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ISO/IEC 24775-8

Edition 1.0 2014-11

# INTERNATIONAL STANDARD



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**Information technology – Storage management –  
Part 8: Media libraries**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

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ICS 35.200

ISBN 978-2-8322-1956-0

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## Contents

FOREWORD.....	13
Introduction .....	15
1 Scope .....	18
2 Normative references .....	18
3 Terms and definitions .....	18
4 Typographical conventions.....	20
4.1 Maturity model.....	20
4.2 Experimental maturity level .....	20
4.3 Implemented maturity level .....	20
4.4 Stable maturity level.....	21
4.5 Finalized maturity level.....	21
4.6 Deprecated Material.....	21
5 Storage Library Profile.....	23
5.1 Description .....	23
5.1.1 General.....	23
5.1.2 Instance Diagrams .....	23
5.1.3 System Level View .....	23
5.1.4 MediaAccessDevice-centric View .....	24
5.1.5 ChangerDevice-centric View .....	25
5.1.6 Physical View .....	25
5.1.7 StorageMediaLocation Instance Diagram .....	26
5.1.8 Durable Names and Correlatable IDs of the Profile .....	26
5.1.9 Media Library Indications .....	27
5.2 Health and Fault Management Considerations.....	36
5.3 Cascading Considerations .....	36
5.4 Supported Subprofiles and Packages.....	36
5.5 Methods of this Profile.....	36
5.6 Client Considerations and Recipes .....	36
5.6.1 Recipe Overview .....	36
5.6.2 Discover a Storage Media Library .....	36
5.6.3 Determine Library Physical Media Capacity.....	37
5.6.4 Determine Physical Media Inventory .....	37
5.6.5 Discover Storage Library Control Type .....	37
5.6.6 Determine Library Drive Capacity .....	37
5.6.7 Determine Drive Data Path Technology.....	37
5.6.8 Find asset Information.....	37
5.6.9 Discovery of Mailslots, Import/Export Elements or LimitedAccessPorts in a Storage Library.....	38
5.6.10 Counting assets in large storage libraries .....	38
5.7 Registered Name and Version .....	38
5.8 CIM Elements.....	38
5.8.1 General.....	38
5.8.2 CIM_ChangerDevice .....	47
5.8.3 CIM_Chassis .....	48
5.8.4 CIM_ComputerSystem .....	48
5.8.5 CIM_ComputerSystemPackage .....	49
5.8.6 CIM_ElementCapabilities .....	49
5.8.7 CIM_ElementSoftwareIdentity.....	50
5.8.8 CIM_MediaAccessDevice .....	50
5.8.9 CIM_PackagedComponent .....	50
5.8.10 CIM_PhysicalMedia.....	51
5.8.11 CIM_PhysicalMediaInLocation .....	51

5.8.12	CIM_ProtocolControllerForUnit .....	52
5.8.13	CIM_Realizes .....	52
5.8.14	CIM_SCSIProtocolController.....	52
5.8.15	CIM_SoftwareIdentity .....	53
5.8.16	CIM_StorageLibraryCapabilities.....	53
5.8.17	CIM_StorageMediaLocation .....	54
5.8.18	CIM_SystemDevice (System to Changer Device).....	54
5.8.19	CIM_SystemDevice (System to MediaAccessDevice) .....	54
5.8.20	CIM_SystemDevice (System to SCSIProtocolController) .....	55
6	Element Counting Subprofile.....	56
6.1	Description .....	56
6.1.1	General.....	56
6.1.2	Discovery.....	56
6.2	Health and Fault Management Considerations .....	56
6.3	Cascading Considerations .....	56
6.4	Supported Subprofiles and Packages.....	56
6.5	Methods of the Profile .....	56
6.5.1	GetClassTypes.....	56
6.5.2	GetUnitTypes .....	57
6.5.3	ReportCapacity.....	58
6.6	Client Considerations and Recipes .....	58
6.7	Registered Name and Version .....	59
6.8	CIM Elements.....	59
6.8.1	General.....	59
6.8.2	CIM_ConfigurationReportingService .....	60
6.8.3	CIM_HostedService .....	60
7	InterLibraryPort Connection Subprofile .....	61
7.1	Introductory remark .....	61
7.2	Description .....	61
7.3	Durable Names and Correlatable IDs .....	61
7.4	Health and Fault Management Considerations .....	62
7.5	Cascading Considerations .....	62
7.6	Supported Subprofiles and Packages.....	62
7.7	Methods of the Profile .....	62
7.8	Client Considerations and Recipes .....	62
7.9	Registered Name and Version .....	62
7.10	CIM Elements.....	62
7.10.1	General.....	62
7.10.2	CIM_InterLibraryPort.....	62
7.10.3	CIM_LibraryExchange.....	63
8	Library Capacity Subprofile .....	64
8.1	Description .....	64
8.2	Health and Fault Management Considerations.....	64
8.3	Cascading Considerations .....	64
8.4	Supported Subprofiles and Packages.....	64
8.5	Client Considerations and Recipes .....	64
8.6	Registered Name and Version .....	64
8.7	CIM Elements.....	65
8.7.1	General.....	65
8.7.2	CIM_ConfigurationCapacity .....	65
8.7.3	CIM_ElementCapacity.....	65
9	Limited Access Port Elements Subprofile.....	66
9.1	Description .....	66
9.1.1	General.....	66

