

ISO/IEC 24775-2:2021-03 (E)

Information technology - Storage management - Part 2: Common Architecture

| Contents | Page |
|---|-------------|
| List of Figures | 15 |
| List of Tables | 17 |
| Foreword | 23 |
| 1 Scope | 25 |
| 2 Normative references | 27 |
| 2.1 General | 27 |
| 2.2 Approved references | 27 |
| 2.3 DMTF references (Final) | 27 |
| 2.4 IETF references | 28 |
| 2.5 References under development | 29 |
| 2.6 Other references | 29 |
| 3 Terms, definitions, symbols, abbreviations, and conventions | 31 |
| 3.1 Terms and definitions | 31 |
| 3.2 Acronyms and abbreviations | 37 |
| 3.3 Keywords | 37 |
| 3.4 Conventions | 38 |
| 4 Transport and Reference Model | 41 |
| 4.1 Introduction | 41 |
| 4.1.1 Overview | 41 |
| 4.1.2 Language Requirements | 41 |
| 4.1.3 Communications Requirements | 41 |
| 4.1.4 XML Message Syntax and Semantics | 41 |
| 4.2 Transport Stack | 42 |
| 4.3 Reference Model | 42 |
| 4.3.1 Overview | 42 |
| 4.3.2 Roles for Interface Constituents | 43 |
| 4.3.3 Cascaded Agents | 43 |
| 5 Health and Fault Management | 45 |
| 5.1 Objectives | 45 |
| 5.2 Overview | 45 |
| 5.3 Terms | 45 |
| 5.4 Description of Health and Fault Management | 46 |
| 5.4.1 Operational Status and Health State (Polling) | 46 |
| 5.4.2 Standard Errors and Events | 47 |
| 5.4.3 Indications | 47 |
| 5.4.4 Event Correlation and Fault Containment | 47 |
| 5.4.5 Fault Regions | 50 |
| 5.4.6 Examples | 52 |
| 6 Object Model General Information | 55 |
| 6.1 Model Overview (Key Resources) | 55 |
| 6.1.1 Overview | 55 |
| 6.1.2 Introduction to CIM UML Notation | 55 |
| 6.2 Techniques | 56 |
| 6.2.1 CIM Fundamentals | 56 |
| 6.2.2 Modeling Profiles | 58 |
| 6.2.3 CIM Naming | 58 |
| 7 Correlatable and Durable Names | 59 |

| | | |
|--------|--|-----|
| 7.1 | Overview | 59 |
| 7.2 | Guidelines for SCSI Logical Unit Names | 60 |
| 7.3 | Guidelines for FC-SB-2 Device Names..... | 60 |
| 7.4 | Guidelines for Port Names | 61 |
| 7.5 | Guidelines for Storage System Names..... | 61 |
| 7.6 | Standard Formats for Correlatable Names | 62 |
| 7.6.1 | General..... | 62 |
| 7.6.2 | Standard Formats for Logical Unit Names | 63 |
| 7.6.3 | Standard Formats for Port Names..... | 64 |
| 7.6.4 | Standard Formats for Fabric Names | 65 |
| 7.6.5 | Standard Formats for Storage System Names..... | 65 |
| 7.6.6 | Operating System Device Names | 67 |
| 7.6.7 | Case Sensitivity..... | 68 |
| 7.7 | Testing Equality of correlatable Names | 68 |
| 7.8 | iSCSI Names..... | 69 |
| 8 | Standard Messages..... | 71 |
| 8.1 | Overview | 71 |
| 8.2 | Registries for Standard Messages | 71 |
| 8.3 | SNIA Standard Messages..... | 71 |
| 8.3.1 | Common Profile-related Messages | 71 |
| 8.3.2 | Block Storage Messages..... | 85 |
| 8.3.3 | Fabric Messages | 118 |
| 8.3.4 | Filesystem Messages | 123 |
| 8.3.5 | Host Messages..... | 135 |
| 8.3.6 | Media Library Messages | 138 |
| 9 | Service Discovery..... | 171 |
| 9.1 | Objectives | 171 |
| 9.2 | Overview | 171 |
| 9.3 | SLP Messages | 173 |
| 9.4 | Scopes | 174 |
| 9.5 | Services Definition | 175 |
| 9.5.1 | SLP Terms..... | 175 |
| 9.5.2 | Service Type..... | 175 |
| 9.5.3 | Service Attributes | 175 |
| 9.6 | User Agents (UA) | 175 |
| 9.7 | Service Agents (SAs)..... | 176 |
| 9.8 | Directory Agents (DAs) | 177 |
| 9.9 | Service Agent Server (SA Server) | 177 |
| 9.9.1 | General Information..... | 177 |
| 9.9.2 | SA Server (SAS) Implementation | 177 |
| 9.9.3 | SA Server (SAS) Clients..... | 178 |
| 9.9.4 | SA Server Configuration..... | 178 |
| 9.9.5 | SA Server Discovery | 180 |
| 9.9.6 | SAS Client Registration | 180 |
| 9.10 | Configurations | 180 |
| 9.10.1 | Overview..... | 180 |
| 9.10.2 | Multicast Configurations | 180 |
| 9.10.3 | No Multicast configuration | 181 |
| 9.10.4 | Multicast Islands..... | 182 |
| 10 | Indications | 185 |

