImageMapToWindowLevelColors2, 1387
LINE
gdcm::MeshPrimitive, 707
ListCharSets
gdcm::QueryFactory, 895
LittleEndian
gdcm::SwapCode, 1105
LO
gdcm::LO, 670, 671
gdcm::VR, 1296
Load
gdcm::Directory, 382
gdcm::MrProtocol, 736
LOADBULKDATA
gdcm::XMLPrinter, 1421

LoadDefault
gdcm::CSAHeaderDict, 295
gdcm::Dict, 359
gdcm::PrivateDict, 876
LoadDefaults
gdcm::Defs, 346
gdcm::Dicts, 374
LoadFromDataElement
gdcm::CSAHeader, 292
gdcm::PDBHeader, 802
LoadFromFile
gdcm::Defs, 346
LoadIconImage
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
LoadImageFromFiles
gdcm::DirectoryHelper, 385
LoadOverlays
vtkGDCMImageReader, 1318
vtkGDCMImageReader2, 1330
LoadResourcesFiles
gdcm::Global, 516
LoadSingleFile
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1323
Locate
gdcm::Global, 517
LOComp
gdcm, 59
LodModeType
gdcm, 63
LookupTable
gdcm::LookupTable, 674, 675
vtkImageMapToColors16, 1383
LookupTableType
gdcm::LookupTable, 674
LossyFlag
gdcm::Bitmap, 205
gdcm::ImageCodec, 564
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
LT
gdcm::VR, 1296
LTComp
gdcm, 59
LUT
gdcm::Bitmap, 205
gdcm::ImageCodec, 564
LUTPtr
gdcm::Bitmap, 195
gdcm::ImageCodec, 557

m_char
gdcm::ignore_char, 527
m_ConstMemberFunction
gdcm::MemberCommand< T >, 704
m_DataSet
gdcm::DataSetEvent, 340
m_MemberFunction
gdcm::MemberCommand< T >, 704
gdcm::SimpleMemberCommand< T >, 1012
m_This
gdcm::MemberCommand< T >, 704
gdcm::SimpleMemberCommand< T >, 1012
Macro
gdcm::Macro, 682
MacroEntry
gdcm, 59
Macros
gdcm::Macros, 685
mAction
gdcm::network::Transition, 1155
MacularGridThicknessandVolumeReportStorage
gdcm::UIDs, 1185
magenta
gdcm::terminal, 82
MAGNIFIED
gdcm::Spacing, 1030
MakeDirectory
gdcm::System, 1112
MakeNew
gdcm::network::Transition, 1155
MakeObject
gdcm::AnonymizeEvent, 105
gdcm::DataEvent, 324
gdcm::DataSetEvent, 339
gdcm::Event, 434
gdcm::FileNameEvent, 486
gdcm::ProgressEvent, 885
MammographyCADSR
gdcm::MediaStorage, 694
MammographyCADSRStorage
gdcm::UIDs, 1181
Mandatory
gdcm::Usage, 1271
MANUAL
gdcm::Segment, 957
MapCSAHeaderDictEntry
gdcm::CSAHeaderDict, 294
MapDictEntry
gdcm::Dict, 357
MapIODEntry
gdcm::IOD, 604
MapModuleEntry
gdcm::Macro, 682
gdcm::Module, 719
MappingType
gdcm::Scanner, 938

gdcm::StrictScanner, 1051
MapScalarsThroughTable2
vtkLookupTable16, 1395
MapTableEntry
gdcm::Table, 1116
MARCONI
gdcm::EquipmentManufacturer, 431
Match
gdcm::DPath, 387
MaximumLengthSub
gdcm::network::MaximumLengthSub, 686
MaxLength
gdcm::ApplicationEntity, 120
gdcm::PersonName, 811
MaxNumberOfComponents
gdcm::ApplicationEntity, 120
gdcm::PersonName, 811
MaxPrintLength
gdcm::Printer, 874
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide
gdcm::UIDs, 1184
mConnection
gdcm::network::ULConnectionManager, 1255
MD5DataImagesType
gdcm::Testing, 1136
MD5MetaImagesType
vtkGDCMTesting, 1352
mDataSet
gdcm::BaseQuery, 179
MediaCreationManagementSOPClassUID
gdcm::UIDs, 1179
MediaStorage
gdcm::MediaStorage, 695
MediaStorageDataFilesType
gdcm::Testing, 1136
MediaStorageDirectoryStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1178
MedicalImageProperties
vtkGDCMImageReader, 1319
vtkGDCMPolyDataReader, 1346
vtkGDCMPolyDataWriter, 1350
mElementOffsets
gdcm::StreamImageWriter, 1046
mElementOffsets1
gdcm::StreamImageWriter, 1046
MemberCommand
gdcm::MemberCommand< T >, 702
mEnd
gdcm::network::Transition, 1155
MeshPrimitive
gdcm::MeshPrimitive, 708
MessageID
gdcm::network::CEchoRQ, 232
MetaInformationTS
gdcm::FileMetaInformation, 480
mHelpDescription
gdcm::BaseRootQuery, 184
mImage
gdcm::BaseRootQuery, 184
mImplicit
gdcm::network::ULConnectionCallback, 1247
ModalityPerformedProcedureStepCreateQuery
gdcm::ModalityPerformedProcedureStepCreateQuery, 712
ModalityPerformedProcedureStepNotificationSOPClass
gdcm::UIDs, 1179
ModalityPerformedProcedureStepRetrieveSOPClass
gdcm::UIDs, 1178
ModalityPerformedProcedureStepSetQuery
gdcm::ModalityPerformedProcedureStepSetQuery, 716
ModalityPerformedProcedureStepSOPClass
gdcm::MediaStorage, 694
gdcm::UIDs, 1178
ModalityWorklistInformationModelFIND
gdcm::UIDs, 1182
Mode
gdcm::terminal, 82
Module
gdcm::Module, 720
ModuleEntry
gdcm::ModuleEntry, 723
ModuleMapType
gdcm::Macros, 684
gdcm::Modules, 726
Modules
gdcm::Modules, 726
MONOCHROME1
gdcm::PhotometricInterpretation, 817
MONOCHROME2
gdcm::PhotometricInterpretation, 817
MouseGenomeInitiativeMGI
gdcm::UIDs, 1183
MovePatientRootQuery
gdcm::MovePatientRootQuery, 729
MoveStudyRootQuery
gdcm::MoveStudyRootQuery, 733
mPatient
gdcm::BaseRootQuery, 184
MPEG2MainProfile
gdcm::TransferSyntax, 1149
MPEG2MainProfileHighLevel
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1183
MPEG2MainProfileMainLevel
gdcm::UIDs, 1178
MPEG4AVCH264BDcompatibleHighProfileLevel4_1

gdcm::TransferSyntax, 1149
MPEG4AVCH264HighProfileLevel4_1
gdcm::TransferSyntax, 1149
MPEG4AVCH_264BDcompatibleHighProfileLevel4_1
gdcm::UIDs, 1183
MPEG4AVCH_264HighProfileLevel4_1
gdcm::UIDs, 1183
MPEG4AVCH_264HighProfileLevel4_2For2DVideo
gdcm::UIDs, 1184
MPEG4AVCH_264HighProfileLevel4_2For3DVideo
gdcm::UIDs, 1184
MPEG4AVCH_264StereoHighProfileLevel4_2
gdcm::UIDs, 1184
MPType
gdcm::MeshPrimitive, 707
MPType_END
gdcm::MeshPrimitive, 707
MRImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
mRootType
gdcm::BaseRootQuery, 185
MrProtocol
gdcm::MrProtocol, 735
MRSpectroscopyStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
MS_END
gdcm::MediaStorage, 695
mSecondaryConnection
gdcm::network::ULConnectionManager, 1255
mSeries
gdcm::BaseRootQuery, 185
mSopInstanceUID
gdcm::BaseQuery, 179
mspFile
gdcm::StreamImageWriter, 1046
mStudy
gdcm::BaseRootQuery, 185
MSType
gdcm::MediaStorage, 692
mTransitions
gdcm::network::ULConnectionManager, 1256
MultiframeGrayscaleByteSecondaryCaptureImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
MultiframeGrayscaleWordSecondaryCaptureImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
MultiframeSingleBitSecondaryCaptureImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
MultiframeTrueColorSecondaryCaptureImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
MultipleVolumeRenderingVolumetricPresentationStateStorage
gdcm::UIDs, 1184
mWriter
gdcm::StreamImageWriter, 1047
mXMax
gdcm::StreamImageWriter, 1047
mXMin
gdcm::StreamImageWriter, 1047
mYMax
gdcm::StreamImageWriter, 1047
mYMin
gdcm::StreamImageWriter, 1047
mZMax
gdcm::StreamImageWriter, 1047
mZMin
gdcm::StreamImageWriter, 1047

N_ACTION_RQ
gdcm::network::DIMSE, 376
N_ACTION_RSP
gdcm::network::DIMSE, 376
N_CREATE_RQ
gdcm::network::DIMSE, 376
N_CREATE_RSP
gdcm::network::DIMSE, 376
N_DELETE_RQ
gdcm::network::DIMSE, 376
N_DELETE_RSP
gdcm::network::DIMSE, 376
N_EVENT_REPORT_RQ
gdcm::network::DIMSE, 376
N_EVENT_REPORT_RSP
gdcm::network::DIMSE, 376
N_GET_RQ
gdcm::network::DIMSE, 376
N_GET_RSP
gdcm::network::DIMSE, 376
N_SET_RQ
gdcm::network::DIMSE, 376
N_SET_RSP
gdcm::network::DIMSE, 376
NAction
gdcm::NormalizedNetworkFunctions, 758
Name
gdcm::ModuleEntry, 725
NameField
gdcm::CSAElement, 287
gdcm::PDBElement, 800
NativeDICOMModel
gdcm::UIDs, 1186
NCreate
gdcm::NormalizedNetworkFunctions, 759
NDelete

gdcm::NormalizedNetworkFunctions, 759
NeedByteSwap
gdcm::Bitmap, 205
gdcm::ImageCodec, 565
NeedOverlayCleanup
gdcm::ImageCodec, 565
NegociatedType
gdcm::TransferSyntax, 1148
NestedMacroEntries
gdcm, 59
NestedModuleEntries
gdcm::NestedModuleEntries, 748
NEventReport
gdcm::NormalizedNetworkFunctions, 759
New
gdcm::Anonymizer, 112
gdcm::Cleaner, 243
gdcm::FileChangeTransferSyntax, 460
gdcm::FileStreamer, 497
gdcm::MemberCommand< T >, 703
gdcm::Scanner, 942
gdcm::Scanner2, 952
gdcm::SequenceOfFragments, 980
gdcm::SequenceOfItems, 987
gdcm::ServiceClassUser, 1001
gdcm::SimpleMemberCommand< T >, 1011
gdcm::StrictScanner, 1055
gdcm::StrictScanner2, 1065
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1323
vtkGDCMImageWriter, 1335
vtkGDCMMedicalImageProperties, 1341
vtkGDCMPolyDataReader, 1344
vtkGDCMPolyDataWriter, 1349
vtkGDCMTesting, 1353
vtkGDCMThreadedImageReader, 1358
vtkGDCMThreadedImageReader2, 1361
vtkImageColorViewer, 1371
vtkImageMapToColors16, 1380
vtkImageMapToWindowLevelColors2, 1385
vtkImagePlanarComponentsToComponents, 1389
vtkImageRGBToYBR, 1391
vtkImageYBRToRGB, 1393
vtkLookupTable16, 1395
vtkRTStructSetProperties, 1402
NewYorkUniversityMelanomaClinicalCooperativeGroup
gdcm::UIDs, 1184
NGet
gdcm::NormalizedNetworkFunctions, 759
NO
gdcm::Surface, 1084
NO_COMPRESSION
vtkGDCMImageWriter, 1334
NoElementsError
gdcm::Parser, 792
NoError
gdcm::Parser, 792
NOMAGIC
gdcm::CSAHeader, 290
NoMemoryError
gdcm::Parser, 792
NoObject
gdcm::MediaStorage, 695
NoOfItemsField
gdcm::CSAElement, 287
Norm
gdcm::DirectionCosines, 379
Normal
gdcm::MrProtocol::Slice, 1016
Normalize
gdcm::DirectionCosines, 379
NSet
gdcm::NormalizedNetworkFunctions, 759
NuclearMedicineImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
NuclearMedicineImageStorageRetired
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
Null0
gdcm::UIDs, 1184
Null1
gdcm::UIDs, 1184
NumberOfDimensions
gdcm::Bitmap, 205
gdcm::ImageCodec, 565
NumberOfIconImages
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
NumberOfOverlays
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
NumberOfSurfaces
gdcm::SurfaceWriter, 1104

OB
gdcm::VR, 1296
OB_OW
gdcm::VR, 1297
Object
gdcm::Object, 764
ObjectEnd
gdcm::MediaStorage, 695
ObjectType
gdcm::MediaStorage, 695
OBLIQUE
gdcm::Orientation, 777
OD

gdcm::VR, 1296
OF
gdcm::VR, 1296
Ofstream
gdcm::Writer, 1416
OL
gdcm::VR, 1296
OnlyUUID
gdcm::XMLPrinter, 1421
op
gdcm::SerieHelper, 995
OPENSSL
gdcm::CryptoFactory, 277
OpenSSLCryptoFactory
gdcm::OpenSSLCryptoFactory, 767
OpenSSLCryptographicMessageSyntax
gdcm::OpenSSLCryptographicMessageSyntax, 769
OPENSSLP7
gdcm::CryptoFactory, 277
OpenSSLP7CryptoFactory
gdcm::OpenSSLP7CryptoFactory, 772
OpenSSLP7CryptographicMessageSyntax
gdcm::OpenSSLP7CryptographicMessageSyntax, 774
operator const char ∗
gdcm::ConstCharWrapper, 271
gdcm::Filename, 483
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1071
operator const double ∗
gdcm::DirectionCosines, 379
operator const std::vector< char > &
gdcm::ByteValue, 223
operator MSType
gdcm::MediaStorage, 697
operator ObjectType ∗
gdcm::SmartPointer< ObjectType >, 1019
operator PIType
gdcm::PhotometricInterpretation, 819
operator ScalarType
gdcm::PixelFormat, 825
operator SwapCode::SwapCodeType
gdcm::SwapCode, 1105
operator TSType
gdcm::TransferSyntax, 1151
gdcm::UIDs, 1197
operator TypeType
gdcm::Type, 1157
operator uint32_t
gdcm::VL, 1287
operator UsageType
gdcm::Usage, 1272
operator VMType
gdcm::VM, 1293
operator VRType
gdcm::VR, 1300
operator!=
gdcm, 64
gdcm::Attribute< Group, Element, TVR, TVM >, 134
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::CodeString, 256
gdcm::PixelFormat, 825
gdcm::PrivateTag, 881
gdcm::Tag, 1128
operator<
gdcm::Attribute< Group, Element, TVR, TVM >, 135
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 141
gdcm::CSAElement, 285
gdcm::CSAHeaderDictEntry, 298
gdcm::DataElement, 315
gdcm::DPath, 387
gdcm::PrivateTag, 881
gdcm::Tag, 1128
operator<<
gdcm, 64–73
gdcm::BasicOffsetTable, 192
gdcm::CodeString, 256
gdcm::CommandDataSet, 264
gdcm::CSAElement, 287
gdcm::CSAHeader, 293
gdcm::CSAHeaderDict, 295
gdcm::CSAHeaderDictEntry, 299
gdcm::DataElement, 319
gdcm::DataSet, 336
gdcm::Dict, 360
gdcm::DictEntry, 368
gdcm::Dicts, 375
gdcm::Directory, 383
gdcm::DPath, 387
gdcm::File, 452
gdcm::FileMetaInformation, 480
gdcm::FileSet, 493
gdcm::Fragment, 514
gdcm::Global, 517
gdcm::GroupDict, 520
gdcm::IOD, 605
gdcm::IODEntry, 608
gdcm::IODs, 611
gdcm::Item, 621
gdcm::Macro, 683
gdcm::Macros, 685
gdcm::MediaStorage, 699
gdcm::Module, 721
gdcm::ModuleEntry, 724
gdcm::Modules, 726
gdcm::MrProtocol, 736