9.1.2	Instance Diagram .....	66
9.2	Health and Fault Management Considerations .....	67
9.3	Cascading Considerations .....	67
9.4	Supported Subprofiles and Packages .....	67
9.5	Methods of the Profile .....	67
9.6	Client Considerations and Recipes .....	67
9.7	Registered Name and Version .....	67
9.8	CIM Elements .....	68
9.8.1	General .....	68
9.8.2	CIM_Container .....	68
9.8.3	CIM_LimitedAccessPort .....	69
9.8.4	CIM_Magazine .....	69
9.8.5	CIM_Realizes .....	69
9.8.6	CIM_SystemDevice .....	70
10	Media Movement Subprofile .....	71
10.1	Description .....	71
10.2	Health and Fault Management Considerations .....	72
10.2.1	NULL Instance Handling .....	72
10.2.2	Media Movement Subprofile Standard Messages .....	72
10.3	Cascading Considerations .....	72
10.4	Supported Subprofiles and Packages .....	72
10.5	Methods of the Profile .....	73
10.5.1	Moving a piece of PhysicalMedia .....	73
10.5.2	Timeout parameter .....	73
10.5.3	ForceUnload parameter .....	73
10.6	Client Considerations and Recipes .....	74
10.6.1	Concurrent library access by SMI clients and other applications .....	74
10.6.2	Use of the ForceUnload parameter .....	74
10.6.3	Job Lifecycle Indications .....	74
10.7	Registered Name and Version .....	74
10.8	CIM Elements .....	74
10.8.1	General .....	74
10.8.2	CIM_HostedService .....	74
10.8.3	SNIA_MediaMovementService .....	75
11	Partitioned Tape Library Profile .....	76
11.1	Description .....	76
11.1.1	Overview .....	76
11.1.2	PTL Model .....	76
11.1.3	PTL Configuration .....	77
11.1.4	PTL Configuration Methods .....	78
11.2	Health and Fault Management Consideration .....	78
11.3	Cascading Considerations .....	78
11.4	Supported Profiles, Subprofiles, and Packages .....	79
11.5	Client Considerations and Recipes .....	79
11.6	Registered Name and Version .....	79
11.7	CIM Elements .....	79
11.7.1	General .....	79
11.7.2	CIM_ChangerDevice .....	81
11.7.3	CIM_Chassis (PTL System) .....	81
11.7.4	CIM_ComputerSystemPackage (PTL System to Chassis) .....	82
11.7.5	CIM_ConcretelIdentity (Slots to Slots) .....	82
11.7.6	CIM_Container (Chassis to slots) .....	82
11.7.7	CIM_ElementCapabilities .....	83
11.7.8	CIM_ElementSettingData .....	83