| | | |
|--------|---|-----|
| 10.1 | Indications profile | 185 |
| 10.1.1 | Profile Support..... | 185 |
| 10.1.2 | Creating a client defined indication and subscription | 185 |
| 10.1.3 | ListenerDestination..... | 185 |
| 10.2 | Indication Filter Strings..... | 185 |
| 10.2.1 | Definition Syntax..... | 185 |
| 10.2.2 | Instance Creation | 186 |
| 10.2.3 | Instance Deletion..... | 186 |
| 10.2.4 | Modification of any value in an array property..... | 186 |
| 10.2.5 | Modification to either of Two Specific values in an Array Property..... | 186 |
| 10.2.6 | Alert | 187 |
| 11 | SMI-S Roles | 189 |
| 11.1 | Introduction | 189 |
| 11.2 | SMI-S Client..... | 190 |
| 11.2.1 | Overview..... | 190 |
| 11.2.2 | SLP Functions | 190 |
| 11.2.3 | Generic Operations | 190 |
| 11.2.4 | Security Considerations..... | 190 |
| 11.2.5 | Lock Management Functions | 190 |
| 11.3 | Dedicated SMI-S Server | 190 |
| 11.3.1 | Overview..... | 190 |
| 11.3.2 | SLP Functions | 191 |
| 11.3.3 | Generic Operations | 191 |
| 11.3.4 | Security Considerations..... | 192 |
| 11.3.5 | Lock Management Functions | 192 |
| 11.4 | General Purpose SMI-S Server | 192 |
| 11.4.1 | Overview..... | 192 |
| 11.4.2 | SLP Functions | 192 |
| 11.4.3 | Generic Operations | 193 |
| 11.4.4 | Lock Management Functions | 193 |
| 11.4.5 | Provider Sub-role..... | 193 |
| 11.5 | Directory Server | 193 |
| 11.5.1 | SLP Functions | 193 |
| 11.5.2 | Generic Operations | 193 |
| 11.5.3 | Security Considerations..... | 193 |
| 11.5.4 | Lock Management Functions | 194 |
| 11.6 | Combined Roles on a Single System..... | 194 |
| 11.6.1 | Overview..... | 194 |
| 11.6.2 | General Purpose SMI-S Server as a Profile Aggregator | 194 |
| 12 | Installation and Upgrade..... | 195 |
| 12.1 | Introduction | 195 |
| 12.2 | Role of the Administrator..... | 195 |
| 12.3 | Goals..... | 195 |
| 12.3.1 | Non-Disruptive Installation and De-installation..... | 195 |
| 12.3.2 | Plug-and-Play | 195 |
| 12.4 | Server Deployment | 196 |
| 12.4.1 | General..... | 196 |
| 12.4.2 | Controlled Environment..... | 196 |
| 12.4.3 | Multiple WBEM Server systems | 196 |
| 12.4.4 | Shared WBEM Server | 197 |
| 12.4.5 | Uninstallation..... | 198 |