gdcm::NestedModuleEntries, 749
gdcm::Object, 765
gdcm::Orientation, 779
gdcm::PDBElement, 800
gdcm::PDBHeader, 803
gdcm::PhotometricInterpretation, 819
gdcm::PixelFormat, 827
gdcm::Preamble, 855
gdcm::PrivateDict, 877
gdcm::PrivateTag, 882
gdcm::Scanner, 943
gdcm::Scanner2, 953
gdcm::Sorter, 1028
gdcm::StrictScanner, 1056
gdcm::StrictScanner2, 1067
gdcm::SwapCode, 1106
gdcm::Table, 1117
gdcm::Tag, 1132
gdcm::TransferSyntax, 1152
gdcm::Type, 1157
gdcm::UI, 1158
gdcm::Usage, 1272
gdcm::Version, 1285
gdcm::VL, 1289
gdcm::VM, 1293
gdcm::VR, 1300
operator<=
gdcm::Tag, 1128
operator>>
gdcm, 73
gdcm::Tag, 1132
operator()
gdcm::DataSet, 333
gdcm::Scanner2::ltstr, 679
gdcm::Scanner::ltstr, 680
gdcm::StrictScanner2::ltstr, 680
gdcm::StrictScanner::ltstr, 681
operator++
gdcm::VL, 1287, 1288
operator+=
gdcm::VL, 1288
operator->
gdcm::SmartPointer< ObjectType >, 1020
operator=
gdcm::AnonymizeEvent, 106
gdcm::ASN1, 127
gdcm::Base64, 168
gdcm::BoxRegion, 212
gdcm::ByteSwapFilter, 217
gdcm::ByteValue, 223
gdcm::Command, 260
gdcm::CryptographicMessageSyntax, 280
gdcm::CSAElement, 285
gdcm::CSAHeaderDict, 295
gdcm::DataElement, 315
gdcm::DataEvent, 324
gdcm::DataSet, 333
gdcm::DataSetEvent, 339
gdcm::Defs, 347
gdcm::Dict, 359
gdcm::Dicts, 374
gdcm::Element< TVR, VM::VM1_n >, 401
gdcm::Event, 435
gdcm::FileMetaInformation, 478
gdcm::FileNameEvent, 487
gdcm::Global, 517
gdcm::MemberCommand< T >, 703
gdcm::network::ULAction, 1200
gdcm::network::ULConnection, 1244
gdcm::network::UserInformation, 1275
gdcm::Object, 765
gdcm::Overlay, 786
gdcm::ParseException, 790
gdcm::Preamble, 854
gdcm::PrivateTag, 881
gdcm::ProgressEvent, 886
gdcm::SequenceOfItems, 988
gdcm::ServiceClassUser, 1001
gdcm::SHA1, 1006
gdcm::SimpleMemberCommand< T >, 1011
gdcm::SimpleSubjectWatcher, 1014
gdcm::SmartPointer< ObjectType >, 1020
gdcm::Table, 1116
gdcm::Tag, 1128
operator==
gdcm, 73
gdcm::Attribute< Group, Element, TVR, TVM >, 135
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
gdcm::ByteValue, 223
gdcm::CodeString, 257
gdcm::CSAElement, 285
gdcm::DataElement, 316
gdcm::network::AbstractSyntax, 101
gdcm::network::PresentationContextRQ, 866
gdcm::network::TransferSyntaxSub, 1153
gdcm::PDBElement, 799
gdcm::PixelFormat, 825
gdcm::PresentationContext, 857
gdcm::PrivateTag, 881, 882
gdcm::SequenceOfFragments, 980
gdcm::SequenceOfItems, 988
gdcm::Tag, 1128
gdcm::Value, 1281
operator[]
gdcm::Attribute< Group, Element, TVR, TVM >, 135
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151

gdcm::DataSet, 333
gdcm::Element< TVR, TVM >, 394
gdcm::Element< TVR, VM::VM1_n >, 402
gdcm::Tag, 1129
operator∗
gdcm::SmartPointer< ObjectType >, 1020
OphthalmicAxialMeasurementsStorage
gdcm::UIDs, 1184
OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage
gdcm::UIDs, 1184
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage
gdcm::UIDs, 1184
OphthalmicPhotography16BitImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1181
OphthalmicPhotography8BitImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
OphthalmicThicknessMapStorage
gdcm::UIDs, 1185
OphthalmicTomographyImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage
gdcm::UIDs, 1185
OrderFileList
gdcm::SerieHelper, 994
Orientation
gdcm::Orientation, 777
OrientationType
gdcm::Orientation, 777
Output
gdcm::BitmapToBitmapFilter, 208
OutputFormat
vtkImageMapToColors16, 1383
OutputTypes
gdcm::DictConverter, 361
OV
gdcm::VR, 1296
Overlay
gdcm::Overlay, 782, 783
OverlayImageActor
vtkImageColorViewer, 1377
Overlays
gdcm::Pixmap, 834
OverlayType
gdcm::Overlay, 782
OW
gdcm::VR, 1296

Pack
gdcm::Unpacker12Bits, 1270
Padding
gdcm::ApplicationEntity, 120
gdcm::PersonName, 811
PALETTE_COLOR
gdcm::PhotometricInterpretation, 817
Papyrus3ImplicitVRLittleEndian
gdcm::UIDs, 1183
ParametricMapStorage
gdcm::UIDs, 1184
Parent
gdcm::Element< TVR, VM::VM1_2 >, 398
gdcm::Element< TVR, VM::VM2_2n >, 406
gdcm::Element< TVR, VM::VM2_n >, 408
gdcm::Element< TVR, VM::VM3_3n >, 411
gdcm::Element< TVR, VM::VM3_4 >, 413
gdcm::Element< TVR, VM::VM3_n >, 415
Parse
gdcm::Parser, 793
ParseBuffer
gdcm::Parser, 793
ParseCertificateFile
gdcm::CAPICryptographicMessageSyntax, 229
gdcm::CryptographicMessageSyntax, 280
gdcm::OpenSSLCryptographicMessageSyntax, 770
gdcm::OpenSSLP7CryptographicMessageSyntax, 775
ParseDateTime
gdcm::System, 1112, 1113
ParseDump
gdcm::ASN1, 127
ParseDumpFile
gdcm::ASN1, 128
ParseException
gdcm::ParseException, 789, 790
ParseKeyFile
gdcm::CAPICryptographicMessageSyntax, 230
gdcm::CryptographicMessageSyntax, 280
gdcm::OpenSSLCryptographicMessageSyntax, 770
gdcm::OpenSSLP7CryptographicMessageSyntax, 775
Parser
gdcm::Parser, 792
PassAlphaToOutput
vtkImageMapToColors16, 1383
Patient
gdcm::Patient, 794
PatientRadiationDoseSRStorage
gdcm::UIDs, 1185
PatientRootQueryRetrieveInformationModelFIND
gdcm::UIDs, 1181
PatientRootQueryRetrieveInformationModelGET
gdcm::UIDs, 1181
PatientRootQueryRetrieveInformationModelMOVE
gdcm::UIDs, 1181
PatientStudyOnlyQueryRetrieveInformationModelFINDRetired
gdcm::UIDs, 1181

PatientStudyOnlyQueryRetrieveInformationModelGETRetired
gdcm::UIDs, 1182
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired
gdcm::UIDs, 1182
PDataTFPDU
gdcm::network::PDataTFPDU, 796
PDBElement
gdcm::PDBElement, 799
PDBHeader
gdcm::PDBHeader, 802
PDF
gdcm::MediaStorage, 695
PDFCodec
gdcm::PDFCodec, 805
PerformAction
gdcm::network::ULAction, 1200
gdcm::network::ULActionAA1, 1201
gdcm::network::ULActionAA2, 1203
gdcm::network::ULActionAA3, 1204
gdcm::network::ULActionAA4, 1205
gdcm::network::ULActionAA5, 1207
gdcm::network::ULActionAA6, 1208
gdcm::network::ULActionAA7, 1209
gdcm::network::ULActionAA8, 1211
gdcm::network::ULActionAE1, 1212
gdcm::network::ULActionAE2, 1213
gdcm::network::ULActionAE3, 1215
gdcm::network::ULActionAE4, 1216
gdcm::network::ULActionAE5, 1217
gdcm::network::ULActionAE6, 1219
gdcm::network::ULActionAE7, 1220
gdcm::network::ULActionAE8, 1221
gdcm::network::ULActionAR1, 1223
gdcm::network::ULActionAR10, 1224
gdcm::network::ULActionAR2, 1225
gdcm::network::ULActionAR3, 1227
gdcm::network::ULActionAR4, 1228
gdcm::network::ULActionAR5, 1229
gdcm::network::ULActionAR6, 1231
gdcm::network::ULActionAR7, 1232
gdcm::network::ULActionAR8, 1233
gdcm::network::ULActionAR9, 1235
gdcm::network::ULActionDT1, 1236
gdcm::network::ULActionDT2, 1237
PerformedImagingAgentAdministrationSRStorage
gdcm::UIDs, 1185
PET20StepColorPaletteSOPInstance
gdcm::UIDs, 1183
PETColorPaletteSOPInstance
gdcm::UIDs, 1183
PETImageStorage
gdcm::MediaStorage, 693
PF
gdcm::Bitmap, 205
gdcm::ImageCodec, 565
PGXCodec
gdcm::PGXCodec, 815
PHILIPS
gdcm::Dicts, 372
Philips3D
gdcm::MediaStorage, 694
PhilipsPrivateMRSyntheticImageStorage
gdcm::MediaStorage, 694
PhotometricInterpretation
gdcm::PhotometricInterpretation, 818
PI
gdcm::Bitmap, 205
gdcm::ImageCodec, 565
PI_END
gdcm::PhotometricInterpretation, 818
PIType
gdcm::PhotometricInterpretation, 817
PixelData
gdcm::Bitmap, 205
gdcm::PixmapReader, 839
gdcm::PixmapWriter, 846
PixelFormat
gdcm::PixelFormat, 822
Pixmap
gdcm::Pixmap, 832
PixmapReader
gdcm::Bitmap, 204
gdcm::PixmapReader, 838
PixmapToPixmapFilter
gdcm::PixmapToPixmapFilter, 841
PixmapWriter
gdcm::PixmapWriter, 845
PlanarConfiguration
gdcm::Bitmap, 205
gdcm::ImageCodec, 565
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
PlannedImagingAgentAdministrationSRStorage
gdcm::UIDs, 1185
PMS
gdcm::EquipmentManufacturer, 431
PN
gdcm::VR, 1296
PNComp
gdcm, 59
PNMCodec
gdcm::PNMCodec, 850
pointer
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070
POINTS

gdcm::Surface, 1084
Position
gdcm::MrProtocol::Slice, 1016
PositronEmissionTomographyImageStorage
gdcm::UIDs, 1181
Preamble
gdcm::Preamble, 853
PrepareWrite
gdcm::PixmapWriter, 845
gdcm::SegmentWriter, 973
gdcm::SurfaceWriter, 1103
PrepareWritePointMacro
gdcm::SurfaceWriter, 1103
Prepend
gdcm::Global, 517
PresentationContext
gdcm::PresentationContext, 857
PresentationContextAC
gdcm::network::PresentationContextAC, 859
PresentationContextArrayType
gdcm::network::AAssociateRQPDU, 96
gdcm::PresentationContextGenerator, 862
PresentationContextGenerator
gdcm::PresentationContextGenerator, 862
PresentationContextRQ
gdcm::network::PresentationContextRQ, 865
PresentationDataValue
gdcm::network::PresentationDataValue, 868
PresentationLUTSOPClass
gdcm::UIDs, 1179
Preserve
gdcm::Cleaner, 243
PrettyPrintOff
gdcm::JSON, 663
PrettyPrintOn
gdcm::JSON, 663
PrimitiveData
gdcm::MeshPrimitive, 710
PrimitivesData
gdcm::MeshPrimitive, 707
PrimitiveType
gdcm::MeshPrimitive, 710
Print
gdcm::ApplicationEntity, 119
gdcm::Attribute< Group, Element, TVR, TVM >, 135
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 151
gdcm::BaseQuery, 178
gdcm::Bitmap, 200
gdcm::BoxRegion, 212
gdcm::ByteValue, 223
gdcm::CSAHeader, 292
gdcm::Curve, 306
gdcm::DataSet, 333
gdcm::DictPrinter, 371
gdcm::DirectionCosines, 379
gdcm::Directory, 382
gdcm::DPath, 387
gdcm::Element< TVR, TVM >, 395
gdcm::Element< TVR, VM::VM1_n >, 402
gdcm::Element< VR::AS, VM::VM5 >, 416
gdcm::Event, 435
gdcm::Image, 534
gdcm::LookupTable, 678
gdcm::MEC_MR3, 689
gdcm::MrProtocol, 736
gdcm::network::AAbortPDU, 86
gdcm::network::AAssociateACPDU, 90
gdcm::network::AAssociateRJPDU, 93
gdcm::network::AAssociateRQPDU, 98
gdcm::network::AbstractSyntax, 101
gdcm::network::ApplicationContext, 117
gdcm::network::AReleaseRPPDU, 122
gdcm::network::AReleaseRQPDU, 124
gdcm::network::AsynchronousOperationsWindowSub, 129
gdcm::network::BasePDU, 174
gdcm::network::ImplementationClassUIDSub, 595
gdcm::network::ImplementationVersionNameSub, 597
gdcm::network::MaximumLengthSub, 686
gdcm::network::PDataTFPDU, 797
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 866
gdcm::network::PresentationDataValue, 869
gdcm::network::RoleSelectionSub, 933
gdcm::network::ServiceClassApplicationInformation, 996
gdcm::network::SOPClassExtendedNegociationSub, 1021
gdcm::network::TransferSyntaxSub, 1153
gdcm::network::UserInformation, 1275
gdcm::Object, 765
gdcm::Orientation, 778
gdcm::Overlay, 786
gdcm::PDBHeader, 803
gdcm::PersonName, 810
gdcm::PixelFormat, 825
gdcm::Pixmap, 833
gdcm::Preamble, 854
gdcm::PresentationContext, 858
gdcm::Printer, 873
gdcm::Region, 921
gdcm::Scanner, 942
gdcm::Scanner2, 952
gdcm::SegmentedPaletteColorLookupTable, 966

gdcm::SequenceOfFragments, 980
gdcm::SequenceOfItems, 988
gdcm::Sorter, 1026
gdcm::StrictScanner, 1055
gdcm::StrictScanner2, 1066
gdcm::TagPath, 1134
gdcm::Testing, 1141
gdcm::Version, 1285
gdcm::XMLPrinter, 1421
PrintASCII
gdcm::ByteValue, 223
PrintASCIIXML
gdcm::ByteValue, 224
PrintAsContinuousString
gdcm::Tag, 1129
PrintAsContinuousUpperCaseString
gdcm::Tag, 1129
PrintAsPipeSeparatedString
gdcm::Tag, 1129
PrintDataElement
gdcm::Printer, 873
gdcm::XMLPrinter, 1422
PrintDataElement2
gdcm::DictPrinter, 371
PrintDataSet
gdcm::Printer, 873
gdcm::XMLPrinter, 1422
PrintDataSet2
gdcm::DictPrinter, 371
Printer
gdcm::Printer, 873
PrinterConfigurationRetrievalSOPClass
gdcm::UIDs, 1179
PrinterConfigurationRetrievalSOPInstance
gdcm::UIDs, 1179
PrinterSOPClass
gdcm::UIDs, 1179
PrinterSOPInstance
gdcm::UIDs, 1179
PrintGroupLength
gdcm::ByteValue, 224
PrintHex
gdcm::ByteValue, 224
PrintHexXML
gdcm::ByteValue, 224
PrintJobSOPClass
gdcm::UIDs, 1179
PrintPNXML
gdcm::ByteValue, 224
PrintQueueManagementSOPClassRetired
gdcm::UIDs, 1179
PrintQueueSOPInstanceRetired
gdcm::UIDs, 1179
PrintSelf
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1324
vtkGDCMImageWriter, 1335
vtkGDCMMedicalImageProperties, 1342
vtkGDCMPolyDataReader, 1345
vtkGDCMPolyDataWriter, 1349
vtkGDCMTesting, 1353
vtkGDCMThreadedImageReader, 1358
vtkGDCMThreadedImageReader2, 1361
vtkImageColorViewer, 1371
vtkImageMapToColors16, 1380
vtkImageMapToWindowLevelColors2, 1385
vtkImagePlanarComponentsToComponents, 1389
vtkImageRGBToYBR, 1391
vtkImageYBRToRGB, 1393
vtkLookupTable16, 1395
vtkRTStructSetProperties, 1402
PrintSQ
gdcm::Printer, 874
gdcm::XMLPrinter, 1422
PrintStyle
gdcm::Printer, 875
gdcm::XMLPrinter, 1422
PrintStyles
gdcm::Printer, 872
gdcm::XMLPrinter, 1421
PrintTable
gdcm::network::ULTransitionTable, 1259
gdcm::Scanner, 942
gdcm::Scanner2, 952
gdcm::StrictScanner, 1055
gdcm::StrictScanner2, 1066
PrintXML
gdcm::PrivateDict, 876
PrivateBegin
gdcm::Scanner2, 952
gdcm::StrictScanner2, 1066
PrivateConstIterator
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1060
PrivateDict
gdcm::PrivateDict, 876
PrivateEnd
gdcm::Scanner2, 953
gdcm::StrictScanner2, 1066
PrivateMappingType
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1060
PrivateTag
gdcm::PrivateTag, 880
PrivateTagToValue
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1060
PrivateTagToValueValueType

gdcm::Scanner2, 947
gdcm::StrictScanner2, 1060
ProceduralEventLoggingSOPClass
gdcm::UIDs, 1178
ProceduralEventLoggingSOPInstance
gdcm::UIDs, 1178
ProcedureLogStorage
gdcm::UIDs, 1181
Process
gdcm::Parser, 793
ProcessDataSet
gdcm::FileExplicitFilter, 470
ProcessPrivateTag
gdcm::Scanner2, 953
gdcm::StrictScanner2, 1066
ProcessPublicTag
gdcm::Scanner, 942
gdcm::Scanner2, 953
gdcm::StrictScanner, 1056
gdcm::StrictScanner2, 1066
ProcessRequest
vtkGDCMImageReader2, 1324
ProduceCharacterSetDataElement
gdcm::QueryFactory, 895
ProduceQuery
gdcm::QueryFactory, 896
ProductCharacteristicsQuerySOPClass
gdcm::UIDs, 1182
ProgressEvent
gdcm::ProgressEvent, 885
PropertyCategory
gdcm::Segment, 961
PropertyType
gdcm::Segment, 961
PropertyTypeModifiers
gdcm::Segment, 961
ProtocolApprovalInformationModelFIND
gdcm::UIDs, 1185
ProtocolApprovalInformationModelGET
gdcm::UIDs, 1185
ProtocolApprovalInformationModelMOVE
gdcm::UIDs, 1185
ProtocolApprovalStorage
gdcm::UIDs, 1185
PseudoColorSoftcopyPresentationStateStorageSOPClass
gdcm::UIDs, 1180
PubChemCompoundCID
gdcm::UIDs, 1183
PublicConstIterator
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1061
PublicMappingType
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1061
PublicTagToValue
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1061
PublicTagToValueValueType
gdcm::Scanner2, 947
gdcm::StrictScanner2, 1061
PullPrintRequestSOPClassRetired
gdcm::UIDs, 1179
PullStoredPrintManagementMetaSOPClassRetired
gdcm::UIDs, 1179
Push
gdcm::TagPath, 1134
PushBackFile
vtkGDCMMedicalImageProperties, 1342
PVRGCodec
gdcm::PVRGCodec, 889
PythonFilter
gdcm::PythonFilter, 891