11.7.9 CIM_HostedDependency (PTLSystem to Partition) .....	83
11.7.10CIM_HostedDependency (PTLSystem to Unallocated Partition) .....	83
11.7.11CIM_LimitedAccessPort .....	84
11.7.12CIM_MediaAccessDevice .....	84
11.7.13CIM_PhysicalMediaInLocation .....	85
11.7.14CIM_PhysicalTape .....	85
11.7.15CIM_Product .....	85
11.7.16CIM_ProductElementComponent (PTL System) .....	85
11.7.17CIM_Realizes (Slots to Changers) .....	86
11.7.18CIM_Realizes (Slots to Ports) .....	86
11.7.19CIM_Realizes (Slots to TapeDrive) .....	86
11.7.20CIM_StorageMediaLocation .....	87
11.7.21CIM_SystemDevice (PTL System to ChangerDevice) .....	87
11.7.22CIM_SystemDevice (PTL System to LimitedAccessPort) .....	87
11.7.23CIM_SystemDevice (PTL System to MediaAccessDevice) .....	88
11.7.24SNIA_ComputerSystem (PTL System) .....	88
11.7.25SNIA_ComputerSystem (Partition) .....	89
11.7.26SNIA_ComputerSystem (Unallocated Partition) .....	89
11.7.27SNIA_PartitionedLibrarySetting .....	90
11.7.28SNIA_PartitionedLibrarySystemCapabilities .....	91
11.7.29SNIA_PartitionedLibrarySystemConfigurationService .....	91
12 Virtual Tape Library Profile .....	93
12.1 Description .....	93
12.1.1 Overview .....	93
12.1.2 Package .....	93
12.1.3 Virtual Library System .....	94
12.1.4 Virtual Library System configuration .....	97
12.2 Health and Fault Management Consideration .....	100
12.3 Cascading Considerations .....	100
12.4 Supported Profiles and Packages .....	101
12.5 Methods of the profile .....	101
12.6 Client Considerations and Recipes .....	101
12.7 Registered Name and Version .....	101
12.8 CIM Elements .....	101
12.8.1 General .....	101
12.8.2 CIM_AllocatedFromStoragePool (Pool from Concrete Pool) .....	105
12.8.3 CIM_AllocatedFromStoragePool (Pool from Primordial Pool) .....	105
12.8.4 CIM_AllocatedFromStoragePool (StorageExtent from Concrete Pool) .....	106
12.8.5 CIM_ChangerDevice .....	106
12.8.6 CIM_Chassis (Virtual Tape Library) .....	107
12.8.7 CIM_ComputerSystem (Virtual Library System) .....	107
12.8.8 CIM_ComputerSystem (Virtual Tape Library) .....	108
12.8.9 CIM_ComputerSystemPackage .....	108
12.8.10CIM_ConcreteComponent (StorageExtent from Primordial Pool) .....	109
12.8.11CIM_ConcreteDependency (Virtual Library System to MediaLibrary) .....	109
12.8.12CIM_Container (Chassis to StorageMediaLocations) .....	110
12.8.13CIM_ElementCapabilities (Virtual Tape Library Capabilities) .....	110
12.8.14CIM_ElementCapabilities (Virtual Tape Library System Capabilities) .....	110
12.8.15CIM_ElementCapabilities (Virtual Tape Service Capabilities) .....	111
12.8.16CIM_ElementSettingData (Physical Tape) .....	111
12.8.17CIM_HostedCollection .....	111
12.8.18CIM_HostedDependency (Virtual Library System to VirtualLibrary) .....	111
12.8.19CIM_HostedService (Virtual Tape Library Configuration Service) .....	112
12.8.20CIM_HostedService (Virtual Tape Library System Service) .....	112

12.8.21	CIM_HostedService (Virtual Tape Service) .....	113
12.8.22	CIM_HostedStoragePool (Primordial) .....	113
12.8.23	CIM_LimitedAccessPort .....	113
12.8.24	CIM_LogicalIdentity .....	114
12.8.25	CIM_MediaAccessDevice .....	114
12.8.26	CIM_MemberOfCollection .....	115
12.8.27	CIM_PhysicalMediaInLocation .....	115
12.8.28	CIM_Product .....	115
12.8.29	CIM_ProductElementComponent (Virtual Tape Library) .....	115
12.8.30	CIM_Realizes (Slots to Changers) .....	116
12.8.31	CIM_Realizes (Slots to Ports) .....	116
12.8.32	CIM_Realizes (Slots to TapeDrive) .....	116
12.8.33	CIM_ServiceAffectsElement .....	117
12.8.34	CIM_SettingAssociatedToCapabilities (Setting To Capabilities) .....	117
12.8.35	CIM_SettingsDefineCapabilities .....	117
12.8.36	CIM_SettingsDefineState .....	117
12.8.37	CIM_StorageExtent (Assigned) .....	118
12.8.38	CIM_StorageExtent (Imported) .....	118
12.8.39	CIM_StorageMediaLocation .....	119
12.8.40	CIM_StoragePool (Concrete) .....	120
12.8.41	CIM_StoragePool (Primordial) .....	120
12.8.42	CIM_SystemDevice (System to Primordial StorageExtent) .....	121
12.8.43	CIM_SystemDevice (VTL to ChangerDevice) .....	121
12.8.44	CIM_SystemDevice (VTL to LimitedAccessPort) .....	121
12.8.45	CIM_SystemDevice (VTL to MediaAccessDevice) .....	122
12.8.46	CIM_SystemSpecificCollection (Unassigned) .....	122
12.8.47	SNIA_PhysicalTape (Virtual Tape) .....	122
12.8.48	SNIA_VirtualTapeLibraryCapabilities .....	123
12.8.49	SNIA_VirtualTapeLibraryConfigurationService .....	123
12.8.50	SNIA_VirtualTapeLibrarySetting .....	124
12.8.51	SNIA_VirtualTapeLibrarySystemCapabilities .....	125
12.8.52	SNIA_VirtualTapeLibrarySystemService .....	125
12.8.53	SNIA_VirtualTapeService .....	126
12.8.54	SNIA_VirtualTapeServiceCapabilities .....	126
12.8.55	SNIA_VirtualTapeSetting .....	126
13	Virtual Tape Library Copy Profile .....	128
13.1	Description .....	128
13.2	Tape Copy Services .....	128
13.2.1	Summary .....	128
13.2.2	Definitions .....	128
13.3	Recipes .....	133
13.3.1	Simple Snapshot recipe .....	133
13.3.2	Selective Tape Copy recipe .....	133
13.4	Health and Fault Management Consideration .....	134
13.5	Cascading Considerations .....	134
13.6	Registered Name and Version .....	134
13.7	CIM Elements .....	134
13.7.1	General .....	134
13.7.2	CIM_ElementCapabilities .....	135
13.7.3	CIM_HostedService .....	135
13.7.4	SNIA_TapeCopyCapabilities .....	135
13.7.5	SNIA_TapeCopyService .....	136
13.7.6	SNIA_TapeMetaData .....	137
14	Library Views Profile .....	138