| | | |
|---------|---|-----|
| 12.4.6 | Update | 198 |
| 12.4.7 | Reconfiguration | 198 |
| 12.5 | WBEM Service Support & Related Functions | 198 |
| 12.5.1 | Installation | 198 |
| 12.5.2 | Multiple WBEM Servers on a Single Server System | 199 |
| 12.5.3 | Uninstallation/Upgrade | 199 |
| 12.5.4 | Reconfiguration | 199 |
| 12.5.5 | Failure..... | 199 |
| 12.6 | Client | 199 |
| 12.6.1 | Uninstallation | 199 |
| 12.6.2 | Reconfiguration | 199 |
| 12.7 | Directory Service | 199 |
| 12.7.1 | Installation | 199 |
| 12.7.2 | Uninstallation/Failure | 200 |
| 12.8 | Issues with Discovery Mechanisms | 200 |
| 13 | Security..... | 201 |
| 13.1 | Requirements | 201 |
| 13.1.1 | Overview..... | 201 |
| 13.1.2 | General Requirements for HTTP Implementations | 202 |
| 13.2 | Description of SMI-S Security | 202 |
| 13.2.1 | Security Scope | 202 |
| 13.2.2 | Transport Security | 203 |
| 13.2.3 | Authentication..... | 203 |
| 13.2.4 | Service Discovery..... | 204 |
| Annex A | (informative) SMI-S Information Model..... | 207 |
| Annex B | (normative) Compliance with the SNIA SMI Specification..... | 209 |

LIST OF FIGURES

| | |
|--|-----|
| Figure 1 - Experimental Maturity Level Tag | 8 |
| Figure 2 - Implemented Maturity Level Tag | 8 |
| Figure 3 - Stable Maturity Level Tag | 9 |
| Figure 4 - Deprecated Tag | 9 |
| Figure 5 - Reference Model. | 42 |
| Figure 6 - Basic Fault Detection..... | 46 |
| Figure 7 - Health Lifecycle | 49 |
| Figure 8 - Continuum | 50 |
| Figure 9 - Application Fault Region..... | 51 |
| Figure 10 - Switch Example | 53 |
| Figure 11 - Lines that Connect Classes..... | 55 |
| Figure 12 - iSCSI Qualified Names (iqn) Examples | 69 |
| Figure 13 - iSCSI EUI Name Example..... | 69 |
| Figure 14 - iSCSI 64-bit NAA Name Example..... | 70 |
| Figure 15 - iSCSI 128-bit NAA Name Example..... | 70 |
| Figure 16 - SA Server Configuration | 180 |
| Figure 17 - Multicast Configuration | 181 |
| Figure 18 - No Multicast configuration | 182 |
| Figure 19 - Multicast Islands | 183 |
| Figure 20 - SMI-S Roles | 189 |
| Figure B.1 Provider Migration | 211 |