Quality
gdcm::JPEGCodec, 654
QueryFactory
gdcm::BaseQuery, 179
gdcm::BaseRootQuery, 184
gdcm::FindPatientRootQuery, 505
gdcm::FindStudyRootQuery, 509
gdcm::ModalityPerformedProcedureStepCreateQuery, 713
gdcm::ModalityPerformedProcedureStepSetQuery, 717
gdcm::MovePatientRootQuery, 730
gdcm::MoveStudyRootQuery, 734
gdcm::WLMFindQuery, 1410

RadiomicsOntology
gdcm::UIDs, 1184
RadiopharmaceuticalRadiationDoseSRStorage
gdcm::UIDs, 1185
RAWCodec
gdcm::RAWCodec, 909
RawDataStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
Read
gdcm::BasicOffsetTable, 191
gdcm::ByteValue, 224
gdcm::CommandDataSet, 263
gdcm::CP246ExplicitDataElement, 274
gdcm::DataElement, 316
gdcm::DataSet, 333
gdcm::Element< TVR, TVM >, 395
gdcm::Element< TVR, VM::VM1_n >, 402
gdcm::EncodingImplementation< VR::VRASCII >, 426

gdcm::EncodingImplementation< VR::VRBINARY >, 428
gdcm::ExplicitDataElement, 442
gdcm::ExplicitImplicitDataElement, 446
gdcm::File, 451
gdcm::FileMetaInformation, 478
gdcm::Fragment, 513
gdcm::ImageReader, 581
gdcm::ImageRegionReader, 586
gdcm::ImplicitDataElement, 601
gdcm::Item, 621
gdcm::network::AAbortPDU, 86
gdcm::network::AAssociateACPDU, 90
gdcm::network::AAssociateRJPDU, 93
gdcm::network::AAssociateRQPDU, 98
gdcm::network::AbstractSyntax, 102
gdcm::network::ApplicationContext, 117
gdcm::network::AReleaseRPPDU, 122
gdcm::network::AReleaseRQPDU, 124
gdcm::network::AsynchronousOperationsWindowSub, 129
gdcm::network::BasePDU, 174
gdcm::network::ImplementationClassUIDSub, 595
gdcm::network::ImplementationVersionNameSub, 597
gdcm::network::MaximumLengthSub, 686
gdcm::network::PDataTFPDU, 797
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 866
gdcm::network::PresentationDataValue, 869
gdcm::network::RoleSelectionSub, 933
gdcm::network::ServiceClassApplicationInformation, 996
gdcm::network::SOPClassExtendedNegociationSub, 1021
gdcm::network::TransferSyntaxSub, 1153
gdcm::network::UserInformation, 1276
gdcm::PGXCodec, 815
gdcm::PixmapReader, 838
gdcm::PNMCodec, 851
gdcm::Preamble, 854
gdcm::Reader, 915
gdcm::SegmentReader, 969
gdcm::SequenceOfFragments, 980
gdcm::SequenceOfItems, 988
gdcm::StreamImageReader, 1040
gdcm::SurfaceReader, 1099
gdcm::TableReader, 1121
gdcm::Tag, 1129
gdcm::UNExplicitDataElement, 1264
gdcm::UNExplicitImplicitDataElement, 1268
gdcm::ValueIO< TDE, TSwap, TType >, 1282
gdcm::VL, 1288
gdcm::VR, 1300
gdcm::VR16ExplicitDataElement, 1303
gdcm::VRVLSize< 0 >, 1306
gdcm::VRVLSize< 1 >, 1306
Read16
gdcm::VL, 1288
ReadACRNEMAImage
gdcm::ImageReader, 581
gdcm::PixmapReader, 838
ReadBacktrack
gdcm::Fragment, 513
ReadCompat
gdcm::FileMetaInformation, 478
ReadCompatInternal
gdcm::FileMetaInformation, 478
ReadComputeLength
gdcm::EncodingImplementation< VR::VRASCII >, 426
gdcm::EncodingImplementation< VR::VRBINARY >, 428
ReadDataSet
gdcm::Reader, 915
Reader
gdcm::Reader, 914
ReadFiles
vtkGDCMThreadedImageReader, 1358
ReadFromCommaSeparatedString
gdcm::PrivateTag, 882
gdcm::Tag, 1130
ReadFromContinuousString
gdcm::Tag, 1130
ReadFromPipeSeparatedString
gdcm::Tag, 1130
ReadImage
gdcm::ImageReader, 581
gdcm::PixmapReader, 839
ReadImageInformation
gdcm::StreamImageReader, 1040
ReadImageInternal
gdcm::PixmapReader, 839
ReadInformation
gdcm::ImageRegionReader, 586
ReadInto
gdcm::network::PDataTFPDU, 797
gdcm::network::PresentationDataValue, 869
ReadIntoBuffer
gdcm::ImageRegionReader, 586
README.txt, 1427
ReadMetaInformation
gdcm::Reader, 915
ReadNested
gdcm::DataSet, 333
ReadNoSwap
gdcm::EncodingImplementation< VR::VRASCII >, 427

gdcm::EncodingImplementation< VR::VRBINARY >, 428
ReadOrSkip
gdcm::DataElement, 316
ReadPointMacro
gdcm::SurfaceReader, 1099
ReadPreamble
gdcm::Reader, 915
ReadPreValue
gdcm::CP246ExplicitDataElement, 275
gdcm::DataElement, 316
gdcm::ExplicitDataElement, 442
gdcm::ExplicitImplicitDataElement, 446
gdcm::Fragment, 513
gdcm::ImplicitDataElement, 601
gdcm::SequenceOfFragments, 980
gdcm::UNExplicitDataElement, 1265
gdcm::UNExplicitImplicitDataElement, 1268
gdcm::VR16ExplicitDataElement, 1304
ReadSegment
gdcm::SegmentReader, 969
ReadSegments
gdcm::SegmentReader, 970
ReadSelectedPrivateTags
gdcm::DataSet, 334
gdcm::Reader, 916
ReadSelectedPrivateTagsWithLength
gdcm::DataSet, 334
ReadSelectedTags
gdcm::DataSet, 334
gdcm::Reader, 916
ReadSelectedTagsWithLength
gdcm::DataSet, 334
ReadSurface
gdcm::SurfaceReader, 1100
ReadSurfaces
gdcm::SurfaceReader, 1100
Readuint16
gdcm::DictConverter, 363
ReadUpToTag
gdcm::DataSet, 334
gdcm::Reader, 916
ReadUpToTagWithLength
gdcm::DataSet, 334
ReadValue
gdcm::CP246ExplicitDataElement, 275
gdcm::DataElement, 316
gdcm::ExplicitDataElement, 442
gdcm::ExplicitImplicitDataElement, 446
gdcm::Fragment, 513
gdcm::ImplicitDataElement, 601
gdcm::SequenceOfFragments, 980
gdcm::UNExplicitDataElement, 1265
gdcm::UNExplicitImplicitDataElement, 1269
gdcm::VR16ExplicitDataElement, 1304
ReadValueWithLength
gdcm::DataElement, 316
gdcm::ImplicitDataElement, 601
ReadVM
gdcm::DictConverter, 363
ReadVR
gdcm::DictConverter, 363
ReadWithLength
gdcm::CP246ExplicitDataElement, 275
gdcm::DataElement, 317
gdcm::DataSet, 335
gdcm::ExplicitDataElement, 442
gdcm::ExplicitImplicitDataElement, 446
gdcm::ImplicitDataElement, 601
gdcm::UNExplicitDataElement, 1265
gdcm::VR16ExplicitDataElement, 1304
RealWorldValueIntercept
gdcm::RealWorldValueMappingContent, 918
RealWorldValueMappingStorage
gdcm::UIDs, 1180
RealWorldValueSlope
gdcm::RealWorldValueMappingContent, 919
RecommendedDisplayCIELabToRGB
gdcm::SurfaceHelper, 1094
RecurseDataSet
gdcm::Anonymizer, 112
RED
gdcm::LookupTable, 674
red
gdcm::terminal, 82
reference
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070
ReferencedColorPrintManagementMetaSOPClassRetired
gdcm::UIDs, 1179
ReferencedGrayscalePrintManagementMetaSOPClassRetired
gdcm::UIDs, 1179
ReferencedImageBoxSOPClassRetired
gdcm::UIDs, 1179
ReferenceFrameOfReferenceUID
vtkRTStructSetProperties, 1404
ReferenceSeriesInstanceUID
vtkRTStructSetProperties, 1405
Region
gdcm::Region, 920
Register
gdcm::Object, 765
Remove
gdcm::Anonymizer, 112
gdcm::Cleaner, 243, 244
gdcm::DataSet, 335

gdcm::FileAnonymizer, 455
gdcm::Preamble, 854
RemoveAllGroupLength
gdcm::Cleaner, 244
RemoveAllIllegal
gdcm::Cleaner, 244
RemoveAllMissingPrivateCreator
gdcm::Cleaner, 244
RemoveAllObservers
gdcm::Subject, 1080
RemoveDictEntry
gdcm::PrivateDict, 877
RemoveFile
gdcm::System, 1113
RemoveGroupLength
gdcm::Anonymizer, 112
RemoveItemByIndex
gdcm::SequenceOfItems, 988
RemoveMissingPrivateCreator
gdcm::Cleaner, 244
RemoveObserver
gdcm::Subject, 1080
RemoveOverlay
gdcm::Pixmap, 833
RemovePrivateTags
gdcm::Anonymizer, 113
RemoveRetired
gdcm::Anonymizer, 113
Render
vtkImageColorViewer, 1372
Renderer
vtkImageColorViewer, 1377
RenderWindow
vtkImageColorViewer, 1377
Replace
gdcm::Anonymizer, 113, 114
gdcm::CommandDataSet, 264
gdcm::DataSet, 335
gdcm::FileAnonymizer, 456
gdcm::FileMetaInformation, 478
ReplaceEmpty
gdcm::DataSet, 335
RequestData
vtkGDCMImageReader2, 1324
vtkGDCMPolyDataReader, 1345
vtkImageMapToColors16, 1380
vtkImageMapToWindowLevelColors2, 1385
vtkImagePlanarComponentsToComponents, 1389
RequestData_HemodynamicWaveformStorage
vtkGDCMPolyDataReader, 1345
RequestData_RTStructureSetStorage
vtkGDCMPolyDataReader, 1345
RequestDataCompat
vtkGDCMImageReader, 1311
vtkGDCMImageReader2, 1324
vtkGDCMThreadedImageReader, 1358
RequestInformation
vtkGDCMImageReader2, 1324
vtkGDCMPolyDataReader, 1345
vtkGDCMThreadedImageReader2, 1361
vtkImageMapToColors16, 1380
vtkImageMapToWindowLevelColors2, 1385
RequestInformation_HemodynamicWaveformStorage
vtkGDCMPolyDataReader, 1345
RequestInformation_RTStructureSetStorage
vtkGDCMPolyDataReader, 1345
RequestInformationCompat
vtkGDCMImageReader, 1312
vtkGDCMImageReader2, 1324
RequestPaddedCompositePixelCode
gdcm::ImageCodec, 565
RequestPlanarConfiguration
gdcm::ImageCodec, 565
Rescale
gdcm::Rescaler, 924
RescaleFunctionIntoBestFit
gdcm::Rescaler, 924
Rescaler
gdcm::Rescaler, 923
ReserveDataElement
gdcm::FileStreamer, 497
ReserveGroupDataElement
gdcm::FileStreamer, 497
reset
gdcm::terminal, 82
ResetHandledDataSet
gdcm::network::ULConnectionCallback, 1246
RespiratoryWaveformStorage
gdcm::UIDs, 1184
RetrieveSOPInstanceUIDFromIndex
gdcm::DirectoryHelper, 385
RetrieveSOPInstanceUIDFromZPosition
gdcm::DirectoryHelper, 385
reverse
gdcm::terminal, 82
reverse_iterator
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070
RFC2557MIMEencapsulation
gdcm::UIDs, 1178
RGB
gdcm::PhotometricInterpretation, 817
RGB2YBR
gdcm::ImageChangePhotometricInterpretation, 542
RGBPixelsToRGBPlanes
gdcm::ImageChangePlanarConfiguration, 547

RGBPlanesToRGBPixels
gdcm::ImageChangePlanarConfiguration, 547
RGBToRecommendedDisplayCIELab
gdcm::SurfaceHelper, 1095
RGBToRecommendedDisplayGrayscale
gdcm::SurfaceHelper, 1095
RLE_COMPRESSION
vtkGDCMImageWriter, 1334
RLECodec
gdcm::RLECodec, 929
RLELossless
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1178
ROI
gdcm::Overlay, 782
RoleSelectionSub
gdcm::network::RoleSelectionSub, 933
Round
gdcm, 74
roundat
gdcm, 74
RTBeamsDeliveryInstructionStorage
gdcm::UIDs, 1186
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft
gdcm::UIDs, 1182
RTBeamsTreatmentRecordStorage
gdcm::UIDs, 1181
RTBrachyApplicationSetupDeliveryInstructionStorage
gdcm::UIDs, 1186
RTBrachyTreatmentRecordStorage
gdcm::UIDs, 1181
RTConventionalMachineVerification
gdcm::UIDs, 1186
RTConventionalMachineVerificationSupplement74FrozenDraft
gdcm::UIDs, 1182
RTDoseStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
RTImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1181
RTIonBeamsTreatmentRecordStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
RTIonMachineVerification
gdcm::UIDs, 1186
RTIonMachineVerificationSupplement74FrozenDraft
gdcm::UIDs, 1182
RTIonPlanStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
RTPhysicianIntentStorage
gdcm::UIDs, 1185
RTPlanStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
RTSegmentAnnotationStorage
gdcm::UIDs, 1185
RTStructSetProperties
vtkGDCMPolyDataReader, 1347
vtkGDCMPolyDataWriter, 1350
RTStructureSetStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
RTTreatmentSummaryRecordStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
Rule
gdcm::SerieHelper, 992
RunEventLoop
gdcm::network::ULConnectionManager, 1252
RunMoveEventLoop
gdcm::network::ULConnectionManager, 1253

SAGITTAL
gdcm::Orientation, 777
SAMSUNG
gdcm::EquipmentManufacturer, 431
ScalarType
gdcm::PixelFormat, 822
Scale
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
Scan
gdcm::Scanner, 942
gdcm::Scanner2, 953
gdcm::StrictScanner, 1056
gdcm::StrictScanner2, 1066
Scanner
gdcm::Scanner, 938
Scanner2
gdcm::Scanner2, 948
Scrub
gdcm::Cleaner, 244, 245
SecondaryCaptureImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
Segment
gdcm::Segment, 957
SegmentAlgorithmName
gdcm::Segment, 961
SegmentAlgorithmType
gdcm::Segment, 961
Segmentation
gdcm::MediaStorage, 695
SegmentationStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1180