14.1	Synopsis.....	138
14.2	Description .....	138
14.2.1	Overview .....	138
14.2.2	Goals of SNIA_ View Classes .....	138
14.3	Implementation.....	139
14.3.1	View Class Capabilities .....	139
14.3.2	Media Location Views .....	139
14.3.3	Masking and Mapping Views.....	140
14.3.4	Health and Fault Management Consideration .....	140
14.3.5	Cascading Considerations .....	140
14.4	Methods of the Profile .....	140
14.4.1	Extrinsic Methods of the Profile .....	140
14.4.2	Intrinsic Methods of the Profile .....	140
14.5	Use Cases.....	141
14.6	CIM Elements.....	141
14.6.1	General.....	141
14.6.2	CIM_ElementCapabilities (View Capabilities) .....	142
14.6.3	SNIA_ExposedView .....	142
14.6.4	SNIA_MediaLocationView .....	143
14.6.5	SNIA_SystemMediaLocationView (MediaLocationViews).....	143
14.6.6	SNIA_ViewCapabilities.....	144
	Annex A (informative) SMI-S Information Model.....	145
	Bibliography .....	146

Figure 1 - Experimental maturity level tag .....	20
Figure 2 - Implemented maturity level tag.....	21
Figure 3 - Stable maturity level tag .....	21
Figure 4 - Deprecated tag .....	22
Figure 5 - Storage Library-centric Instance Diagram .....	24
Figure 6 - MediaAccessDevice-centric Instance Diagram .....	25
Figure 7 - ChangerDevice-centric Instance Diagram .....	25
Figure 8 - Physical View Instance Diagram .....	26
Figure 9 - StorageMediaLocation Instance Diagram .....	26
Figure 10 - Instance Diagram .....	56
Figure 11 - InterLibraryPort Connection Instance Diagram .....	61
Figure 12 - Library Capacity Instance Diagram .....	64
Figure 13 - Tape Libraries with Magazines in LimitedAccessPorts .....	66
Figure 14 - Tape Libraries with no Magazines in LimitedAccessPorts .....	67
Figure 15 - Storage Library Centric View.....	71
Figure 16 - Media-centrc View .....	72
Figure 17 - Partitioned Tape Library System Model .....	77
Figure 18 - Partitioned Tape Library Configuration Model .....	77
Figure 19 - Block Diagram .....	93
Figure 20 - Virtual Library System Package Diagram.....	94
Figure 21 - Virtual Tape Library System .....	95
Figure 22 - VTL - Block to Tape.....	96
Figure 23 - Virtual Library System-Services .....	97
Figure 24 - Drive Mapping .....	98
Figure 25 - Virtual Library Services.....	99
Figure 26 - Virtual Tape Service .....	100
Figure 27 - Tape Copy Services Class Diagram.....	128
Figure 28 - TapeMetaData Class Definition.....	129