LIST OF TABLES

| | |
|---|----|
| Table 1 - OperationalStatus for Disk Drive | 46 |
| Table 2 - Standard Formats for StorageVolume Names | 63 |
| Table 3 - Standard Formats for Port Names..... | 64 |
| Table 4 - Standard Formats for Storage System Names..... | 66 |
| Table 5 - Standard Operating System Names for Tape Devices..... | 67 |
| Table 6 - LogicalDisk.Name for disk partitions | 68 |
| Table 7 - GenericDiskParittion.Name for disk partitions | 68 |
| Table 8 - Standard Operating System Names for Unpartitioned Disks | 68 |
| Table 9 - Redundancy Message Arguments | 71 |
| Table 10 - Redundancy Alert Information | 72 |
| Table 11 - Environmental Message Arguments..... | 72 |
| Table 12 - Environmental Alert Information | 73 |
| Table 13 - FRU Operation Message Arguments | 73 |
| Table 14 - FRU Operation Alert Information | 74 |
| Table 15 - Password change Message Arguments | 74 |
| Table 16 - Password change Alert Information..... | 74 |
| Table 17 - User or Account Operation Message Arguments | 75 |
| Table 18 - User or Account Operation Alert Information..... | 75 |
| Table 19 - User Login Message Arguments | 76 |
| Table 20 - User Login Alert Information..... | 76 |
| Table 21 - Proxy Agent Device Communication Message Arguments | 76 |
| Table 22 - Proxy Agent Device Communication Alert Information..... | 77 |
| Table 23 - Port Status Changed Message Arguments | 77 |
| Table 24 - Port Status Changed Alert Information..... | 78 |
| Table 25 - Datacheck Error Message Arguments..... | 78 |
| Table 26 - Datacheck Error Alert Information | 78 |
| Table 27 - User Login Failure Message Arguments | 79 |
| Table 28 - User Login Failure Alert Information..... | 79 |
| Table 29 - Drive not responding Message Arguments | 80 |
| Table 30 - Drive not responding Alert Information | 80 |
| Table 31 - Fan Failure Alert Information | 80 |
| Table 32 - Power Supply Failure Alert Information | 81 |
| Table 33 - Drive Power Consumption Alert Information | 81 |
| Table 34 - Drive Voltage Alert Information..... | 81 |
| Table 35 - Predictive Failure Alert Information | 82 |
| Table 36 - Diagnostics Required Alert Information | 82 |
| Table 37 - Drive is responding Message Arguments..... | 82 |
| Table 38 - Drive is responding Alert Information | 83 |
| Table 39 - Cooling Fan Issues Cleared Alert Information..... | 83 |
| Table 40 - Power Supply Issues Cleared Message Arguments | 83 |
| Table 41 - Power Supply Issues Cleared Alert Information | 84 |
| Table 42 - Controller Failure Message Arguments | 84 |
| Table 43 - Controller Failure Alert Information..... | 84 |
| Table 44 - Controller Issues Cleared Message Arguments | 84 |
| Table 45 - Controller Issues Cleared Alert Information..... | 85 |
| Table 46 - Device Not ready Message Arguments | 85 |
| Table 47 - Error Properties for Device Not ready | 86 |
| Table 48 - Error Properties for Internal Bus Error..... | 86 |

| | |
|--|-----|
| Table 49 - Error Properties for DMA Overflow | 87 |
| Table 50 - Error Properties for Firmware Logic Error | 87 |
| Table 51 - Front End Port Error Message Arguments | 88 |
| Table 52 - Front End Port Error Alert Information | 88 |
| Table 53 - Back End Port Error Message Arguments..... | 88 |
| Table 54 - Back End Port Error Alert Information | 88 |
| Table 55 - Remote Mirror Error Message Arguments..... | 89 |
| Table 56 - Error Properties for Remote Mirror Error | 89 |
| Table 57 - Remote Mirror Error Alert Information | 89 |
| Table 58 - Error Properties for Cache Memory Error..... | 90 |
| Table 59 - Error Properties for Unable to Access Remote Device | 90 |
| Table 60 - Error Reading Data Alert Information | 91 |
| Table 61 - Error Writing Data Alert Information | 91 |
| Table 62 - Error Validating Write (CRC) Alert Information..... | 92 |
| Table 63 - Error Properties for Copy Operation Failed | 92 |
| Table 64 - Error Properties for RAID Operation Failed..... | 93 |
| Table 65 - Error Properties for Invalid RAID Type | 93 |
| Table 66 - Error Properties for Invalid Storage Element Type..... | 94 |
| Table 67 - Error Properties for Configuration Change Failed | 94 |
| Table 68 - Error Properties for Buffer Overrun | 95 |
| Table 69 - Stolen Capacity Message Arguments | 95 |
| Table 70 - Error Properties for Stolen Capacity..... | 95 |
| Table 71 - Invalid Extent passed Message Arguments | 96 |
| Table 72 - Error Properties for Invalid Extent passed..... | 96 |
| Table 73 - Error Properties for Invalid Deletion Attempted..... | 97 |
| Table 74 - Error Properties for Job Failed to Start..... | 97 |
| Table 75 - Job was Halted Message Arguments | 98 |
| Table 76 - Invalid State Transition Message Arguments | 98 |
| Table 77 - Error Properties for Invalid State Transition | 98 |
| Table 78 - Invalid SAP for Method Message Arguments..... | 99 |
| Table 79 - Error Properties for Invalid SAP for Method | 99 |
| Table 80 - Resource Not Available Message Arguments | 99 |
| Table 81 - Error Properties for Resource Not Available | 100 |
| Table 82 - Resource Limit Exceeded Message Arguments..... | 100 |
| Table 83 - Error Properties for Resource Limit Exceeded | 100 |
| Table 84 - Thin Provision Capacity Warning Message Arguments | 101 |
| Table 85 - Thin Provision Capacity Warning Alert Information | 101 |
| Table 86 - Provision Capacity Critical Message Arguments..... | 101 |
| Table 87 - Provision Capacity Critical Alert Information | 102 |
| Table 88 - Thin Provision Capacity Okay Message Arguments | 102 |
| Table 89 - Thin Provision Capacity Okay Alert Information | 102 |
| Table 90 - Masking Group Membership Changed Message Arguments..... | 103 |
| Table 91 - Masking Group Membership Changed Alert Information | 103 |
| Table 92 - StorageVolume Relocation Starts Message Arguments | 103 |
| Table 93 - StorageVolume Relocation Starts Alert Information | 103 |
| Table 94 - StorageVolume Relocation Ends Message Arguments..... | 104 |
| Table 95 - StorageVolume Relocation Ends Alert Information | 104 |
| Table 96 - StoragePool Relocation Starts Message Arguments | 104 |
| Table 97 - StoragePool Relocation Starts Alert Information | 104 |