SegmentDescription
gdcm::Segment, 962
SegmentedPaletteColorLookupTable
gdcm::SegmentedPaletteColorLookupTable, 965
SegmentedVolumeRenderingVolumetricPresentationStateStorage
gdcm::UIDs, 1184
SegmentLabel
gdcm::Segment, 962
SegmentMap
gdcm::SegmentReader, 969
SegmentNumber
gdcm::Segment, 962
SegmentReader
gdcm::SegmentReader, 969
Segments
gdcm::SegmentReader, 970
gdcm::SegmentWriter, 974
SegmentVector
gdcm::SegmentReader, 969
gdcm::SegmentWriter, 972
SegmentWriter
gdcm::SegmentWriter, 972
Selection
gdcm::Sorter, 1028
SelectionMap
gdcm::Sorter, 1026
Self
gdcm::AnonymizeEvent, 104
gdcm::DataEvent, 323
gdcm::DataSetEvent, 338
gdcm::FileNameEvent, 485
gdcm::MemberCommand< T >, 702
gdcm::ProgressEvent, 884
gdcm::SimpleMemberCommand< T >, 1010
SEMIAUTOMATIC
gdcm::Segment, 957
SendEcho
gdcm::network::ULConnectionManager, 1253
gdcm::ServiceClassUser, 1001
SendFind
gdcm::network::ULConnectionManager, 1253
gdcm::ServiceClassUser, 1001
SendMove
gdcm::network::ULConnectionManager, 1253
gdcm::ServiceClassUser, 1002
SendNAction
gdcm::network::ULConnectionManager, 1253, 1254
SendNCreate
gdcm::network::ULConnectionManager, 1254
SendNDelete
gdcm::network::ULConnectionManager, 1254
SendNEventReport
gdcm::network::ULConnectionManager, 1254
SendNGet
gdcm::network::ULConnectionManager, 1254, 1255
SendNSet
gdcm::network::ULConnectionManager, 1255
SendStore
gdcm::network::ULConnectionManager, 1255
gdcm::ServiceClassUser, 1002, 1003
Separator
gdcm::ApplicationEntity, 120
gdcm::PersonName, 811
SequenceLengthField
gdcm::SequenceOfItems, 989
SequenceOfFragments
gdcm::SequenceOfFragments, 977
SequenceOfItems
gdcm::SequenceOfItems, 985
SerieHelper
gdcm::SerieHelper, 992
SerieRestrictions
gdcm::SerieHelper, 992
Series
gdcm::Series, 995
SeriesInstanceUID
vtkRTStructSetProperties, 1405
ServiceClassApplicationInformation
gdcm::network::ServiceClassApplicationInformation, 996
ServiceClassUser
gdcm::ServiceClassUser, 1000
Set
gdcm::Attribute< Group, Element, TVR, TVM >, 135
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152
gdcm::Element< TVR, TVM >, 395
gdcm::Element< TVR, VM::VM1_n >, 402
SetAbstractSyntax
gdcm::network::PresentationContextRQ, 867
gdcm::PresentationContext, 858
SetAETitle
gdcm::ServiceClassUser, 1003
SetAlgorithmFamily
gdcm::Surface, 1089
SetAlgorithmName
gdcm::Surface, 1089
SetAlgorithmVersion
gdcm::Surface, 1089
SetAnatomicRegion
gdcm::Segment, 959
SetAnatomicRegionModifiers
gdcm::Segment, 959
SetAppendDerivationHistory
gdcm::FileDerivation, 467
SetArray

gdcm::Element< TVR, VM::VM1_n >, 402
setattribute
gdcm::terminal, 83
SetAxisOfRotation
gdcm::Surface, 1089
setbgcolor
gdcm::terminal, 83
SetBitPosition
gdcm::Overlay, 786
SetBitsAllocated
gdcm::Overlay, 786
gdcm::PixelFormat, 826
SetBitSample
gdcm::JPEGCodec, 653
SetBitsStored
gdcm::PixelFormat, 826
SetBlob
gdcm::ApplicationEntity, 119
gdcm::network::PresentationDataValue, 869
gdcm::PersonName, 810
SetBlueLUT
gdcm::LookupTable, 678
SetBufferLength
gdcm::JPEGLSCodec, 661
gdcm::PNMCodec, 851
gdcm::RLECodec, 932
SetByteSwapTag
gdcm::ByteSwapFilter, 217
SetByteValue
gdcm::Attribute< Group, Element, TVR, TVM >, 136
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152
gdcm::CSAElement, 285
gdcm::DataElement, 317
SetByteValueNoSwap
gdcm::Attribute< Group, Element, TVR, TVM >, 136
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
SetCallbackFunction
gdcm::MemberCommand< T >, 703, 704
gdcm::SimpleMemberCommand< T >, 1011
SetCalledAETitle
gdcm::network::AAssociateACPDU, 91
gdcm::network::AAssociateRQPDU, 98
gdcm::ServiceClassUser, 1003
SetCallingAETitle
gdcm::network::AAssociateACPDU, 91
gdcm::network::AAssociateRQPDU, 98
SetCenterOfRotation
gdcm::Surface, 1089
SetChangePrivateTags
gdcm::FileExplicitFilter, 470
SetCheckFileMetaInformation
gdcm::Writer, 1414
SetCipherType
gdcm::CAPICryptographicMessageSyntax, 230
gdcm::CryptographicMessageSyntax, 280
gdcm::OpenSSLCryptographicMessageSyntax, 770
gdcm::OpenSSLP7CryptographicMessageSyntax, 775
SetColor
gdcm::Printer, 874
SetColorLevel
vtkImageColorViewer, 1372
SetColorWindow
vtkImageColorViewer, 1372
SetColumns
gdcm::Bitmap, 200
gdcm::Overlay, 786
SetCommand
gdcm::network::PresentationDataValue, 870
SetComponents
gdcm::PersonName, 810
SetCompressIconImage
gdcm::ImageChangeTransferSyntax, 552
SetComputeZSpacing
gdcm::IPPSorter, 614
SetCoordinateStartValue
gdcm::Curve, 306
SetCoordinateStepValue
gdcm::Curve, 306
SetCryptographicMessageSyntax
gdcm::Anonymizer, 114
SetCurve
gdcm::Curve, 306
vtkGDCMImageReader, 1312
vtkGDCMImageReader2, 1324
SetCurveDataDescriptor
gdcm::Curve, 307
SetCurveDescription
gdcm::Curve, 307
SetData
gdcm::DataEvent, 325
SetDataElement
gdcm::Bitmap, 200
SetDataSet
gdcm::File, 451
gdcm::network::PresentationDataValue, 870
SetDataSetTransferSyntax
gdcm::FileMetaInformation, 479
SetDataValueRepresentation
gdcm::Curve, 307
SetDebug
gdcm::Trace, 1144
SetDebugStream
gdcm::Trace, 1144

SetDefaultTransferSyntax
gdcm::PresentationContextGenerator, 863
SetDerivationCodeSequenceCodeValue
gdcm::FileDerivation, 467
SetDerivationDescription
gdcm::FileDerivation, 467
SetDescription
gdcm::CSAHeaderDictEntry, 298
gdcm::ModuleEntry, 724
gdcm::Overlay, 786
SetDescriptor
gdcm::DICOMDIRGenerator, 355
SetDictName
gdcm::DictConverter, 363
SetDicts
gdcm::PythonFilter, 891
gdcm::StringFilter, 1074
SetDimension
gdcm::Bitmap, 200
SetDimensions
gdcm::Bitmap, 201
gdcm::Curve, 307
gdcm::ImageCodec, 562
SetDimensionsValue
gdcm::ImageHelper, 575
SetDirectionCosines
gdcm::Image, 534
vtkGDCMImageWriter, 1335
SetDirectionCosinesFromImageOrientationPatient
vtkGDCMImageWriter, 1335
SetDirectionCosinesTolerance
gdcm::IPPSorter, 614
SetDirectionCosinesValue
gdcm::ImageHelper, 575
SetDirectory
gdcm::network::ULWritingCallback, 1261
gdcm::SerieHelper, 994
SetDisplayId
vtkImageColorViewer, 1372
SetDomain
gdcm::BoxRegion, 212
SetDropDuplicatePositions
gdcm::IPPSorter, 614
SetElement
gdcm::Tag, 1130
SetElementHandler
gdcm::Parser, 793
SetElementTag
gdcm::Tag, 1130, 1131
SetElementXX
gdcm::DictEntry, 366
SetError
gdcm::Trace, 1145
SetErrorStream
gdcm::Trace, 1145
SetEvent
gdcm::network::ULEvent, 1257
setfgcolor
gdcm::terminal, 83
SetFile
gdcm::Anonymizer, 114
gdcm::Cleaner, 245
gdcm::DICOMDIRGenerator, 355
gdcm::FileDecompressLookupTable, 464
gdcm::FileDerivation, 467
gdcm::FileExplicitFilter, 470
gdcm::IconImageFilter, 523
gdcm::Printer, 874
gdcm::PythonFilter, 891
gdcm::Reader, 916
gdcm::SplitMosaicFilter, 1034
gdcm::StreamImageWriter, 1044
gdcm::StringFilter, 1074
gdcm::Validate, 1278
gdcm::Writer, 1415
gdcm::XMLPrinter, 1422
SetFileName
gdcm::FileNameEvent, 487
gdcm::Reader, 916
gdcm::StreamImageReader, 1040
gdcm::StreamImageWriter, 1045
gdcm::Writer, 1415
vtkGDCMThreadedImageReader2, 1362
SetFilename
gdcm::TableReader, 1121
SetFileNames
vtkGDCMImageReader, 1312
vtkGDCMImageWriter, 1335
vtkGDCMThreadedImageReader2, 1362
SetFilenames
gdcm::DICOMDIRGenerator, 355
SetFilePattern
vtkGDCMImageReader, 1312
vtkGDCMImageReader2, 1325
SetFilePrefix
vtkGDCMImageReader, 1312
vtkGDCMImageReader2, 1325
SetFiles
gdcm::FileSet, 492
SetFiniteVolume
gdcm::Surface, 1090
SetForce
gdcm::ImageChangeTransferSyntax, 552
gdcm::ImageFragmentSplitter, 570
SetForcePixelSpacing
gdcm::ImageHelper, 575
SetForceRescaleInterceptSlope
gdcm::ImageHelper, 575

SetFragmentSizeMax
gdcm::ImageFragmentSplitter, 570
SetFrameOrigin
gdcm::Overlay, 787
SetFromDataElement
gdcm::Attribute< Group, Element, TVR, TVM >, 136
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 142
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152
gdcm::Element< TVR, TVM >, 395
gdcm::Element< TVR, VM::VM1_n >, 402
SetFromDataSet
gdcm::Attribute< Group, Element, TVR, TVM >, 136
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 143
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152
gdcm::MediaStorage, 698
SetFromFile
gdcm::MediaStorage, 698
SetFromHeader
gdcm::MediaStorage, 698
SetFromModality
gdcm::MediaStorage, 698
SetFromSourceImageSequence
gdcm::MediaStorage, 698
SetFromString
gdcm::DirectionCosines, 379
SetFromUID
gdcm::UIDs, 1197
SetGreenLUT
gdcm::LookupTable, 678
SetGroup
gdcm::Curve, 307
gdcm::Overlay, 787
gdcm::Tag, 1131
SetGroupXX
gdcm::DictEntry, 367
SetHeader
gdcm::File, 452
SetHighBit
gdcm::PixelFormat, 826
SetHostname
gdcm::ServiceClassUser, 1003
SetIconImage
gdcm::Pixmap, 833
SetIE
gdcm::IODEntry, 607
SetImage
gdcm::PixmapWriter, 846
gdcm::SplitMosaicFilter, 1034
SetImplementationClassUID
gdcm::FileMetaInformation, 479
SetImplementationVersionName
gdcm::FileMetaInformation, 479
SetImplicitFlag
gdcm::network::ULConnectionCallback, 1247
SetInput
gdcm::BitmapToBitmapFilter, 207
gdcm::ImageConverter, 567
vtkImageColorViewer, 1372
SetInputConnection
vtkImageColorViewer, 1372
SetInputDirectory
gdcm::EmptyMaskGenerator, 424
SetInputFileName
gdcm::DictConverter, 363
gdcm::FileAnonymizer, 456
gdcm::FileChangeTransferSyntax, 460
SetIntercept
gdcm::Image, 534
gdcm::Rescaler, 925
SetKey
gdcm::CSAElement, 286
SetKeyword
gdcm::DictEntry, 367
SetLastElement
gdcm::ParseException, 790
SetLastFragment
gdcm::network::PresentationDataValue, 870
SetLength
gdcm::ByteValue, 225
gdcm::Element< TVR, VM::VM1_2 >, 399
gdcm::Element< TVR, VM::VM1_n >, 403
gdcm::Element< TVR, VM::VM2_2n >, 406
gdcm::Element< TVR, VM::VM2_n >, 408
gdcm::Element< TVR, VM::VM3_3n >, 411
gdcm::Element< TVR, VM::VM3_4 >, 413
gdcm::Element< TVR, VM::VM3_n >, 416
gdcm::RLECodec, 932
gdcm::SequenceOfFragments, 981
gdcm::SequenceOfItems, 989
gdcm::Value, 1281
SetLengthOnly
gdcm::ByteValue, 225
gdcm::Value, 1281
SetLengthToUndefined
gdcm::SequenceOfItems, 989
SetLoadMode
gdcm::SerieHelper, 994
SetLookupTable
vtkImageMapToColors16, 1381
SetLossless
gdcm::JPEGCodec, 653
gdcm::JPEGLSCodec, 661
SetLossyError
gdcm::JPEGLSCodec, 661

SetLossyFlag
gdcm::Bitmap, 201
gdcm::ImageCodec, 562
gdcm::PVRGCodec, 890
SetLUT
gdcm::Bitmap, 201
gdcm::ImageCodec, 562
gdcm::LookupTable, 678
gdcm::SegmentedPaletteColorLookupTable, 966
SetManifold
gdcm::Surface, 1090
SetMaximumLength
gdcm::network::MaximumLengthSub, 687
SetMaximumPointDistance
gdcm::Surface, 1090
SetMaxPDULength
gdcm::network::ULConnectionInfo, 1248
SetMaxPDUSize
gdcm::network::ULConnection, 1244
SetMCT
gdcm::JPEG2000Codec, 639
SetMeanPointDistance
gdcm::Surface, 1090
SetMedicalImageProperties
vtkGDCMImageReader, 1312
vtkGDCMImageReader2, 1325
vtkGDCMImageWriter, 1335
vtkGDCMPolyDataWriter, 1349
SetMergeModeToAbstractSyntax
gdcm::PresentationContextGenerator, 864
SetMergeModeToTransferSyntax
gdcm::PresentationContextGenerator, 864
SetMeshPrimitive
gdcm::Surface, 1090
SetMessageHeader
gdcm::network::PresentationDataValue, 870
SetMinMaxForPixelType
gdcm::Rescaler, 925
setmode
gdcm::terminal, 83
SetName
gdcm::CSAElement, 286
gdcm::CSAHeaderDictEntry, 298
gdcm::DictEntry, 367
gdcm::IODEntry, 607
gdcm::Macro, 683
gdcm::Module, 721
gdcm::ModuleEntry, 724
gdcm::network::AbstractSyntax, 102
gdcm::network::ApplicationContext, 117
gdcm::network::TransferSyntaxSub, 1153
gdcm::PDBElement, 799
SetNameFromUID
gdcm::network::AbstractSyntax, 102
gdcm::network::TransferSyntaxSub, 1153
SetNeedByteSwap
gdcm::Bitmap, 201
gdcm::ImageCodec, 562
SetNeedOverlayCleanup
gdcm::ImageCodec, 563
SetNestedDataSet
gdcm::Item, 621
SetNoOfItems
gdcm::CSAElement, 286
SetNoSwap
gdcm::Element< TVR, TVM >, 395
gdcm::Element< TVR, VM::VM1_n >, 403
SetNumberOfCurves
gdcm::Pixmap, 833
SetNumberOfDimensions
gdcm::Bitmap, 201
gdcm::ImageCodec, 563
SetNumberOfFilenames
gdcm::FilenameGenerator, 490
SetNumberOfFrames
gdcm::Overlay, 787
SetNumberOfInputPorts
vtkGDCMPolyDataWriter, 1349
SetNumberOfItems
gdcm::SequenceOfItems, 989
SetNumberOfOverlays
gdcm::Pixmap, 833
SetNumberOfPoints
gdcm::Curve, 307
SetNumberOfResolutions
gdcm::JPEG2000Codec, 639
SetNumberOfSegments
gdcm::SegmentWriter, 973
SetNumberOfSurfacePoints
gdcm::Surface, 1090
SetNumberOfSurfaces
gdcm::SurfaceWriter, 1103
SetNumberOfTableValues
vtkLookupTable16, 1395
SetNumberOfThreadsForDecompression
gdcm::JPEG2000Codec, 639
SetNumberOfValues
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152
SetNumberOfVectors
gdcm::Surface, 1090
SetObliquityThresholdCosineValue
gdcm::Orientation, 778
SetOffScreenRendering
vtkImageColorViewer, 1372
SetOrigin
gdcm::Image, 534, 535
gdcm::Overlay, 787