Table 1 - CIM Elements for Storage Library .....	38
Table 2 - SMI Referenced Properties/Methods for CIM_ChangerDevice .....	48
Table 3 - SMI Referenced Properties/Methods for CIM_Chassis .....	48
Table 4 - SMI Referenced Properties/Methods for CIM_ComputerSystem .....	49
Table 5 - SMI Referenced Properties/Methods for CIM_ComputerSystemPackage .....	49
Table 6 - SMI Referenced Properties/Methods for CIM_ElementCapabilities .....	49
Table 7 - SMI Referenced Properties/Methods for CIM_ElementSoftwareIdentity .....	50
Table 8 - SMI Referenced Properties/Methods for CIM_MediaAccessDevice .....	50
Table 9 - SMI Referenced Properties/Methods for CIM_PackagedComponent .....	51
Table 10 - SMI Referenced Properties/Methods for CIM_PhysicalMedia .....	51
Table 11 - SMI Referenced Properties/Methods for CIM_PhysicalMediaInLocation .....	51
Table 12 - SMI Referenced Properties/Methods for CIM_ProtocolControllerForUnit .....	52
Table 13 - SMI Referenced Properties/Methods for CIM_Realizes .....	52
Table 14 - SMI Referenced Properties/Methods for CIM_SCSIProtocolController .....	52
Table 15 - SMI Referenced Properties/Methods for CIM_SoftwareIdentity .....	53
Table 16 - SMI Referenced Properties/Methods for CIM_StorageLibraryCapabilities .....	53
Table 17 - SMI Referenced Properties/Methods for CIM_StorageMediaLocation .....	54
Table 18 - SMI Referenced Properties/Methods for CIM_SystemDevice (System to Changer Device) .....	54
Table 19 - SMI Referenced Properties/Methods for CIM_SystemDevice (System to MediaAccessDevice) .....	54
Table 20 - SMI Referenced Properties/Methods for CIM_SystemDevice (System to SCSIProtocolController) .....	55
Table 21 - CIM Elements for Storage Library Element Counting .....	59
Table 22 - SMI Referenced Properties/Methods for CIM_ConfigurationReportingService .....	60
Table 23 - SMI Referenced Properties/Methods for CIM_HostedService .....	60
Table 24 - CIM Elements for Storage Library InterLibraryPort Connection .....	62
Table 25 - SMI Referenced Properties/Methods for CIM_InterLibraryPort .....	63
Table 26 - SMI Referenced Properties/Methods for CIM_LibraryExchange .....	63
Table 27 - CIM Elements for Storage Library Capacity .....	65
Table 28 - SMI Referenced Properties/Methods for CIM_ConfigurationCapacity .....	65
Table 29 - SMI Referenced Properties/Methods for CIM_ElementCapacity .....	65
Table 30 - CIM Elements for Storage Library Limited Access Port Elements .....	68
Table 31 - SMI Referenced Properties/Methods for CIM_Container .....	68
Table 32 - SMI Referenced Properties/Methods for CIM_LimitedAccessPort .....	69
Table 33 - SMI Referenced Properties/Methods for CIM_Magazine .....	69
Table 34 - SMI Referenced Properties/Methods for CIM_Realizes .....	70
Table 35 - SMI Referenced Properties/Methods for CIM_SystemDevice .....	70
Table 36 - Media Movement Standard Messages .....	72
Table 37 - CIM Elements for Storage Library Media Movement .....	74
Table 38 - SMI Referenced Properties/Methods for CIM_HostedService .....	74
Table 39 - SMI Referenced Properties/Methods for SNIA_MediaMovementService .....	75
Table 40 - Supported Profiles for Partitioned Tape Library .....	79
Table 41 - CIM Elements for Partitioned Tape Library .....	79
Table 42 - SMI Referenced Properties/Methods for CIM_ChangerDevice .....	81
Table 43 - SMI Referenced Properties/Methods for CIM_Chassis (PTL System) .....	81
Table 44 - SMI Referenced Properties/Methods for CIM_ComputerSystemPackage .....	

(PTL System to Chassis) .....	82
Table 45 - SMI Referenced Properties/Methods for CIM_ConcreteIdentity (Slots to Slots) .....	82
Table 46 - SMI Referenced Properties/Methods for CIM_Container (Chassis to slots) .....	83
Table 47 - SMI Referenced Properties/Methods for CIM_ElementCapabilities .....	83
Table 48 - SMI Referenced Properties/Methods for CIM_ElementSettingData .....	83
Table 49 - SMI Referenced Properties/Methods for CIM_HostedDependency (PTLSystem to Partition) .....	83
Table 50 - SMI Referenced Properties/Methods for CIM_HostedDependency (PTLSystem to Unallocated Partition) .....	84
Table 51 - SMI Referenced Properties/Methods for CIM_LimitedAccessPort .....	84
Table 52 - SMI Referenced Properties/Methods for CIM_MediaAccessDevice .....	84
Table 53 - SMI Referenced Properties/Methods for CIM_PhysicalMediaInLocation .....	85
Table 54 - SMI Referenced Properties/Methods for CIM_Product .....	85
Table 55 - SMI Referenced Properties/Methods for CIM_ProductElementComponent (PTL System) .....	86
Table 56 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to Changers) .....	86
Table 57 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to Ports) .....	86
Table 58 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to TapeDrive) .....	87
Table 59 - SMI Referenced Properties/Methods for CIM_StorageMediaLocation .....	87
Table 60 - SMI Referenced Properties/Methods for CIM_SystemDevice (PTL System to ChangerDevice) .....	87
Table 61 - SMI Referenced Properties/Methods for CIM_SystemDevice (PTL System to LimitedAccessPort) .....	88
Table 62 - SMI Referenced Properties/Methods for CIM_SystemDevice (PTL System to MediaAccessDevice) .....	88
Table 63 - SMI Referenced Properties/Methods for SNIA_ComputerSystem (PTL System) .....	88
Table 64 - SMI Referenced Properties/Methods for SNIA_ComputerSystem (Partition) .....	89
Table 65 - SMI Referenced Properties/Methods for SNIA_ComputerSystem (Unallocated Partition) .....	90
Table 66 - SMI Referenced Properties/Methods for SNIA_PartitionedLibrarySetting .....	90
Table 67 - SMI Referenced Properties/Methods for SNIA_PartitionedLibrarySystemCapabilities .....	91
Table 68 - SMI Referenced Properties/Methods for SNIA_PartitionedLibrarySystemConfigurationService .....	92
Table 69 - Supported Profiles for Virtual Tape Library .....	101
Table 70 - CIM Elements for Virtual Tape Library .....	101
Table 71 - SMI Referenced Properties/Methods for CIM_AllocatedFromStoragePool (Pool from Concrete Pool) .....	105
Table 72 - SMI Referenced Properties/Methods for CIM_AllocatedFromStoragePool (Pool from Primordial Pool) .....	106
Table 73 - SMI Referenced Properties/Methods for CIM_AllocatedFromStoragePool (StorageExtent from Concrete Pool) .....	106
Table 74 - SMI Referenced Properties/Methods for CIM_ChangerDevice .....	106
Table 75 - SMI Referenced Properties/Methods for CIM_Chassis (Virtual Tape Library) .....	107
Table 76 - SMI Referenced Properties/Methods for CIM_ComputerSystem (Virtual Library System) .....	107
Table 77 - SMI Referenced Properties/Methods for CIM_ComputerSystem (Virtual Tape Library) ..	108
Table 78 - SMI Referenced Properties/Methods for CIM_ComputerSystemPackage .....	109
Table 79 - SMI Referenced Properties/Methods for CIM_ConcreteComponent (StorageExtent from Primordial Pool) .....	109