| | |
|--|-----|
| Table 98 - StoragePool Relocation Ends Message Arguments..... | 105 |
| Table 99 - StoragePool Relocation Ends Alert Information | 105 |
| Table 100 - LogicalDisk Relocation Starts Message Arguments | 105 |
| Table 101 - LogicalDisk Relocation Starts Alert Information..... | 105 |
| Table 102 - LogicalDisk Relocation Ends Message Arguments | 106 |
| Table 103 - LogicalDisk Relocation Ends Alert Information..... | 106 |
| Table 104 - Volume or pool degraded Message Arguments | 106 |
| Table 105 - Volume or pool degraded Alert Information | 106 |
| Table 106 - Volume or pool failed Message Arguments | 107 |
| Table 107 - Volume or pool failed Alert Information..... | 107 |
| Table 108 - Volume or pool issues cleared Message Arguments..... | 107 |
| Table 109 - Volume or pool issues cleared Alert Information | 108 |
| Table 110 - The StoragePool is healthy Message Arguments..... | 108 |
| Table 111 - The StoragePool is healthy Alert Information | 108 |
| Table 112 - StoragePool is dependent on an element with problems Message Arguments | 109 |
| Table 113 - StoragePool is dependent on an element with problems Alert Information..... | 109 |
| Table 114 - The StoragePool is being serviced Message Arguments | 110 |
| Table 115 - The StoragePool is being serviced Alert Information..... | 110 |
| Table 116 - The OperationalStatus of the Pool is impacting an element allocated from it Message Arguments111 | |
| Table 117 - The OperationalStatus of the Pool is impacting an element allocated from it Alert Information..... | 111 |
| Table 118 - The StoragePool OperationalStatus may be corrected by applying a spare Message Arguments112 | |
| Table 119 - The StoragePool OperationalStatus may be corrected by applying a spare Alert Information..... | 112 |
| Table 120 - The StoragePool OperationalStatus may be corrected by relocating the pool Message Arguments113 | |
| Table 121 - The StoragePool OperationalStatus may be corrected by relocating the pool Alert Information..... | 113 |
| Table 122 - Pool experiencing interference from system workload Message Arguments | 114 |
| Table 123 - Pool experiencing interference from system workload Alert Information..... | 114 |
| Table 124 - Pool performance degraded by component element Message Arguments..... | 115 |
| Table 125 - Pool performance degraded by component element Alert Information | 115 |
| Table 126 - Pool degraded due to loss of RAID protection Message Arguments..... | 116 |
| Table 127 - Pool degraded due to loss of RAID protection Alert Information | 116 |
| Table 128 - Pool degraded due to loss of port redundancy Message Arguments | 117 |
| Table 129 - Pool degraded due to loss of port redundancy Alert Information..... | 117 |
| Table 130 - Pool predicting failure due lack of available capacity Message Arguments | 117 |
| Table 131 - Pool predicting failure due lack of available capacity Alert Information | 118 |
| Table 132 - Zone Database Changed Message Arguments..... | 118 |
| Table 133 - Zone Database Changed Alert Information | 118 |
| Table 134 - ZoneSet Activated Message Arguments | 119 |
| Table 135 - ZoneSet Activated Alert Information | 119 |
| Table 136 - Error Properties for Session Locked..... | 120 |
| Table 137 - Error Properties for Session Aborted..... | 120 |
| Table 138 - Switch Status Changed Message Arguments | 121 |
| Table 139 - Switch Status Changed Alert Information | 121 |
| Table 140 - Fabric Merge/Segmentation Message Arguments | 121 |
| Table 141 - Fabric Merge/Segmentation Alert Information | 121 |
| Table 142 - Switch Added/Removed Message Arguments | 122 |
| Table 143 - Switch Added/Removed Alert Information..... | 122 |
| Table 144 - Fabric Added/Removed Message Arguments | 122 |