SetOriginValue
gdcm::ImageHelper, 576
SetOutputDimensions
gdcm::IconImageGenerator, 525
SetOutputDirectory
gdcm::EmptyMaskGenerator, 424
SetOutputFileName
gdcm::DictConverter, 363
gdcm::FileAnonymizer, 456
gdcm::FileChangeTransferSyntax, 460
gdcm::FileStreamer, 497
SetOutputFormatToLuminance
vtkImageMapToColors16, 1381
SetOutputFormatToLuminanceAlpha
vtkImageMapToColors16, 1381
SetOutputFormatToRGB
vtkImageMapToColors16, 1381
SetOutputFormatToRGBA
vtkImageMapToColors16, 1381
SetOutputType
gdcm::DictConverter, 363
SetOutsideValuePixel
gdcm::IconImageGenerator, 525
SetOverlay
gdcm::Overlay, 787
SetOverlayVisibility
vtkImageColorViewer, 1373
SetOwner
gdcm::PrivateTag, 882
SetParentId
vtkImageColorViewer, 1373
SetPassword
gdcm::CAPICryptographicMessageSyntax, 230
gdcm::CryptographicMessageSyntax, 281
gdcm::OpenSSLCryptographicMessageSyntax, 770
gdcm::OpenSSLP7CryptographicMessageSyntax, 775
SetPattern
gdcm::FilenameGenerator, 490
SetPDU
gdcm::network::ULEvent, 1258
SetPermissions
gdcm::System, 1113
SetPhotometricInterpretation
gdcm::Bitmap, 202
gdcm::ImageChangePhotometricInterpretation, 543
gdcm::ImageCodec, 563
SetPixelFormat
gdcm::Bitmap, 202
gdcm::ImageCodec, 563
gdcm::JPEGCodec, 653
gdcm::Rescaler, 925
SetPixelMinMax
gdcm::IconImageGenerator, 526
SetPixelRepresentation
gdcm::PixelFormat, 826
SetPixmap
gdcm::FileDecompressLookupTable, 464
gdcm::IconImageGenerator, 526
gdcm::PixmapWriter, 846
SetPlanarConfiguration
gdcm::Bitmap, 202
gdcm::ImageChangePlanarConfiguration, 548
gdcm::ImageCodec, 563
SetPMSRescaleInterceptSlope
gdcm::ImageHelper, 576
SetPointCoordinatesData
gdcm::Surface, 1090
SetPointPositionAccuracy
gdcm::Surface, 1091
SetPointsBoundingBoxCoordinates
gdcm::Surface, 1091
SetPort
gdcm::ServiceClassUser, 1003
SetPortSCP
gdcm::ServiceClassUser, 1004
SetPosition
vtkImageColorViewer, 1373
SetPreamble
gdcm::FileMetaInformation, 479
SetPrefix
gdcm::FilenameGenerator, 490
SetPresentationContextID
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 867
gdcm::network::PresentationDataValue, 870
gdcm::PresentationContext, 858
SetPresentationContexts
gdcm::network::ULConnection, 1244
gdcm::ServiceClassUser, 1004
SetPrettyPrint
gdcm::JSON, 663
SetPrimitiveData
gdcm::MeshPrimitive, 709
SetPrimitivesData
gdcm::MeshPrimitive, 709
SetPrimitiveType
gdcm::MeshPrimitive, 709
SetPrivateCreator
gdcm::Tag, 1131
SetProcessingAlgorithm
gdcm::Surface, 1091
SetProgress
gdcm::ProgressEvent, 886
SetPropertyCategory
gdcm::Segment, 960
SetPropertyType
gdcm::Segment, 960

SetPropertyTypeModifiers
gdcm::Segment, 960
SetPurposeOfReferenceCodeSequenceCodeValue
gdcm::FileDerivation, 468
SetQuality
gdcm::JPEG2000Codec, 639
gdcm::JPEGCodec, 653
SetRate
gdcm::JPEG2000Codec, 639
SetReason
gdcm::network::AAbortPDU, 87
gdcm::network::PresentationContextAC, 860
SetRecommendedDisplayCIELabValue
gdcm::Surface, 1091
SetRecommendedDisplayGrayscaleValue
gdcm::Surface, 1091
SetRecommendedPresentationOpacity
gdcm::Surface, 1091
SetRecommendedPresentationType
gdcm::Surface, 1092
SetRecomputeItemLength
gdcm::FileExplicitFilter, 470
SetRecomputeSequenceLength
gdcm::FileExplicitFilter, 470
SetRedLUT
gdcm::LookupTable, 678
SetRef
gdcm::IODEntry, 608
SetRegion
gdcm::ImageRegionReader, 587
SetRenderer
vtkImageColorViewer, 1373
SetRenderWindow
vtkImageColorViewer, 1373
SetRescaleInterceptSlopeValue
gdcm::ImageHelper, 576
SetRetired
gdcm::DictEntry, 367
SetReversible
gdcm::JPEG2000Codec, 640
SetRGB8
gdcm::ImageApplyLookupTable, 539
SetRoot
gdcm::UIDGenerator, 1160
SetRootDirectory
gdcm::DICOMDIRGenerator, 356
SetRows
gdcm::Bitmap, 202
gdcm::Overlay, 787
SetRTStructSetProperties
vtkGDCMPolyDataWriter, 1349
SetSamplesPerPixel
gdcm::PixelFormat, 826
SetScalarType
gdcm::PixelFormat, 826
SetSearchParameter
gdcm::BaseQuery, 178
SetSecondaryCaptureImagePlaneModule
gdcm::ImageHelper, 576
SetSegmentAlgorithmName
gdcm::Segment, 960
SetSegmentAlgorithmType
gdcm::Segment, 960
SetSegmentDescription
gdcm::Segment, 960
SetSegmentLabel
gdcm::Segment, 960
SetSegmentNumber
gdcm::Segment, 961
SetSegments
gdcm::SegmentWriter, 973
SetSize
vtkImageColorViewer, 1373, 1374
SetSlice
vtkImageColorViewer, 1374
SetSliceOrientation
vtkImageColorViewer, 1374
SetSliceOrientationToXY
vtkImageColorViewer, 1374
SetSliceOrientationToXZ
vtkImageColorViewer, 1374
SetSliceOrientationToYZ
vtkImageColorViewer, 1374
SetSlope
gdcm::Image, 535
gdcm::Rescaler, 925
SetSOPClassUIDMode
gdcm::EmptyMaskGenerator, 424
SetSOPInstanceUID
gdcm::BaseQuery, 178
SetSortFunction
gdcm::Sorter, 1027
SetSource
gdcm::network::AAbortPDU, 87
SetSourceApplicationEntityTitle
gdcm::FileMetaInformation, 479
SetSpacing
gdcm::Image, 535
SetSpacingValue
gdcm::ImageHelper, 576
SetState
gdcm::network::ULConnection, 1244
SetStream
gdcm::Reader, 917
gdcm::StreamImageReader, 1041
gdcm::StreamImageWriter, 1045
gdcm::Trace, 1145
gdcm::Writer, 1415

SetStreamToFile
gdcm::Trace, 1145
SetStyle
gdcm::Printer, 874
gdcm::XMLPrinter, 1422
SetSurfaceComments
gdcm::Surface, 1092
SetSurfaceCount
gdcm::Segment, 961
SetSurfaceNumber
gdcm::Surface, 1092
SetSurfaceProcessing
gdcm::Surface, 1092
SetSurfaceProcessingDescription
gdcm::Surface, 1092
SetSurfaceProcessingRatio
gdcm::Surface, 1092
SetSyngoDT
gdcm::CSAElement, 286
SetTag
gdcm::AnonymizeEvent, 106
gdcm::DataElement, 317
SetTagsToRead
gdcm::Sorter, 1027
SetTargetPixelType
gdcm::Rescaler, 925
SetTemplateFileName
gdcm::FileStreamer, 497
SetTileSize
gdcm::JPEG2000Codec, 640
SetTimeout
gdcm::network::ARTIMTimer, 126
gdcm::ServiceClassUser, 1004
SetToUndefined
gdcm::VL, 1288
SetTransferSyntax
gdcm::Bitmap, 203
gdcm::FileChangeTransferSyntax, 461
gdcm::ImageChangeTransferSyntax, 552
gdcm::network::PresentationContextAC, 860
SetTuple
gdcm::network::RoleSelectionSub, 934
gdcm::network::ServiceClassApplicationInformation, 996
gdcm::network::SOPClassExtendedNegociationSub, 1021
SetType
gdcm::ModuleEntry, 724
gdcm::Overlay, 788
SetTypeOfData
gdcm::Curve, 307
SetupInteractor
vtkImageColorViewer, 1375
SetUsage
gdcm::IODEntry, 608
SetUserCodec
gdcm::ImageChangeTransferSyntax, 552
SetUserData
gdcm::Parser, 794
SetUserInformation
gdcm::network::AAssociateRQPDU, 98
SetUseSeriesDetails
gdcm::SerieHelper, 994
SetUseTargetPixelType
gdcm::Rescaler, 926
SetUseVRUN
gdcm::FileExplicitFilter, 470
SetValue
gdcm::Attribute< Group, Element, TVR, TVM >, 137
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 143
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 152, 153
gdcm::CSAElement, 286
gdcm::DataElement, 318
gdcm::Element< TVR, TVM >, 396
gdcm::Element< TVR, VM::VM1_n >, 403
gdcm::PDBElement, 799
SetValueFieldLength
gdcm::DataElement, 318
SetValues
gdcm::Attribute< Group, Element, TVR, TVM >, 137
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 153
SetVectorAccuracy
gdcm::Surface, 1092
SetVectorCoordinateData
gdcm::Surface, 1092
SetVectorDimensionality
gdcm::Surface, 1093
SetVL
gdcm::DataElement, 318
SetVLToUndefined
gdcm::DataElement, 318
SetVM
gdcm::CSAElement, 286
gdcm::CSAHeaderDictEntry, 298
gdcm::DictEntry, 367
SetVR
gdcm::CSAElement, 286
gdcm::CSAHeaderDictEntry, 298
gdcm::DataElement, 319
gdcm::DictEntry, 367
SetWarning
gdcm::Trace, 1145
SetWarningStream
gdcm::Trace, 1146
SetWindowId

vtkImageColorViewer, 1375
SetWriteDataSetOnly
gdcm::Writer, 1416
SetZSpacingTolerance
gdcm::IPPSorter, 615
SH
gdcm::VR, 1296
SHA1
gdcm::SHA1, 1006
SHComp
gdcm, 59
Shift
vtkGDCMImageReader, 1319
vtkGDCMImageReader2, 1331
ShiftEnd
gdcm::ByteBuffer, 214
ShowAbort
gdcm::SimpleSubjectWatcher, 1014
ShowAnonymization
gdcm::SimpleSubjectWatcher, 1014
ShowData
gdcm::SimpleSubjectWatcher, 1014
ShowDataSet
gdcm::SimpleSubjectWatcher, 1014
ShowFileName
gdcm::SimpleSubjectWatcher, 1014
ShowIteration
gdcm::SimpleSubjectWatcher, 1014
ShowProgress
gdcm::SimpleSubjectWatcher, 1015
SIEMENS
gdcm::Dicts, 372
gdcm::EquipmentManufacturer, 431
SimpleMemberCommand
gdcm::SimpleMemberCommand< T >, 1010
SimpleSubjectWatcher
gdcm::SimpleSubjectWatcher, 1013
SimplifiedAdultEchoSRStorage
gdcm::UIDs, 1185
SINGLEBIT
gdcm::PixelFormat, 822
SingleSerieUIDFileSetHT
gdcm::SerieHelper, 995
SingleSerieUIDFileSetmap
gdcm::SerieHelper, 992
Size
gdcm::CodeString, 256
gdcm::DataSet, 336
gdcm::GroupDict, 519
gdcm::network::AAbortPDU, 87
gdcm::network::AAssociateACPDU, 91
gdcm::network::AAssociateRJPDU, 93
gdcm::network::AAssociateRQPDU, 98
gdcm::network::AbstractSyntax, 102
gdcm::network::ApplicationContext, 117
gdcm::network::AReleaseRPPDU, 122
gdcm::network::AReleaseRQPDU, 124
gdcm::network::AsynchronousOperationsWindowSub, 129
gdcm::network::BasePDU, 174
gdcm::network::ImplementationClassUIDSub, 595
gdcm::network::ImplementationVersionNameSub, 597
gdcm::network::MaximumLengthSub, 687
gdcm::network::PDataTFPDU, 797
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 867
gdcm::network::PresentationDataValue, 870
gdcm::network::RoleSelectionSub, 934
gdcm::network::ServiceClassApplicationInformation, 996
gdcm::network::SOPClassExtendedNegociationSub, 1022
gdcm::network::TransferSyntaxSub, 1153
gdcm::network::UserInformation, 1276
size_type
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070
SizeType
gdcm::DataSet, 328
gdcm::FilenameGenerator, 488
gdcm::IOD, 604
gdcm::NestedModuleEntries, 748
gdcm::network::AAssociateACPDU, 89
gdcm::network::AAssociateRQPDU, 96
gdcm::network::PDataTFPDU, 796
gdcm::network::PresentationContextRQ, 865
gdcm::PresentationContext, 856
gdcm::PresentationContextGenerator, 862
gdcm::SequenceOfFragments, 977
gdcm::SequenceOfItems, 985
SL
gdcm::VR, 1296
Slice
vtkImageColorViewer, 1378
SLICE_ORIENTATION_XY
vtkImageColorViewer, 1369
SLICE_ORIENTATION_XZ
vtkImageColorViewer, 1369
SLICE_ORIENTATION_YZ
vtkImageColorViewer, 1369
SliceOrientation
vtkImageColorViewer, 1378
Slices
gdcm::MrProtocol::SliceArray, 1017
SmartPointer

gdcm::Object, 765
gdcm::SmartPointer< ObjectType >, 1019
SOPClassExtendedNegociationSub
gdcm::network::SOPClassExtendedNegociationSub, 1021
SOPClassUIDMode
gdcm::EmptyMaskGenerator, 423
SOPInstanceUID
vtkRTStructSetProperties, 1405
Sort
gdcm::IPPSorter, 615
gdcm::Sorter, 1027
Sorter
gdcm::Sorter, 1026
SortFunc
gdcm::Sorter, 1028
SortFunction
gdcm::Sorter, 1026
SpacialFiducialsStorage
gdcm::MediaStorage, 693
SpacialRegistrationStorage
gdcm::MediaStorage, 693
Spacing
gdcm::Spacing, 1030
SpacingType
gdcm::Spacing, 1030
SpatialFiducialsStorage
gdcm::UIDs, 1180
SpatialRegistrationStorage
gdcm::UIDs, 1180
SpectaclePrescriptionReportStorage
gdcm::UIDs, 1184
Spectroscopy
gdcm::Spectroscopy, 1031
Split
gdcm::ImageFragmentSplitter, 570
gdcm::SplitMosaicFilter, 1034
SplitExtent
vtkGDCMThreadedImageReader2, 1362
SplitMosaicFilter
gdcm::SplitMosaicFilter, 1033
SPM2AVG152PDFrameofReference
gdcm::UIDs, 1178
SPM2AVG152T1FrameofReference
gdcm::UIDs, 1178
SPM2AVG152T2FrameofReference
gdcm::UIDs, 1178
SPM2AVG305T1FrameofReference
gdcm::UIDs, 1178
SPM2BRAINMASKFrameofReference
gdcm::UIDs, 1178
SPM2CSFFrameofReference
gdcm::UIDs, 1178
SPM2EPIFrameofReference
gdcm::UIDs, 1178
SPM2FILT1FrameofReference
gdcm::UIDs, 1178
SPM2GRAYFrameofReference
gdcm::UIDs, 1178
SPM2PDFrameofReference
gdcm::UIDs, 1178
SPM2PETFrameofReference
gdcm::UIDs, 1178
SPM2SINGLESUBJT1FrameofReference
gdcm::UIDs, 1178
SPM2SPECTFrameofReference
gdcm::UIDs, 1178
SPM2T1FrameofReference
gdcm::UIDs, 1178
SPM2T2FrameofReference
gdcm::UIDs, 1178
SPM2TRANSMFrameofReference
gdcm::UIDs, 1178
SPM2WHITEFrameofReference
gdcm::UIDs, 1178
SpringColorPaletteSOPInstance
gdcm::UIDs, 1183
SQ
gdcm::VR, 1296
Squeeze
gdcm::ApplicationEntity, 119
SS
gdcm::VR, 1296
ST
gdcm::VR, 1297
StableSort
gdcm::Sorter, 1027
StandaloneCurveStorage
gdcm::MediaStorage, 693
StandaloneCurveStorageRetired
gdcm::UIDs, 1180
StandaloneModalityLUTStorage
gdcm::MediaStorage, 693
StandaloneModalityLUTStorageRetired
gdcm::UIDs, 1180
StandaloneOverlayStorage
gdcm::MediaStorage, 693
StandaloneOverlayStorageRetired
gdcm::UIDs, 1180
StandalonePETCurveStorageRetired
gdcm::UIDs, 1181
StandaloneVOILUTStorage
gdcm::MediaStorage, 693
StandaloneVOILUTStorageRetired
gdcm::UIDs, 1180
Start
gdcm::network::ARTIMTimer, 126
StartAssociation