Table 80 - SMI Referenced Properties/Methods for CIM_ConcreteDependency (Virtual Library System to MediaLibrary) .....	109
Table 81 - SMI Referenced Properties/Methods for CIM_Container (Chassis to StorageMediaLocations).....	110
Table 82 - SMI Referenced Properties/Methods for CIM_ElementCapabilities (Virtual Tape Library Capabilities) .....	110
Table 83 - SMI Referenced Properties/Methods for CIM_ElementCapabilities (Virtual Tape Library System Capabilities) .....	110
Table 84 - SMI Referenced Properties/Methods for CIM_ElementCapabilities (Virtual Tape Service Capabilities) .....	111
Table 85 - SMI Referenced Properties/Methods for CIM_ElementSettingData (Physical Tape).....	111
Table 86 - SMI Referenced Properties/Methods for CIM_HostedCollection.....	111
Table 87 - SMI Referenced Properties/Methods for CIM_HostedDependency (Virtual Library System to VirtualLibrary).....	112
Table 88 - SMI Referenced Properties/Methods for CIM_HostedService (Virtual Tape Library Configuration Service) .....	112
Table 89 - SMI Referenced Properties/Methods for CIM_HostedService (Virtual Tape Library System Service).....	112
Table 90 - SMI Referenced Properties/Methods for CIM_HostedService (Virtual Tape Service).....	113
Table 91 - SMI Referenced Properties/Methods for CIM_HostedStoragePool (Primordial) .....	113
Table 92 - SMI Referenced Properties/Methods for CIM_LimitedAccessPort .....	113
Table 93 - SMI Referenced Properties/Methods for CIM_LogicalIdentity .....	114
Table 94 - SMI Referenced Properties/Methods for CIM_MediaAccessDevice .....	114
Table 95 - SMI Referenced Properties/Methods for CIM_MemberOfCollection .....	115
Table 96 - SMI Referenced Properties/Methods for CIM_PhysicalMediaInLocation .....	115
Table 97 - SMI Referenced Properties/Methods for CIM_Product .....	115
Table 98 - SMI Referenced Properties/Methods for CIM_ProductElementComponent (Virtual Tape Library).....	116
Table 99 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to Changers).....	116
Table 100 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to Ports) .....	116
Table 101 - SMI Referenced Properties/Methods for CIM_Realizes (Slots to TapeDrive) .....	117
Table 102 - SMI Referenced Properties/Methods for CIM_ServiceAffectsElement.....	117
Table 103 - SMI Referenced Properties/Methods for CIM_SettingAssociatedToCapabilities (Setting To Capabilities) .....	117
Table 104 - SMI Referenced Properties/Methods for CIM_SettingsDefineCapabilities.....	117
Table 105 - SMI Referenced Properties/Methods for CIM_SettingsDefineState .....	118
Table 106 - SMI Referenced Properties/Methods for CIM_StorageExtent (Assigned).....	118
Table 107 - SMI Referenced Properties/Methods for CIM_StorageExtent (Imported) .....	119
Table 108 - SMI Referenced Properties/Methods for CIM_StorageMediaLocation .....	120
Table 109 - SMI Referenced Properties/Methods for CIM_StoragePool (Concrete) .....	120
Table 110 - SMI Referenced Properties/Methods for CIM_StoragePool (Primordial) .....	121
Table 111 - SMI Referenced Properties/Methods for CIM_SystemDevice (System to Primordial StorageExtent) .....	121
Table 112 - SMI Referenced Properties/Methods for CIM_SystemDevice (VTL to ChangerDevice).....	121
Table 113 - SMI Referenced Properties/Methods for CIM_SystemDevice (VTL to LimitedAccessPort).....	122
Table 114 - SMI Referenced Properties/Methods for CIM_SystemDevice (VTL to MediaAccessDevice) .....	122