| | |
|--|-----|
| Table 145 - Fabric Added/Removed Alert Information..... | 122 |
| Table 146 - Security Policy change Message Arguments | 123 |
| Table 147 - Security Policy change Alert Information | 123 |
| Table 148 - System OperationalStatus Bellwether Message Arguments | 124 |
| Table 149 - System OperationalStatus Bellwether Alert Information..... | 124 |
| Table 150 - NetworkPort OperationalStatus Bellwether Message Arguments | 124 |
| Table 151 - NetworkPort OperationalStatus Bellwether Alert Information | 125 |
| Table 152 - LogicalDisk OperationalStatus Bellwether Message Arguments..... | 125 |
| Table 153 - LogicalDisk OperationalStatus Bellwether Alert Information | 125 |
| Table 154 - CopyState is set to Broken Message Arguments | 126 |
| Table 155 - CopyState is set to Broken Alert Information..... | 126 |
| Table 156 - Not Enough Space Message Arguments..... | 127 |
| Table 157 - Not Enough Space Alert Information | 127 |
| Table 158 - The changes in RemoteReplicationCollection Message Arguments | 127 |
| Table 159 - The changes in RemoteReplicationCollection Alert Information..... | 128 |
| Table 160 - The changes in ProtocolEndpoint Message Arguments..... | 128 |
| Table 161 - The changes in ProtocolEndpoint Alert Information | 128 |
| Table 162 - CopyState is set to Broken Message Arguments | 129 |
| Table 163 - CopyState is set to Broken Alert Information..... | 129 |
| Table 164 - CopyState is set to Invalid Message Arguments | 129 |
| Table 165 - CopyState is set to Invalid Alert Information..... | 130 |
| Table 166 - CopyState is set to Inactive Message Arguments | 130 |
| Table 167 - CopyState is set to Inactive Alert Information..... | 130 |
| Table 168 - CopyState is set to Split Message Arguments..... | 131 |
| Table 169 - CopyState is set to Split Alert Information | 131 |
| Table 170 - CopyState alert has been cleared Message Arguments | 131 |
| Table 171 - CopyState alert has been cleared Alert Information..... | 132 |
| Table 172 - Available Space Changed Message Arguments | 132 |
| Table 173 - Available Space Changed Alert Information | 132 |
| Table 174 - Filesystem Inaccessible Message Arguments..... | 133 |
| Table 175 - Filesystem Inaccessible Alert Information | 133 |
| Table 176 - Filesystem is Online Message Arguments..... | 133 |
| Table 177 - Filesystem is Online Alert Information | 133 |
| Table 178 - Fileshare is degraded Message Arguments | 134 |
| Table 179 - Fileshare is degraded Alert Information..... | 134 |
| Table 180 - Fileshare in normal state Message Arguments | 134 |
| Table 181 - Fileshare in normal state Alert Information | 135 |
| Table 182 - Required Firmware Version Message Arguments | 135 |
| Table 183 - Required Firmware Version Alert Information..... | 135 |
| Table 184 - Recommended Firmware Version Message Arguments | 136 |
| Table 185 - Recommended Firmware Version Alert Information..... | 136 |
| Table 186 - Controller OK Message Arguments..... | 136 |
| Table 187 - Controller OK Alert Information..... | 136 |
| Table 188 - Controller not OK Message Arguments | 137 |
| Table 189 - Controller not OK Alert Information..... | 137 |
| Table 190 - Bus rescan complete Alert Information..... | 137 |
| Table 191 - Disk initialize Failed Message Arguments | 137 |
| Table 192 - Disk initialize Failed Alert Information..... | 138 |
| Table 193 - Read Warning Alert Information | 138 |