gdcm::ServiceClassUser, 1004
StartDataElement
gdcm::FileStreamer, 498
StartElement
gdcm::TableReader, 1121
gdcm::XMLDictReader, 1419
gdcm::XMLPrivateDictReader, 1425
StartElementHandler
gdcm::Parser, 792
StartEncode
gdcm::ImageCodec, 563
gdcm::JPEG2000Codec, 640
gdcm::JPEGCodec, 653
gdcm::JPEGLSCodec, 661
gdcm::RLECodec, 932
StartFilter
gdcm::SimpleSubjectWatcher, 1015
StartGroupDataElement
gdcm::FileStreamer, 498
STATES
gdcm::Surface, 1084
STATES_END
gdcm::Surface, 1084
STComp
gdcm, 59
StereometricRelationshipStorage
gdcm::UIDs, 1181
Stop
gdcm::network::ARTIMTimer, 126
StopAssociation
gdcm::ServiceClassUser, 1005
StopDataElement
gdcm::FileStreamer, 498
StopEncode
gdcm::ImageCodec, 564
gdcm::JPEG2000Codec, 640
gdcm::JPEGCodec, 654
gdcm::JPEGLSCodec, 661
gdcm::RLECodec, 932
StopGroupDataElement
gdcm::FileStreamer, 498
StopProtocol
gdcm::network::ULConnection, 1244
StorageCommitmentPullModelSOPClassRetired
gdcm::UIDs, 1178
StorageCommitmentPullModelSOPInstanceRetired
gdcm::UIDs, 1178
StorageCommitmentPushModelSOPClass
gdcm::UIDs, 1178
StorageCommitmentPushModelSOPInstance
gdcm::UIDs, 1178
StorageServiceClass
gdcm::UIDs, 1179
StoredPrintStorageSOPClassRetired
gdcm::UIDs, 1179
StrCaseCmp
gdcm::System, 1113
Stream
gdcm::Writer, 1416
StreamImageReader
gdcm::Reader, 917
gdcm::StreamImageReader, 1038
StreamImageWriter
gdcm::StreamImageWriter, 1043
gdcm::Writer, 1416
StrictScanner
gdcm::StrictScanner, 1052
StrictScanner2
gdcm::StrictScanner2, 1061
String
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070, 1071
StringFilter
gdcm::StringFilter, 1073
StrNCaseCmp
gdcm::System, 1113
StrSep
gdcm::System, 1114
StrTokR
gdcm::System, 1114
StructureSetDate
vtkRTStructSetProperties, 1405
StructureSetLabel
vtkRTStructSetProperties, 1405
StructureSetName
vtkRTStructSetProperties, 1405
StructureSetTime
vtkRTStructSetProperties, 1405
Study
gdcm::Study, 1076
StudyComponentManagementSOPClass
gdcm::MediaStorage, 694
StudyComponentManagementSOPClassRetired
gdcm::UIDs, 1178
StudyInstanceUID
vtkRTStructSetProperties, 1405
StudyRootQueryRetrieveInformationModelFIND
gdcm::UIDs, 1181
StudyRootQueryRetrieveInformationModelGET
gdcm::UIDs, 1181
StudyRootQueryRetrieveInformationModelMOVE
gdcm::UIDs, 1181
Subject
gdcm::Subject, 1078
SubjectiveRefractionMeasurementsStorage
gdcm::UIDs, 1184
SubstanceAdministrationLoggingSOPClass
gdcm::UIDs, 1178

SubstanceAdministrationLoggingSOPInstance
gdcm::UIDs, 1178
SubstanceApprovalQuerySOPClass
gdcm::UIDs, 1182
SummerColorPaletteSOPInstance
gdcm::UIDs, 1183
Superclass
gdcm::AnonymizeEvent, 104
gdcm::DataEvent, 323
gdcm::DataSetEvent, 338
gdcm::FileNameEvent, 485
gdcm::LO, 670
gdcm::ProgressEvent, 884
SURFACE
gdcm::Surface, 1084
Surface
gdcm::Surface, 1084
SurfaceCount
gdcm::Segment, 962
SurfaceReader
gdcm::SurfaceReader, 1099
Surfaces
gdcm::Segment, 962
SurfaceScanMeshStorage
gdcm::UIDs, 1184
SurfaceScanPointCloudStorage
gdcm::UIDs, 1184
SurfaceSegmentationStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1183
SurfaceVector
gdcm::Segment, 956
SurfaceWriter
gdcm::SurfaceWriter, 1103
SV
gdcm::VR, 1297
SV10
gdcm::CSAHeader, 290
Swap
gdcm::ByteSwap< T >, 215
gdcm::SwapperDoOp, 1106
gdcm::SwapperNoOp, 1107
SwapArray
gdcm::SwapperDoOp, 1106
gdcm::SwapperNoOp, 1107
SwapCode
gdcm::SwapCode, 1105
SwapCodeType
gdcm::SwapCode, 1105
SwapFromSwapCodeIntoSystem
gdcm::ByteSwap< T >, 215
SwapRange
gdcm::ByteSwap< T >, 215
SwapRangeFromSwapCodeIntoSystem
gdcm::ByteSwap< T >, 215
SyngoDTField
gdcm::CSAElement, 287
SyntaxError
gdcm::Parser, 792
SystemIsBigEndian
gdcm::ByteSwap< T >, 216
SystemIsLittleEndian
gdcm::ByteSwap< T >, 216

T1
gdcm::Type, 1157
T1C
gdcm::Type, 1157
T2
gdcm::Type, 1157
T2C
gdcm::Type, 1157
T3
gdcm::Type, 1157
Table
gdcm::Table, 1116
Table16
vtkLookupTable16, 1396
TableEntry
gdcm::TableEntry, 1118
TableInternal
gdcm::Table, 1117
TableReader
gdcm::TableReader, 1119
TableRow
gdcm::network::TableRow, 1122
Tag
gdcm::Tag, 1125
tag
gdcm::Tag, 1132
TagField
gdcm::DataElement, 320
TagMismatchError
gdcm::Parser, 792
TagPath
gdcm::TagPath, 1133
tags
gdcm::Tag, 1132
TagsToRead
gdcm::Sorter, 1028
TagToValue
gdcm::Scanner, 938
gdcm::StrictScanner, 1051
TagToValueValueType
gdcm::Scanner, 938
gdcm::StrictScanner, 1051
TalairachBrainAtlasFrameofReference
gdcm::UIDs, 1178

TConstMemberFunctionPointer
gdcm::MemberCommand< T >, 702
TestAbortOff
gdcm::SimpleSubjectWatcher, 1015
TestAbortOn
gdcm::SimpleSubjectWatcher, 1015
Testing
gdcm::Testing, 1136
TestPBKDF2
gdcm::ASN1, 128
TestsList.txt, 1427
TextSRStorageTrialRetired
gdcm::UIDs, 1181
ThreadedExecute
vtkImageRGBToYBR, 1391
vtkImageYBRToRGB, 1393
ThreadedRequestData
vtkGDCMThreadedImageReader2, 1362
vtkImageMapToColors16, 1381
vtkImageMapToWindowLevelColors2, 1386
TM
gdcm::VR, 1297
TMComp
gdcm, 59
TMemberFunctionPointer
gdcm::MemberCommand< T >, 702
gdcm::SimpleMemberCommand< T >, 1010
Todo List, 3
ToPyObject
gdcm::PythonFilter, 892
TOSHIBA
gdcm::EquipmentManufacturer, 431
ToshibaPrivateDataStorage
gdcm::MediaStorage, 694
ToString
gdcm::StringFilter, 1075
ToStringPair
gdcm::StringFilter, 1075, 1076
ToUnixSlashes
gdcm::Filename, 483
ToWindowsSlashes
gdcm::Filename, 483
Trace
gdcm::Trace, 1143
TractographyResultsStorage
gdcm::UIDs, 1184
TransferSyntax
gdcm::TransferSyntax, 1149
TransferSyntaxArrayType
gdcm::PresentationContext, 856
TransferSyntaxes
gdcm::PresentationContext, 858
TransferSyntaxStringsType
gdcm::UIDs, 1177
TransferSyntaxSub
gdcm::network::TransferSyntaxSub, 1152
Transition
gdcm::network::Transition, 1154, 1155
transitions
gdcm::network::TableRow, 1123
TRIANGLE
gdcm::MeshPrimitive, 707
TRIANGLE_FAN
gdcm::MeshPrimitive, 707
TRIANGLE_STRIP
gdcm::MeshPrimitive, 707
Trim
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1071, 1072
TrimInternal
gdcm::CodeString, 256
Truncate
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1072
TryJPEG2000Codec
gdcm::Bitmap, 203
gdcm::ImageChangeTransferSyntax, 553
TryJPEG2000Codec2
gdcm::Bitmap, 203
TryJPEGCodec
gdcm::Bitmap, 203
gdcm::ImageChangeTransferSyntax, 553
TryJPEGCodec2
gdcm::Bitmap, 203
TryJPEGLSCodec
gdcm::Bitmap, 203
gdcm::ImageChangeTransferSyntax, 553
TryKAKADUCodec
gdcm::Bitmap, 203
TryPVRGCodec
gdcm::Bitmap, 204
TryRAWCodec
gdcm::Bitmap, 204
gdcm::ImageChangeTransferSyntax, 553
TryRLECodec
gdcm::Bitmap, 204
gdcm::ImageChangeTransferSyntax, 553
TS
gdcm::Bitmap, 205
TS_END
gdcm::TransferSyntax, 1149
TSName
gdcm::UIDs, 1177
TSType
gdcm::TransferSyntax, 1149
gdcm::UIDs, 1186
Type
gdcm::Element< TVR, TVM >, 393

gdcm::Element< TVR, VM::VM1_n >, 400
gdcm::EquipmentManufacturer, 431
gdcm::Type, 1157
gdcm::VL, 1286
TYPETOENCODING
gdcmVR.h, 1673
TYPETOLENGTH
gdcmVM.h, 1670
TypeToString
gdcm::EquipmentManufacturer, 432
TypeType
gdcm::Type, 1156

UberonOntology
gdcm::UIDs, 1183
UC
gdcm::VR, 1297
UCComp
gdcm, 60
UI
gdcm::VR, 1297
UIComp
gdcm, 60
uid_1_2_840_10008_15_0_3_1
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_10
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_11
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_12
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_13
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_14
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_15
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_16
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_17
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_18
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_19
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_2
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_20
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_21
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_22
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_23
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_24
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_25
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_26
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_27
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_28
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_29
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_3
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_30
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_31
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_4
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_5
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_6
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_7
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_8
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_3_9
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_1
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_2
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_3
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_4
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_5
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_6
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_7
gdcm::UIDs, 1192
uid_1_2_840_10008_15_0_4_8
gdcm::UIDs, 1192
uid_1_2_840_10008_15_1_1
gdcm::UIDs, 1195
uid_1_2_840_10008_1_1
gdcm::UIDs, 1186
uid_1_2_840_10008_1_2
gdcm::UIDs, 1186
uid_1_2_840_10008_1_20

gdcm::UIDs, 1193
uid_1_2_840_10008_1_20_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_20_1_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_20_2
gdcm::UIDs, 1188
uid_1_2_840_10008_1_20_2_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_2_1
gdcm::UIDs, 1186
uid_1_2_840_10008_1_2_1_99
gdcm::UIDs, 1186
uid_1_2_840_10008_1_2_2
gdcm::UIDs, 1186
uid_1_2_840_10008_1_2_4_100
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_101
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_102
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_103
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_104
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_105
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_106
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_107
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_108
gdcm::UIDs, 1193
uid_1_2_840_10008_1_2_4_50
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_51
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_52
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_53
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_54
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_55
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_56
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_57
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_58
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_59
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_60
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_61
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_62
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_63
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_64
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_65
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_66
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_70
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_80
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_81
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_90
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_91
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_92
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_93
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_94
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_4_95
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_5
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_6_1
gdcm::UIDs, 1187
uid_1_2_840_10008_1_2_6_2
gdcm::UIDs, 1187
uid_1_2_840_10008_1_3_10
gdcm::UIDs, 1187
uid_1_2_840_10008_1_40
gdcm::UIDs, 1188
uid_1_2_840_10008_1_40_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_42
gdcm::UIDs, 1188
uid_1_2_840_10008_1_42_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_4_1_1
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_10
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_11
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_12

gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_13
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_14
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_15
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_16
gdcm::UIDs, 1188
uid_1_2_840_10008_1_4_1_17
gdcm::UIDs, 1188
uid_1_2_840_10008_1_4_1_18
gdcm::UIDs, 1188
uid_1_2_840_10008_1_4_1_2
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_3
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_4
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_5
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_6
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_7
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_8
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_1_9
gdcm::UIDs, 1187
uid_1_2_840_10008_1_4_2_1
gdcm::UIDs, 1188
uid_1_2_840_10008_1_4_2_2
gdcm::UIDs, 1188
uid_1_2_840_10008_1_5_1
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_2
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_3
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_4
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_5
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_6
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_7
gdcm::UIDs, 1193
uid_1_2_840_10008_1_5_8
gdcm::UIDs, 1193
uid_1_2_840_10008_1_9
gdcm::UIDs, 1188
uid_1_2_840_10008_2_16_10
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_11
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_12
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_13
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_14
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_4
gdcm::UIDs, 1188
uid_1_2_840_10008_2_16_5
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_6
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_7
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_8
gdcm::UIDs, 1193
uid_1_2_840_10008_2_16_9
gdcm::UIDs, 1193
uid_1_2_840_10008_2_6_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_1_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_1_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_1_4
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_2_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_3_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_3_2
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_3_3
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_3_4
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_3_5
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_5_1
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_5_4
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_5_5
gdcm::UIDs, 1188
uid_1_2_840_10008_3_1_2_6_1
gdcm::UIDs, 1188
uid_1_2_840_10008_4_2
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_1
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_14
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_15

gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_16
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_16_376
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_17
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_17_376
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_18
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_18_1
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_2
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_22
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_23
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_24
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_24_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_25
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_26
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_27
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_29
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_30
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_31
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_32
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_33
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_1_4
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_40
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_1_40_1
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_1_4_1
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_4_2
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_9
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_1_9_1
gdcm::UIDs, 1188
uid_1_2_840_10008_5_1_4_1_1_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_10
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_104_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_104_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_104_3
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_11
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_11_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_11_10
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_11
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_11_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_11_4
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_11_5
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_6
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_7
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_8
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_11_9
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_128
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_128_1
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_129
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_12_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_12_1_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_12_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_12_2_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_12_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_12_77
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_130
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_131

gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_13_1_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_13_1_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_13_1_3
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_13_1_4
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_13_1_5
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_14_1
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_14_2
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_1_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_1_1_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_1_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_1_2_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_1_3
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_1_3_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_20
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_200_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_200_2
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_200_3
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_200_4
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_200_5
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_200_6
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_2_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_2_2
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_3
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_30
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_3_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_4
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_40
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_481_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_10
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_481_11
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_481_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_4
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_5
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_6
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_7
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_8
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_481_9
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_4_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_4_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_4_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_4_4
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_5
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_501_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_501_2_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_501_2_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_501_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_501_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_501_5
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_501_6
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_6
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_601_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_601_2

gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_1_66
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_66_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_66_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_66_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_66_4
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_66_5
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_66_6
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_67
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_68_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_68_2
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_6_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_6_2
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_7
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_77_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_4
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_4
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_77_1_6
gdcm::UIDs, 1192
uid_1_2_840_10008_5_1_4_1_1_77_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_78_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_2
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_3
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_4
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_5
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_6
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_7
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_78_8
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_79_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_7_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_7_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_7_3
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_7_4
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_8
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_80_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_81_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_82_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_1
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_11
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_2
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_22
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_3
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_33

gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_34
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_35
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_4
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_40
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_50
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_59
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_65
gdcm::UIDs, 1190
uid_1_2_840_10008_5_1_4_1_1_88_67
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_1_88_68
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_69
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_70
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_71
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_72
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_73
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_74
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_88_75
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_9
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_90_1
gdcm::UIDs, 1194
uid_1_2_840_10008_5_1_4_1_1_9_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_2
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_1_3
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_2_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_3_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_4_1
gdcm::UIDs, 1189
uid_1_2_840_10008_5_1_4_1_1_9_4_2
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_9_5_1
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_1_9_6_1
gdcm::UIDs, 1193
uid_1_2_840_10008_5_1_4_1_2_1_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_1_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_1_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_2_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_2_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_2_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_3_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_3_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_3_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_1_2_4_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_2_4_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_1_2_5_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_20_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_20_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_20_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_31
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_32
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_32_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_32_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_32_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_33
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_10
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_4

gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_4_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_4_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_4_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_4_4
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_5
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_34_5_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_6
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_6_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_6_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_6_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_6_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_7
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_8
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_34_9
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_37_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_37_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_37_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_38_1
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_38_2
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_38_3
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_38_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_39_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_39_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_39_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_39_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_41
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_42
gdcm::UIDs, 1191
uid_1_2_840_10008_5_1_4_43_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_43_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_43_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_43_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_44_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_44_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_44_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_44_4
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_45_1
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_45_2
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_45_3
gdcm::UIDs, 1195
uid_1_2_840_10008_5_1_4_45_4
gdcm::UIDs, 1195
uid_1_2_840_10008_7_1_1
gdcm::UIDs, 1195
uid_1_2_840_10008_7_1_2
gdcm::UIDs, 1195
uid_1_2_840_10008_8_1_1
gdcm::UIDs, 1195
UIDGenerator
gdcm::UIDGenerator, 1159
UIH
gdcm::EquipmentManufacturer, 431
UINT12
gdcm::PixelFormat, 822
UINT16
gdcm::PixelFormat, 822
UINT32
gdcm::PixelFormat, 822
UINT64
gdcm::PixelFormat, 822
UINT8
gdcm::PixelFormat, 822
UL
gdcm::VR, 1297
ULAction
gdcm::network::ULAction, 1199
ULActionAE6
gdcm::network::ULConnection, 1244
ULBasicCallback
gdcm::network::ULBasicCallback, 1239
ULConnection