Table 115 - SMI Referenced Properties/Methods for CIM_SystemSpecificCollection (Unassigned) .....	122
Table 116 - SMI Referenced Properties/Methods for SNIA_PhysicalTape (Virtual Tape).....	123
Table 117 - SMI Referenced Properties/Methods for SNIA_VirtualTapeLibraryCapabilities .....	123
Table 118 - SMI Referenced Properties/Methods for SNIA_VirtualTapeLibraryConfigurationService .....	124
Table 119 - SMI Referenced Properties/Methods for SNIA_VirtualTapeLibrarySetting .....	124
Table 120 - SMI Referenced Properties/Methods for SNIA_VirtualTapeLibrarySystemCapabilities	125
Table 121 - SMI Referenced Properties/Methods for SNIA_VirtualTapeLibrarySystemService.....	125
Table 122 - SMI Referenced Properties/Methods for SNIA_VirtualTapeService.....	126
Table 123 - SMI Referenced Properties/Methods for SNIA_VirtualTapeServiceCapabilities .....	126
Table 124 - SMI Referenced Properties/Methods for SNIA_VirtualTapeSetting .....	127
Table 125 - CIM Elements for Tape Copy Service .....	134
Table 126 - SMI Referenced Properties/Methods for CIM_ElementCapabilities .....	135
Table 127 - SMI Referenced Properties/Methods for CIM_HostedService .....	135
Table 128 - SMI Referenced Properties/Methods for SNIA_TapeCopyCapabilities .....	136
Table 129 - SMI Referenced Properties/Methods for SNIA_TapeCopyService .....	136
Table 130 - SMI Referenced Properties/Methods for SNIA_TapeMetaData .....	137
Table 131 - Related Profiles for Library Views.....	138
Table 132 - CIM Elements for Library Views .....	141
Table 133 - SMI Referenced Properties/Methods for CIM_ElementCapabilities (View Capabilities)	142
Table 134 - SMI Referenced Properties/Methods for SNIA_ExposedView .....	142
Table 135 - SMI Referenced Properties/Methods for SNIA_MediaLocationView .....	143
Table 136 - SMI Referenced Properties/Methods for SNIA_SystemMediaLocationView (MediaLocationViews) .....	144
Table 137 - SMI Referenced Properties/Methods for SNIA_ViewCapabilities.....	144

# INFORMATION TECHNOLOGY – STORAGE MANAGEMENT – Part 8: Media libraries

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International Standard ISO/IEC 24775-8 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This International Standard, together with ISO/IEC 24775-1 to ISO/IEC 24775-7, replaces ISO/IEC 24775, second edition, published in 2011, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) reorganization into eight parts;
- b) maturity identification using stages; and
- c) new profiles.

The list of all currently available parts of the ISO/IEC 24775 series, under the general title *Information technology – Storage management*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

**IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.**

## Introduction

Storage Library Profile and related subprofiles defined in this book provide a standard CIM interface to monitor and control various aspects of removable media libraries including tape libraries. Once a library supports this standard, any SMI-S client based on this standard can discover a tape library, determine its capacity, perform inventory, monitor status, move tapes and perform other configuration and control operations. This standard also standardizes library specific life-cycle and alert indications that are delivered to a client asynchronously, once a client subscribes to these indications.

This book covers Media Libraries of the SMI-S standards listed below. While ISO/IEC 24775-2, (Common Architecture) describes SMI-S concepts and terms, some of the profiles and subprofiles referenced in this Storage Library profile are specified in ISO/IEC 24775-3, (Common Profiles).

### Parts of this Standard

This International Standard is subdivided into the following parts:

- *Information technology – Storage management – Part 1: Overview*
- *Information technology – Storage management – Part 2: Common architecture*
- *Information technology – Storage management – Part 3: Common profiles*
- *Information technology – Storage management – Part 4: Block devices*
- *Information technology – Storage management – Part 5: Filesystems*
- *Information technology – Storage management – Part 6: Fabric*
- *Information technology – Storage management – Part 7: Host elements*
- *Information technology – Storage management – Part 8: Media libraries*

### Changes since the Last Edition

This edition cancels and replaces the second edition published in 2011 and constitutes a technical revision. This edition includes the following significant changes with respect to the previous edition. The changes fall into three broad categories:

- **Improved organization.** This International Standard has been reorganized into eight parts to provide more information more easily. The parts are as follows.
  - *Part 1 Overview:* The overview book provides a high level overview of the standard.
  - *Part 2 Common Architecture:* This part covers general information about the interface, such as security and protocols.
  - *Part 3 Common Profiles:* This part covers component profiles that extend profiles in other books, such as target ports and job control.
  - *Part 4 Block Devices:* This part covers storage profiles that support various forms of disk storage.
  - *Part 5 Filesystems:* This part covers profiles that support filesystems, such as NAS (Network Attached Storage).
  - *Part 6 Fabric:* This part covers profiles that deal with interconnection of host servers and storage devices, such as switches.
  - *Part 7 Host Elements:* This part covers profiles for storage software on host servers, such as disk partitioning and Host Hardware RAID controllers.
  - *Part 8 Media Libraries:* This part covers profiles that deal with removable media such as tape libraries.