| | |
|--|-----|
| Table 194 - Write Warning Alert Information..... | 138 |
| Table 195 - Hard Error Alert Information..... | 139 |
| Table 196 - Media Alert Information..... | 139 |
| Table 197 - Read Failure Alert Information..... | 139 |
| Table 198 - Write Failure Alert Information..... | 140 |
| Table 199 - Media Life Alert Information..... | 140 |
| Table 200 - Not Data Grade Alert Information..... | 140 |
| Table 201 - Write Protect Alert Information..... | 141 |
| Table 202 - No Removal Alert Information..... | 141 |
| Table 203 - Cleaning Media Alert Information..... | 141 |
| Table 204 - Unsupported Format Alert Information..... | 142 |
| Table 205 - Recoverable Snapped Tape Alert Information..... | 142 |
| Table 206 - Unrecoverable Snapped Tape Alert Information..... | 142 |
| Table 207 - Memory Chip In Cartridge Failure Alert Information..... | 143 |
| Table 208 - Forced Eject Alert Information..... | 143 |
| Table 209 - Read Only Format Alert Information..... | 143 |
| Table 210 - Directory Corrupted On Load Alert Information..... | 144 |
| Table 211 - Nearing Media Life Alert Information..... | 144 |
| Table 212 - Clean Now Alert Information..... | 144 |
| Table 213 - Clean Periodic Alert Information..... | 145 |
| Table 214 - Expired Cleaning Media Alert Information..... | 145 |
| Table 215 - Invalid Cleaning Media Alert Information..... | 145 |
| Table 216 - Retention Requested Alert Information..... | 146 |
| Table 217 - Dual-Port Interface Error Alert Information..... | 146 |
| Table 218 - Drive Maintenance Alert Information..... | 146 |
| Table 219 - Hardware A Alert Information..... | 147 |
| Table 220 - Hardware B Alert Information..... | 147 |
| Table 221 - Interface Alert Information..... | 147 |
| Table 222 - Eject Media Alert Information..... | 148 |
| Table 223 - Download Failure Alert Information..... | 148 |
| Table 224 - Loader Hardware A Alert Information..... | 148 |
| Table 225 - Loader Stray Media Alert Information..... | 149 |
| Table 226 - Loader Hardware B Alert Information..... | 149 |
| Table 227 - Loader Door Alert Information..... | 149 |
| Table 228 - Loader Hardware C Alert Information..... | 150 |
| Table 229 - Loader Magazine Alert Information..... | 150 |
| Table 230 - Loader Predictive Failure Alert Information..... | 150 |
| Table 231 - Load Statistics Alert Information..... | 151 |
| Table 232 - Media Directory Invalid at Unload Alert Information..... | 151 |
| Table 233 - Media System area Write Failure Alert Information..... | 151 |
| Table 234 - Media System Area Read Failure Alert Information..... | 152 |
| Table 235 - No Start of Data Alert Information..... | 152 |
| Table 236 - Loading Failure Alert Information..... | 152 |
| Table 237 - Library Hardware A Alert Information..... | 153 |
| Table 238 - Library Hardware B Alert Information..... | 153 |
| Table 239 - Library Hardware C Alert Information..... | 153 |
| Table 240 - Library Hardware D Alert Information..... | 154 |
| Table 241 - Library Diagnostic Required Alert Information..... | 154 |
| Table 242 - Library Interface Alert Information..... | 154 |