gdcm::network::ULConnection, 1241, 1242
ULConnectionCallback
gdcm::network::ULConnectionCallback, 1246
ULConnectionInfo
gdcm::network::ULConnectionInfo, 1248
ULConnectionManager
gdcm::network::ULConnection, 1244
gdcm::network::ULConnectionManager, 1251
ULEvent
gdcm::network::ULEvent, 1257
ULTransitionTable
gdcm::network::ULTransitionTable, 1258
UltrasoundImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
UltrasoundImageStorageRetired
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
UltrasoundMultiFrameImageStorage
gdcm::MediaStorage, 693
UltrasoundMultiframeImageStorage
gdcm::UIDs, 1180
UltrasoundMultiFrameImageStorageRetired
gdcm::MediaStorage, 693
UltrasoundMultiframeImageStorageRetired
gdcm::UIDs, 1179
ULWritingCallback
gdcm::network::ULWritingCallback, 1261
UN
gdcm::VR, 1297
UndefinedEntityError
gdcm::Parser, 792
underline
gdcm::terminal, 82
UnexpectedStateError
gdcm::Parser, 792
UnifiedProcedureStepEventSOPClass
gdcm::UIDs, 1182
UnifiedProcedureStepEventSOPClass1
gdcm::UIDs, 1186
UnifiedProcedureStepPullSOPClass
gdcm::UIDs, 1182
UnifiedProcedureStepPullSOPClass1
gdcm::UIDs, 1186
UnifiedProcedureStepPushSOPClass
gdcm::UIDs, 1182
UnifiedProcedureStepPushSOPClass1
gdcm::UIDs, 1186
UnifiedProcedureStepWatchSOPClass
gdcm::UIDs, 1182
UnifiedProcedureStepWatchSOPClass1
gdcm::UIDs, 1186
UnifiedWorklistandProcedureStepServiceClass
gdcm::UIDs, 1182
UnifiedWorklistandProcedureStepServiceClass1
gdcm::UIDs, 1186
UnifiedWorklistandProcedureStepSOPInstance
gdcm::UIDs, 1182
UnInstallPipeline
vtkImageColorViewer, 1375
UniversalCoordinatedTime
gdcm::UIDs, 1186
UNKNOWN
gdcm::CSAHeader, 290
gdcm::EquipmentManufacturer, 431
gdcm::LookupTable, 674
gdcm::Orientation, 777
gdcm::PhotometricInterpretation, 817
gdcm::PixelFormat, 822
gdcm::Spacing, 1030
gdcm::Surface, 1084
gdcm::Type, 1157
Unknown
gdcm::SwapCode, 1105
gdcm::TransferSyntax, 1148
Unpack
gdcm::Unpacker12Bits, 1270
UnRegister
gdcm::Object, 765
UnusedBitsPresentInPixelData
gdcm::Bitmap, 204
gdcm::Pixmap, 834
Update
gdcm::Curve, 307
gdcm::Overlay, 788
UpdateDisplayExtent
vtkImageColorViewer, 1375
UpdateOrientation
vtkImageColorViewer, 1375
UpdatePosition
gdcm::ByteBuffer, 214
UPSFilteredGlobalSubscriptionSOPInstance
gdcm::UIDs, 1185
UR
gdcm::VR, 1297
URComp
gdcm, 60
URI
gdcm::MediaStorage, 695
US
gdcm::VR, 1297
US_OW
gdcm::VR, 1297
US_SS
gdcm::VR, 1297
US_SS_OW
gdcm::VR, 1297
Usage

gdcm::Usage, 1272
UsageType
gdcm::Usage, 1271
UseDictAlways
gdcm::PythonFilter, 892
gdcm::StringFilter, 1076
UseGrayscaleSecondaryImageStorage
gdcm::EmptyMaskGenerator, 423
UseOriginalSOPClassUID
gdcm::EmptyMaskGenerator, 423
UserInformation
gdcm::network::UserInformation, 1275
UserOption
gdcm::Usage, 1271
UserOrdering
gdcm::SerieHelper, 994
UT
gdcm::VR, 1297
UTComp
gdcm, 60
UV
gdcm::VR, 1297

V
gdcm::Validate, 1279
Valid
gdcm::Preamble, 854
Validate
gdcm::PixelFormat, 827
gdcm::Validate, 1278
ValidateQuery
gdcm::BaseQuery, 179
gdcm::BaseRootQuery, 184
gdcm::FindPatientRootQuery, 505
gdcm::FindStudyRootQuery, 509
gdcm::ModalityPerformedProcedureStepCreateQuery, 713
gdcm::ModalityPerformedProcedureStepSetQuery, 716
gdcm::MovePatientRootQuery, 730
gdcm::MoveStudyRootQuery, 734
gdcm::WLMFindQuery, 1410
Validation
gdcm::Validate, 1278
ValidDataSet
gdcm::BaseQuery, 179
Value
gdcm::Value, 1280
value
gdcm::SerieHelper, 995
gdcm::STATIC_ASSERTION_FAILURE< true >, 1037
value_type
gdcm::CodeString, 255
gdcm::LO, 670
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1070
ValueField
gdcm::DataElement, 320
gdcm::PDBElement, 800
ValueLengthField
gdcm::DataElement, 320
ValueMultiplicityField
gdcm::CSAElement, 287
ValuePtr
gdcm::DataElement, 311
ValuesType
gdcm::Scanner, 938
gdcm::Scanner2, 947
gdcm::StrictScanner, 1052
gdcm::StrictScanner2, 1061
VERBOSE_STYLE
gdcm::Printer, 873
VerificationSOPClass
gdcm::UIDs, 1177
Verify
gdcm::Defs, 347
gdcm::Macro, 683
gdcm::Module, 721
Version
gdcm::Version, 1284
VERTEX
gdcm::MeshPrimitive, 707
Video
gdcm::MediaStorage, 695
VideoEndoscopicImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
VideoMicroscopicImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1181
VideoPhotographicImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
VIEWType
gdcm::Surface, 1084
VIEWType_END
gdcm::Surface, 1084
VisualAcuityMeasurementsStorage
gdcm::UIDs, 1184
VL
gdcm::VL, 1287
VL16
gdcm::VR, 1297
VL32
gdcm::VR, 1297
VLEndoscopicImageStorage
gdcm::MediaStorage, 694

gdcm::UIDs, 1181
VLImageStorageTrialRetired
gdcm::UIDs, 1180
VLMicroscopicImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
VLMultiframeImageStorageTrialRetired
gdcm::UIDs, 1180
VLPhotographicImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1181
VLSlideCoordinatesMicroscopicImageStorage
gdcm::UIDs, 1181
VLWholeSlideMicroscopyImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1183
VM
gdcm::VM, 1292
VM0
gdcm::VM, 1291
VM1
gdcm::VM, 1291
VM10
gdcm::VM, 1291
VM12
gdcm::VM, 1291
VM16
gdcm::VM, 1291
VM18
gdcm::VM, 1291
VM1_2
gdcm::VM, 1291
VM1_3
gdcm::VM, 1291
VM1_32
gdcm::VM, 1291
VM1_4
gdcm::VM, 1291
VM1_5
gdcm::VM, 1291
VM1_8
gdcm::VM, 1291
VM1_99
gdcm::VM, 1291
VM1_n
gdcm::VM, 1291
VM2
gdcm::VM, 1291
VM24
gdcm::VM, 1291
VM256
gdcm::VM, 1291
VM28
gdcm::VM, 1291
VM2_2n
gdcm::VM, 1291
VM2_n
gdcm::VM, 1292
VM3
gdcm::VM, 1291
VM30_30n
gdcm::VM, 1292
VM32
gdcm::VM, 1291
VM35
gdcm::VM, 1291
VM3_3n
gdcm::VM, 1292
VM3_4
gdcm::VM, 1292
VM3_n
gdcm::VM, 1292
VM4
gdcm::VM, 1291
VM47_47n
gdcm::VM, 1292
VM4_4n
gdcm::VM, 1292
VM5
gdcm::VM, 1291
VM6
gdcm::VM, 1291
VM6_6n
gdcm::VM, 1292
VM6_n
gdcm::VM, 1292
VM7_7n
gdcm::VM, 1292
VM8
gdcm::VM, 1291
VM9
gdcm::VM, 1291
VM99
gdcm::VM, 1291
VM_END
gdcm::VM, 1292
VMType
gdcm::Attribute< Group, Element, TVR, TVM >, 132
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 139
gdcm::VM, 1291
VOILUTBoxSOPClass
gdcm::UIDs, 1179
VolumeRenderingVolumetricPresentationStateStorage
gdcm::UIDs, 1184
VR
gdcm::VR, 1297
VR_END

gdcm::VR, 1297
VR_VM1
gdcm::VR, 1297
VRALL
gdcm::VR, 1297
VRASCII
gdcm::VR, 1297
VRBINARY
gdcm::VR, 1297
VRField
gdcm::CSAElement, 287
gdcm::DataElement, 320
VRType
gdcm::VR, 1296
VRTypeTemplateCase
gdcmVR.h, 1673
VT100
gdcm::terminal, 82
VTK_CMYK
vtkGDCMImageReader.h, 2051
vtkGDCMImageReader2.h, 2057
VTK_INVERSE_LUMINANCE
vtkGDCMImageReader.h, 2051
vtkGDCMImageReader2.h, 2057
VTK_LOOKUP_TABLE
vtkGDCMImageReader.h, 2052
vtkGDCMImageReader2.h, 2057
VTK_YBR
vtkGDCMImageReader.h, 2052
vtkGDCMImageReader2.h, 2057
vtkBooleanMacro
vtkGDCMImageReader, 1312, 1313
vtkGDCMImageReader2, 1325
vtkGDCMImageWriter, 1336
vtkGDCMThreadedImageReader, 1358
vtkGDCMThreadedImageReader2, 1362, 1363
vtkImageColorViewer, 1375
vtkImageMapToColors16, 1381
vtkGDCMImageReader, 1307
~vtkGDCMImageReader, 1310
ApplyInverseVideo, 1317
ApplyLookupTable, 1317
ApplyPlanarConfiguration, 1317
ApplyShiftScale, 1317
ApplyYBRToRGB, 1317
CanReadFile, 1310
Curve, 1317
DirectionCosines, 1317
ExecuteData, 1310
ExecuteInformation, 1310
FileNames, 1318
FillMedicalImageInformation, 1310
ForceRescale, 1318
GetDescriptiveName, 1310
GetFileExtensions, 1311
GetIconImage, 1311
GetOverlay, 1311
IconDataScalarType, 1318
IconImageDataExtent, 1318
IconNumberOfScalarComponents, 1318
ImageFormat, 1318
ImageOrientationPatient, 1318
ImagePositionPatient, 1318
LoadIconImage, 1318
LoadOverlays, 1318
LoadSingleFile, 1311
LossyFlag, 1319
MedicalImageProperties, 1319
New, 1311
NumberOfIconImages, 1319
NumberOfOverlays, 1319
PlanarConfiguration, 1319
PrintSelf, 1311
RequestDataCompat, 1311
RequestInformationCompat, 1312
Scale, 1319
SetCurve, 1312
SetFileNames, 1312
SetFilePattern, 1312
SetFilePrefix, 1312
SetMedicalImageProperties, 1312
Shift, 1319
vtkBooleanMacro, 1312, 1313
vtkGDCMImageReader, 1310
vtkGDCMMedicalImageProperties, 1342
vtkGetMacro, 1313–1315
vtkGetObjectMacro, 1315
vtkGetStringMacro, 1315
vtkGetVector3Macro, 1316
vtkGetVector6Macro, 1316
vtkSetMacro, 1316
vtkSetVector6Macro, 1316
vtkTypeMacro, 1317
vtkGDCMImageReader.h, 2050, 2052
VTK_CMYK, 2051
VTK_INVERSE_LUMINANCE, 2051
VTK_LOOKUP_TABLE, 2052
VTK_YBR, 2052
vtkGDCMImageReader2, 1320
~vtkGDCMImageReader2, 1322
ApplyInverseVideo, 1329
ApplyLookupTable, 1329
ApplyPlanarConfiguration, 1329
ApplyShiftScale, 1329
ApplyYBRToRGB, 1329
CanReadFile, 1322
Curve, 1329
DirectionCosines, 1330

FillMedicalImageInformation, 1322
ForceRescale, 1330
GetDescriptiveName, 1323
GetFileExtensions, 1323
GetIconImage, 1323
GetIconImagePort, 1323
GetOverlay, 1323
GetOverlayPort, 1323
IconDataScalarType, 1330
IconImageDataExtent, 1330
IconNumberOfScalarComponents, 1330
ImageFormat, 1330
ImageOrientationPatient, 1330
ImagePositionPatient, 1330
LoadIconImage, 1330
LoadOverlays, 1330
LoadSingleFile, 1323
LossyFlag, 1331
New, 1323
NumberOfIconImages, 1331
NumberOfOverlays, 1331
PlanarConfiguration, 1331
PrintSelf, 1324
ProcessRequest, 1324
RequestData, 1324
RequestDataCompat, 1324
RequestInformation, 1324
RequestInformationCompat, 1324
Scale, 1331
SetCurve, 1324
SetFilePattern, 1325
SetFilePrefix, 1325
SetMedicalImageProperties, 1325
Shift, 1331
vtkBooleanMacro, 1325
vtkGDCMImageReader2, 1322
vtkGDCMMedicalImageProperties, 1342
vtkGetMacro, 1326, 1327
vtkGetObjectMacro, 1327
vtkGetStringMacro, 1327, 1328
vtkGetVector3Macro, 1328
vtkGetVector6Macro, 1328
vtkSetMacro, 1328
vtkSetVector6Macro, 1329
vtkTypeMacro, 1329
vtkGDCMImageReader2.h, 2056, 2057
VTK_CMYK, 2057
VTK_INVERSE_LUMINANCE, 2057
VTK_LOOKUP_TABLE, 2057
VTK_YBR, 2057
vtkGDCMImageWriter, 1332
~vtkGDCMImageWriter, 1334
CompressionTypes, 1334
GetDescriptiveName, 1334
GetFileExtensions, 1334
GetFileName, 1334
JPEG2000_COMPRESSION, 1334
JPEG_COMPRESSION, 1334
JPEGLS_COMPRESSION, 1334
New, 1335
NO_COMPRESSION, 1334
PrintSelf, 1335
RLE_COMPRESSION, 1334
SetDirectionCosines, 1335
SetDirectionCosinesFromImageOrientationPatient, 1335
SetFileNames, 1335
SetMedicalImageProperties, 1335
vtkBooleanMacro, 1336
vtkGDCMImageWriter, 1334
vtkGDCMMedicalImageProperties, 1342
vtkGetMacro, 1336, 1337
vtkGetObjectMacro, 1337
vtkGetStringMacro, 1337, 1338
vtkSetMacro, 1338, 1339
vtkSetStringMacro, 1339
vtkTypeMacro, 1339
Write, 1339
WriteGDCMData, 1339
WriteSlice, 1339
vtkGDCMImageWriter.h, 2061
vtkGDCMMedicalImageProperties, 1340
~vtkGDCMMedicalImageProperties, 1341
Clear, 1341
GetFile, 1341
New, 1341
PrintSelf, 1342
PushBackFile, 1342
vtkGDCMImageReader, 1342
vtkGDCMImageReader2, 1342
vtkGDCMImageWriter, 1342
vtkGDCMMedicalImageProperties, 1341
vtkTypeMacro, 1342
vtkGDCMMedicalImageProperties.h, 2064
vtkGDCMPolyDataReader, 1343
~vtkGDCMPolyDataReader, 1344
FileName, 1346
FillMedicalImageInformation, 1344
MedicalImageProperties, 1346
New, 1344
PrintSelf, 1345
RequestData, 1345
RequestData_HemodynamicWaveformStorage, 1345
RequestData_RTStructureSetStorage, 1345
RequestInformation, 1345
RequestInformation_HemodynamicWaveformStorage, 1345