- **Maturity identification.** As material is added to the standard it goes through various stages of maturity. The initial stage is *Experimental*, which is material that has not yet been implemented and is subject to change. The other stages indicate the degree of implementations. The stages are:
  - **Experimental:** Full design review, no commercial implementations.
  - **Implemented:** Initial implementations available, may be removed at minor revision.
  - **Stable:** Three or more vendors have implemented the identified material, backward compatibility assured, removed only at major revision.
  - **Finalized:** Relies solely on Finalized content, deprecated only at major revision.
  - **Deprecated:** Obsolete material, may be removed in future revisions.

For a more detailed explanation of each maturity level and its typographical indication, see Clause 4 Typographical Conventions.
- **Expanded scope.** The range of SAN components modeled by the profiles defined in the parts has been greatly expanded.
  - New profiles include:
    - *Part 3 Common Profiles:* Serial Attached SCSI (SAS) Target Port, Serial ATA (SATA) Target Ports, SB Target Port, SAS Initiator Ports, ATA Initiator Ports, FC-SB-x Initiator Ports, FCoE Initiator Ports, Power Supply, Fan, Sensors, Base Server, Media Access Device, Storage Enclosure, Software Inventory, Profile Registration, Proxy Server System Management, Operational Power.
    - *Part 4 Block Devices:* Block Storage Views, CKD Block Services, Erasure, Storage Server Asymmetry, Volume Composition, Storage Element Protection, Replication Services, Pools from Volumes, Group Masking and Mapping, Thin Provisioning.
    - *Part 5 Filesystems:* File Export, File Server Manipulation, File Storage, Filesystem, Filesystem Copy Services, Filesystem Performance, Filesystem Quotas, NAS Network Port, Host Filesystem, Filesystem Remote Copy Services.
    - *Part 6 Fabric:* Fibre Channel Security, Fabric Views, Virtual Fabrics, Switch Partitioning, SAS Expander, N Port Virtualizer, Inter Fabric Routing.
    - *Part 7 Host Elements:* Storage HBA, Host Hardware RAID Controller.
    - *Part 8 Media Libraries:* Partitioned Tape Library, Virtual Tape Library, Virtual Tape Library Copy and Library Views.
  - The following experimental profiles were removed from the International Standard:
    - *Part 3 Common Profiles:* Security, 3rd Party Authentication, Authorization, Credential Management, Identity Management, Security Role Based Access Control and Security Resource Ownership.
    - *Part 4 Block Devices:* Pool Management Policy.
  - The following profiles were deprecated:
    - *Part 3 Common Profiles:* Cascading (replaced by direct use of cascading classes).
    - *Part 4 Block Devices:* Volume Management (and not replaced).
    - *Part 6 Fabric:* Router (and not replaced).
    - *Part 7 Host Elements:* FC HBA (replaced by Storage HBA), SB Multipath Management (and not replaced).
    - *Part 8 Media Libraries:* InterLibraryPort Connection (and not replaced).
  - In addition, many of the existing profiles have been enhanced.



This International Standard was prepared by the SNIA (Storage Networking Industry Association)<sup>1</sup>. The standard is often referred to as **SMI-S** (*Storage Management Initiative Specification*).

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1. Storage Networking Industry Association, 425 Market Street, Suite 1020, San Francisco, CA 94105, U.S.A., <http://www.snia.org>

# INFORMATION TECHNOLOGY – STORAGE MANAGEMENT – Part 8: Media libraries

## 1 Scope

This part of ISO/IEC 24775 models various details of the following objects of the media library for monitoring.

- Library
- Drives
- Changer Devices
- Slots
- IO Slots
- SCSI Interfaces and SCSI and FC Target Ports
- Physical Tapes
- Physical Package
- Magazines

In general, a CIM client can monitor the health and status of the above objects as well as get alert, status change and lifecycle CIM indications. In addition, a client can control the movement of media in a library using this standard.

The future versions of this standard shall address partitioned tape libraries and virtual tape libraries. Note that the experimental subprofile modelling partitioned tape libraries and virtual tape libraries in the previous version of this standard has been withdrawn and hence is now omitted from this standard.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in the document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document, including any amendments, applies.

ISO/IEC 24775-2:2014, *Information technology – Storage management – Part 2: Common architecture*

ISO/IEC 24775-3:2014, *Information technology – Storage management – Part 3: Common profiles*

ISO/IEC 24775-4:2014, *Information technology – Storage management – Part 4: Block devices*