| | |
|--|-----|
| Table 243 - Failure Prediction Alert Information | 155 |
| Table 244 - Library Maintenance Alert Information..... | 155 |
| Table 245 - Library Humidity Limits Alert Information | 155 |
| Table 246 - Library Voltage Limits Alert Information..... | 156 |
| Table 247 - Library Stray Media Alert Information | 156 |
| Table 248 - Library Pick Retry Alert Information..... | 156 |
| Table 249 - Library Place Retry Alert Information..... | 157 |
| Table 250 - Library Load Retry Alert Information..... | 157 |
| Table 251 - Library Door Alert Information..... | 157 |
| Table 252 - Library Mailslot Alert Information | 158 |
| Table 253 - Library Magazine Alert Information..... | 158 |
| Table 254 - Library Security Alert Information | 158 |
| Table 255 - Library Security Mode Alert Information | 159 |
| Table 256 - Library Offline Alert Information | 159 |
| Table 257 - Library Drive Offline Alert Information..... | 159 |
| Table 258 - Library Scan Retry Alert Information..... | 160 |
| Table 259 - Library Inventory Alert Information..... | 160 |
| Table 260 - Library Illegal Operation Alert Information | 160 |
| Table 261 - Pass Through Mechanism Failure Alert Information..... | 161 |
| Table 262 - Cartridge in Pass-through Mechanism Alert Information | 161 |
| Table 263 - Unreadable barcode Labels Alert Information | 161 |
| Table 264 - Throughput Threshold Warning Alert Message Arguments..... | 162 |
| Table 265 - Throughput Threshold Warning Alert Alert Information | 162 |
| Table 266 - Throughput Threshold Critical Alert Message Arguments | 162 |
| Table 267 - Throughput Threshold Critical Alert Alert Information..... | 163 |
| Table 268 - Physical Capacity Threshold Warning Alert Message Arguments..... | 163 |
| Table 269 - Physical Capacity Threshold Warning Alert Alert Information | 163 |
| Table 270 - Physical Capacity Threshold Critical Alert Message Arguments | 164 |
| Table 271 - Physical Capacity Threshold Critical Alert Alert Information..... | 164 |
| Table 272 - Logical Capacity Threshold Warning Alert Message Arguments..... | 165 |
| Table 273 - Logical Capacity Threshold Warning Alert Alert Information | 165 |
| Table 274 - Logical Capacity Threshold Critical Alert Message Arguments | 165 |
| Table 275 - Logical Capacity Threshold Critical Alert Alert Information..... | 166 |
| Table 276 - System Ratio Threshold Warning Alert Message Arguments..... | 166 |
| Table 277 - System Ratio Threshold Warning Alert Alert Information | 166 |
| Table 278 - System Ratio Threshold Critical Alert Message Arguments | 167 |
| Table 279 - System Ratio Threshold Critical Alert Alert Information..... | 167 |
| Table 280 - Deduplication Ratio Threshold Warning Alert Message Arguments..... | 168 |
| Table 281 - Deduplication Ratio Threshold Warning Alert Alert Information | 168 |
| Table 282 - Deduplication Ratio Threshold Critical Alert Message Arguments | 168 |
| Table 283 - Deduplication Ratio Threshold Critical Alert Alert Information..... | 169 |
| Table 284 - Replication Traffic Threshold Warning Alert Message Arguments | 169 |
| Table 285 - Replication Traffic Threshold Warning Alert Alert Information..... | 169 |
| Table 286 - Replication Traffic Threshold Critical Alert Message Arguments..... | 170 |
| Table 287 - Replication Traffic Threshold Critical Alert Alert Information | 170 |
| Table 288 - Message Types | 174 |
| Table 289 - Required Configuration Properties for SA as DA..... | 178 |
| Table 290 - Required Configuration Properties for SA | 179 |
| Table 291 - Create an IndicationFilter and subscribe to it | 185 |