RequestInformation_RTStructureSetStorage, 1345
RTStructSetProperties, 1347
vtkGDCMPolyDataReader, 1344
vtkGetObjectMacro, 1346
vtkGetStringMacro, 1346
vtkSetStringMacro, 1346
vtkTypeMacro, 1346
vtkGDCMPolyDataReader.h, 2069, 2070
vtkGDCMPolyDataWriter, 1347
~vtkGDCMPolyDataWriter, 1348
InitializeRTStructSet, 1349
MedicalImageProperties, 1350
New, 1349
PrintSelf, 1349
RTStructSetProperties, 1350
SetMedicalImageProperties, 1349
SetNumberOfInputPorts, 1349
SetRTStructSetProperties, 1349
vtkGDCMPolyDataWriter, 1348
vtkTypeMacro, 1350
WriteData, 1350
WriteRTSTRUCTData, 1350
WriteRTSTRUCTInfo, 1350
vtkGDCMPolyDataWriter.h, 2071, 2072
vtkGDCMTesting, 1351
~vtkGDCMTesting, 1352
GetGDCMDataRoot, 1352
GetMD5MetaImage, 1352
GetMHDMD5FromFile, 1353
GetNumberOfMD5MetaImages, 1353
GetRAWMD5FromFile, 1353
GetVTKDataRoot, 1353
MD5MetaImagesType, 1352
New, 1353
PrintSelf, 1353
vtkGDCMTesting, 1352
vtkTypeMacro, 1354
vtkGDCMTesting.h, 2073
vtkGDCMThreadedImageReader, 1354
~vtkGDCMThreadedImageReader, 1357
ExecuteData, 1357
ExecuteInformation, 1357
New, 1358
PrintSelf, 1358
ReadFiles, 1358
RequestDataCompat, 1358
vtkBooleanMacro, 1358
vtkGDCMThreadedImageReader, 1357
vtkGetMacro, 1358
vtkSetMacro, 1358, 1359
vtkTypeMacro, 1359
vtkGDCMThreadedImageReader.h, 2074, 2075
vtkGDCMThreadedImageReader2, 1359
~vtkGDCMThreadedImageReader2, 1361
GetFileName, 1361
New, 1361
PrintSelf, 1361
RequestInformation, 1361
SetFileName, 1362
SetFileNames, 1362
SplitExtent, 1362
ThreadedRequestData, 1362
vtkBooleanMacro, 1362, 1363
vtkGDCMThreadedImageReader2, 1361
vtkGetMacro, 1363, 1364
vtkGetObjectMacro, 1364
vtkGetVector3Macro, 1364
vtkGetVector6Macro, 1364
vtkSetMacro, 1364, 1365
vtkSetVector3Macro, 1365, 1366
vtkSetVector6Macro, 1366
vtkTypeMacro, 1366
vtkGDCMThreadedImageReader2.h, 2076
vtkGetMacro
vtkGDCMImageReader, 1313–1315
vtkGDCMImageReader2, 1326, 1327
vtkGDCMImageWriter, 1336, 1337
vtkGDCMThreadedImageReader, 1358
vtkGDCMThreadedImageReader2, 1363, 1364
vtkImageColorViewer, 1375, 1376
vtkImageMapToColors16, 1382
vtkImageMapToWindowLevelColors2, 1386
vtkGetObjectMacro
vtkGDCMImageReader, 1315
vtkGDCMImageReader2, 1327
vtkGDCMImageWriter, 1337
vtkGDCMPolyDataReader, 1346
vtkGDCMThreadedImageReader2, 1364
vtkImageColorViewer, 1376
vtkImageMapToColors16, 1382
vtkGetStringMacro
vtkGDCMImageReader, 1315
vtkGDCMImageReader2, 1327, 1328
vtkGDCMImageWriter, 1337, 1338
vtkGDCMPolyDataReader, 1346
vtkRTStructSetProperties, 1402, 1403
vtkGetVector3Macro
vtkGDCMImageReader, 1316
vtkGDCMImageReader2, 1328
vtkGDCMThreadedImageReader2, 1364
vtkGetVector6Macro
vtkGDCMImageReader, 1316
vtkGDCMImageReader2, 1328
vtkGDCMThreadedImageReader2, 1364
vtkImageColorViewer, 1366
~vtkImageColorViewer, 1369
AddInput, 1370
AddInputConnection, 1370

FirstRender, 1377
GetColorLevel, 1370
GetColorWindow, 1370
GetInput, 1370
GetOffScreenRendering, 1370
GetOverlayVisibility, 1370
GetPosition, 1370
GetSize, 1370
GetSliceMax, 1370
GetSliceMin, 1371
GetSliceRange, 1371
GetWindowName, 1371
ImageActor, 1377
InstallPipeline, 1371
Interactor, 1377
InteractorStyle, 1377
New, 1371
OverlayImageActor, 1377
PrintSelf, 1371
Render, 1372
Renderer, 1377
RenderWindow, 1377
SetColorLevel, 1372
SetColorWindow, 1372
SetDisplayId, 1372
SetInput, 1372
SetInputConnection, 1372
SetOffScreenRendering, 1372
SetOverlayVisibility, 1373
SetParentId, 1373
SetPosition, 1373
SetRenderer, 1373
SetRenderWindow, 1373
SetSize, 1373, 1374
SetSlice, 1374
SetSliceOrientation, 1374
SetSliceOrientationToXY, 1374
SetSliceOrientationToXZ, 1374
SetSliceOrientationToYZ, 1374
SetupInteractor, 1375
SetWindowId, 1375
Slice, 1378
SLICE_ORIENTATION_XY, 1369
SLICE_ORIENTATION_XZ, 1369
SLICE_ORIENTATION_YZ, 1369
SliceOrientation, 1378
UnInstallPipeline, 1375
UpdateDisplayExtent, 1375
UpdateOrientation, 1375
vtkBooleanMacro, 1375
vtkGetMacro, 1375, 1376
vtkGetObjectMacro, 1376
vtkImageColorViewer, 1369
vtkImageColorViewerCallback, 1377
vtkTypeMacro, 1376
WindowLevel, 1378
vtkImageColorViewer.h, 2078, 2079
vtkImageColorViewerCallback
vtkImageColorViewer, 1377
vtkImageMapToColors16, 1378
~vtkImageMapToColors16, 1380
ActiveComponent, 1383
DataWasPassed, 1383
GetMTime, 1380
LookupTable, 1383
New, 1380
OutputFormat, 1383
PassAlphaToOutput, 1383
PrintSelf, 1380
RequestData, 1380
RequestInformation, 1380
SetLookupTable, 1381
SetOutputFormatToLuminance, 1381
SetOutputFormatToLuminanceAlpha, 1381
SetOutputFormatToRGB, 1381
SetOutputFormatToRGBA, 1381
ThreadedRequestData, 1381
vtkBooleanMacro, 1381
vtkGetMacro, 1382
vtkGetObjectMacro, 1382
vtkImageMapToColors16, 1380
vtkSetMacro, 1382
vtkTypeMacro, 1383
vtkImageMapToColors16.h, 2082, 2083
vtkImageMapToWindowLevelColors2, 1384
~vtkImageMapToWindowLevelColors2, 1385
Level, 1387
New, 1385
PrintSelf, 1385
RequestData, 1385
RequestInformation, 1385
ThreadedRequestData, 1386
vtkGetMacro, 1386
vtkImageMapToWindowLevelColors2, 1385
vtkSetMacro, 1386
vtkTypeMacro, 1386
Window, 1387
vtkImageMapToWindowLevelColors2.h, 2084, 2085
vtkImagePlanarComponentsToComponents, 1387
~vtkImagePlanarComponentsToComponents, 1388
New, 1389
PrintSelf, 1389
RequestData, 1389
vtkImagePlanarComponentsToComponents, 1388
vtkTypeMacro, 1389
vtkImagePlanarComponentsToComponents.h, 2086
vtkImageRGBToYBR, 1389
~vtkImageRGBToYBR, 1390

New, 1391
PrintSelf, 1391
ThreadedExecute, 1391
vtkImageRGBToYBR, 1390
vtkTypeMacro, 1391
vtkImageRGBToYBR.h, 2088
vtkImageYBRToRGB, 1391
~vtkImageYBRToRGB, 1392
New, 1393
PrintSelf, 1393
ThreadedExecute, 1393
vtkImageYBRToRGB, 1392
vtkTypeMacro, 1393
vtkImageYBRToRGB.h, 2089, 2090
vtkLookupTable16, 1393
~vtkLookupTable16, 1394
Build, 1395
GetPointer, 1395
MapScalarsThroughTable2, 1395
New, 1395
PrintSelf, 1395
SetNumberOfTableValues, 1395
Table16, 1396
vtkLookupTable16, 1394
vtkTypeMacro, 1395
WritePointer, 1396
vtkLookupTable16.h, 2090, 2091
vtkRTStructSetProperties, 1396
~vtkRTStructSetProperties, 1398
AddContourReferencedFrameOfReference, 1399
AddReferencedFrameOfReference, 1399
AddStructureSetROI, 1399
AddStructureSetROIObservation, 1399
Clear, 1399
DeepCopy, 1399
GetContourReferencedFrameOfReferenceClassUID, 1400
GetContourReferencedFrameOfReferenceInstanceUID, 1400
GetNumberOfContourReferencedFrameOfRefer-ences, 1400
GetNumberOfReferencedFrameOfReferences, 1400
GetNumberOfStructureSetROIs, 1400
GetReferencedFrameOfReferenceClassUID, 1400
GetReferencedFrameOfReferenceInstanceUID, 1400
GetStructureSetObservationNumber, 1401
GetStructureSetROIDescription, 1401
GetStructureSetROIGenerationAlgorithm, 1401
GetStructureSetROIName, 1401
GetStructureSetROINumber, 1401
GetStructureSetROIObservationLabel, 1401
GetStructureSetROIRefFrameRefUID, 1401
GetStructureSetRTROIInterpretedType, 1401
Internals, 1404
New, 1402
PrintSelf, 1402
ReferenceFrameOfReferenceUID, 1404
ReferenceSeriesInstanceUID, 1405
SeriesInstanceUID, 1405
SOPInstanceUID, 1405
StructureSetDate, 1405
StructureSetLabel, 1405
StructureSetName, 1405
StructureSetTime, 1405
StudyInstanceUID, 1405
vtkGetStringMacro, 1402, 1403
vtkRTStructSetProperties, 1398
vtkSetStringMacro, 1403, 1404
vtkTypeMacro, 1404
vtkRTStructSetProperties.h, 2092, 2093
vtkSetMacro
vtkGDCMImageReader, 1316
vtkGDCMImageReader2, 1328
vtkGDCMImageWriter, 1338, 1339
vtkGDCMThreadedImageReader, 1358, 1359
vtkGDCMThreadedImageReader2, 1364, 1365
vtkImageMapToColors16, 1382
vtkImageMapToWindowLevelColors2, 1386
vtkSetStringMacro
vtkGDCMImageWriter, 1339
vtkGDCMPolyDataReader, 1346
vtkRTStructSetProperties, 1403, 1404
vtkSetVector3Macro
vtkGDCMThreadedImageReader2, 1365, 1366
vtkSetVector6Macro
vtkGDCMImageReader, 1316
vtkGDCMImageReader2, 1329
vtkGDCMThreadedImageReader2, 1366
vtkTypeMacro
vtkGDCMImageReader, 1317
vtkGDCMImageReader2, 1329
vtkGDCMImageWriter, 1339
vtkGDCMMedicalImageProperties, 1342
vtkGDCMPolyDataReader, 1346
vtkGDCMPolyDataWriter, 1350
vtkGDCMTesting, 1354
vtkGDCMThreadedImageReader, 1359
vtkGDCMThreadedImageReader2, 1366
vtkImageColorViewer, 1376
vtkImageMapToColors16, 1383
vtkImageMapToWindowLevelColors2, 1386
vtkImagePlanarComponentsToComponents, 1389
vtkImageRGBToYBR, 1391
vtkImageYBRToRGB, 1393
vtkLookupTable16, 1395
vtkRTStructSetProperties, 1404

WarningOff

gdcm::Trace, 1146
WarningOn
gdcm::Trace, 1146
Waveform
gdcm::MediaStorage, 695
gdcm::Waveform, 1406
WaveformStorageTrialRetired
gdcm::UIDs, 1180
WeirdPapryus
gdcm::TransferSyntax, 1149
what
gdcm::Exception, 437
white
gdcm::terminal, 82
WideFieldOphthalmicPhotography3DCoordinatesImageStorage
gdcm::UIDs, 1184
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage
gdcm::UIDs, 1184
Window
vtkImageMapToWindowLevelColors2, 1387
WindowLevel
vtkImageColorViewer, 1378
WinterColorPaletteSOPInstance
gdcm::UIDs, 1183
WIREFRAME
gdcm::Surface, 1084
WLMFindQuery
gdcm::WLMFindQuery, 1409
Write
gdcm::ByteValue, 225
gdcm::CommandDataSet, 264
gdcm::DataElement, 319
gdcm::DataSet, 336
gdcm::Element< TVR, TVM >, 396
gdcm::Element< TVR, VM::VM1_n >, 403
gdcm::EncodingImplementation< VR::VRASCII >, 427
gdcm::EncodingImplementation< VR::VRBINARY >, 428
gdcm::ExplicitDataElement, 443
gdcm::File, 452
gdcm::FileAnonymizer, 457
gdcm::FileMetaInformation, 480
gdcm::Fragment, 514
gdcm::ImageWriter, 594
gdcm::ImplicitDataElement, 601
gdcm::Item, 621
gdcm::network::AAbortPDU, 87
gdcm::network::AAssociateACPDU, 91
gdcm::network::AAssociateRJPDU, 93
gdcm::network::AAssociateRQPDU, 99
gdcm::network::AbstractSyntax, 102
gdcm::network::ApplicationContext, 117
gdcm::network::AReleaseRPPDU, 122
gdcm::network::AReleaseRQPDU, 124
gdcm::network::AsynchronousOperationsWindowSub, 129
gdcm::network::BasePDU, 175
gdcm::network::ImplementationClassUIDSub, 595
gdcm::network::ImplementationUIDSub, 596
gdcm::network::ImplementationVersionNameSub, 597
gdcm::network::MaximumLengthSub, 687
gdcm::network::PDataTFPDU, 797
gdcm::network::PresentationContextAC, 860
gdcm::network::PresentationContextRQ, 867
gdcm::network::PresentationDataValue, 870
gdcm::network::RoleSelectionSub, 934
gdcm::network::ServiceClassApplicationInformation, 997
gdcm::network::SOPClassExtendedNegociationSub, 1022
gdcm::network::TransferSyntaxSub, 1153
gdcm::network::UserInformation, 1276
gdcm::PGXCodec, 816
gdcm::PixmapWriter, 846
gdcm::PNMCodec, 851
gdcm::Preamble, 854
gdcm::SegmentWriter, 973
gdcm::SequenceOfFragments, 981
gdcm::SequenceOfItems, 989
gdcm::StreamImageWriter, 1045
gdcm::SurfaceWriter, 1103
gdcm::Tag, 1131
gdcm::ValueIO< TDE, TSwap, TType >, 1282
gdcm::VL, 1288
gdcm::VR, 1300
gdcm::VRVLSize< 0 >, 1306
gdcm::VRVLSize< 1 >, 1306
gdcm::Writer, 1416
vtkGDCMImageWriter, 1339
Write16
gdcm::VL, 1288
WriteASCII
gdcm::Element< TVR, VM::VM1_n >, 403
WriteBuffer
gdcm::ByteValue, 225
gdcm::SequenceOfFragments, 981
WriteBufferAsRGBA
gdcm::LookupTable, 678
WriteData
vtkGDCMPolyDataWriter, 1350
WriteFooter
gdcm::DictConverter, 363
WriteGDCMData
vtkGDCMImageWriter, 1339
WriteHeader
gdcm::DictConverter, 364

WriteHelpFile
gdcm::BaseQuery, 179
WriteImageInformation
gdcm::StreamImageWriter, 1045
WriteImageSubregionRAW
gdcm::StreamImageWriter, 1046
WritePointer
vtkLookupTable16, 1396
WriteQuery
gdcm::BaseQuery, 179
Writer
gdcm::Writer, 1414
WriteRawHeader
gdcm::StreamImageWriter, 1046
WriteRTSTRUCTData
vtkGDCMPolyDataWriter, 1350
WriteRTSTRUCTInfo
vtkGDCMPolyDataWriter, 1350
WriteSlice
vtkGDCMImageWriter, 1339

x16printf
gdcm, 74
XAXRFGrayscaleSoftcopyPresentationStateStorage
gdcm::UIDs, 1184
XML
gdcm::Printer, 873
XMLDictReader
gdcm::XMLDictReader, 1418
XMLEncoding
gdcm::UIDs, 1178
XMLPrinter
gdcm::XMLPrinter, 1421
XMLPrivateDictReader
gdcm::XMLPrivateDictReader, 1424
XRay3DAngiographicImageStorage
gdcm::MediaStorage, 694
gdcm::UIDs, 1180
XRay3DCraniofacialImageStorage
gdcm::MediaStorage, 695
gdcm::UIDs, 1180
XRayAngiographicBiPlaneImageStorageRetired
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
XRayAngiographicImageStorage
gdcm::MediaStorage, 693
gdcm::UIDs, 1180
XRayRadiationDoseSR
gdcm::MediaStorage, 694
XRayRadiationDoseSRStorage
gdcm::UIDs, 1181
XRayRadiofluoroscopicImageStorage
gdcm::UIDs, 1180
XRayRadiofluoroscopingImageStorage
gdcm::MediaStorage, 693

YBR2RGB
gdcm::ImageChangePhotometricInterpretation, 543
YBR_FULL
gdcm::PhotometricInterpretation, 818
YBR_FULL_422
gdcm::PhotometricInterpretation, 818
YBR_ICT
gdcm::PhotometricInterpretation, 818
YBR_PARTIAL_420
gdcm::PhotometricInterpretation, 818
YBR_PARTIAL_422
gdcm::PhotometricInterpretation, 818
YBR_RCT
gdcm::PhotometricInterpretation, 818
yellow
gdcm::terminal, 82
YES
gdcm::Surface, 1084

ZEROED_OUT
gdcm::CSAHeader, 290
ZSpacing
gdcm::IPPSorter, 616
ZTolerance
gdcm::IPPSorter, 616