



## CISCO MDS RELEASE FEATURE MATRIX

The Cisco® MDS release feature matrix (Table 1) identifies the minimum Cisco MDS 9000 Family SAN-OS release required for each major Cisco MDS 9000 Family software and hardware feature.

**Table 1.** Release Feature Matrix

| Feature (Part Number)                                                  | Minimum Software Release Required |        |        |        |        |        |        |        |
|------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|
|                                                                        | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1) | 2.0(1) | 2.1(1) | 2.1(2) |
| <b>Hardware</b>                                                        |                                   |        |        |        |        |        |        |        |
| Cisco MDS 9000 16-Port Fibre Channel Switching Module (DS-X9016)       | X                                 |        |        |        |        |        |        |        |
| Cisco MDS 9000 32-Port Fibre Channel Switching Module (DS-X9032)       | X                                 |        |        |        |        |        |        |        |
| Cisco MDS 9216 Multilayer Fabric Switch (DS-C9216-K9)                  | X                                 |        |        |        |        |        |        |        |
| Cisco MDS 9509 Multilayer Director Switch (DS-C9509)                   | X                                 |        |        |        |        |        |        |        |
| Cisco MDS 9500 Series Supervisor Module 1 (DS-X9530-SF1-K9)            | X                                 |        |        |        |        |        |        |        |
| Cisco MDS 9000 8-Port IP Storage Services Module (DS-X9308-SMIP)       |                                   | X      |        |        |        |        |        |        |
| 4-Wavelength Add/Drop Multiplexer (ADM) (CWDM-MUX-4)                   |                                   | X      |        |        |        |        |        |        |
| 8-Wavelength ADM (CWDM-MUX-8)                                          |                                   | X      |        |        |        |        |        |        |
| Cisco MDS 9506 Multilayer Director Switch (DS-C9506)                   |                                   | X      |        |        |        |        |        |        |
| Coarse Wavelength-Division (CWDM) Multiplexer Chassis (CWDM-CHASSIS-2) |                                   | X      |        |        |        |        |        |        |
| Cisco MDS 9000 Port Analyzer Adapter (DS-PAA)                          |                                   | X      |        |        |        |        |        |        |
| Cisco MDS 9120 20-Port Multilayer Fabric                               |                                   |        | X      |        |        |        |        |        |

|                                                                        | Minimum Software Release Required |        |        |        |         |         |        |        |
|------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|---------|---------|--------|--------|
| Feature (Part Number)                                                  | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1)  | 2.0(1)  | 2.1(1) | 2.1(2) |
| Switch (DS-C9120-K9)                                                   |                                   |        |        |        |         |         |        |        |
| Cisco MDS 9140 40-Port Multilayer Fabric Switch (DS-C9140-K9)          |                                   |        | X      |        |         |         |        |        |
| Cisco MDS 9000 Advanced Services Module (DS-X9032-SMV)                 |                                   |        |        | X      |         |         |        |        |
| Cisco MDS 9000 Caching Services Module (DS-X9560-SMC)                  |                                   |        |        |        | X       |         |        |        |
| Cisco MDS 9000 4-Port IP Storage Services Module (DS-X9304-SMIP)       |                                   |        |        |        | 1.3(4a) |         |        |        |
| Cisco MDS 9000 14/2-Port Multiprotocol Services Module (DS-X9302-14K9) |                                   |        |        |        | X       |         |        |        |
| Cisco MDS 9216A Multilayer Fabric Switch (DS-C9216A-K9)                |                                   |        |        |        |         | X       |        |        |
| Cisco MDS 9216i Multilayer Fabric Switch (DS-C9216i-K9)                |                                   |        |        |        |         | X       |        |        |
| Cisco MDS 9000 Storage Services Module (DS-X9032-SSM)                  |                                   |        |        |        |         | 2.0(2b) |        |        |
| <b>Fabric Services</b>                                                 |                                   |        |        |        |         |         |        |        |
| Fibre Channel Protocol                                                 | X                                 |        |        |        |         |         |        |        |
| PortChannels                                                           | X                                 |        |        |        |         |         |        |        |
| SAN-OS High Availability                                               | X                                 |        |        |        |         |         |        |        |
| Virtual Storage Area Networks (VSANs)                                  | X                                 |        |        |        |         |         |        |        |
| Quality of Service (QoS), Two Fibre Channel Priority Levels            | X                                 |        |        |        |         |         |        |        |
| B-Port Device Interoperability                                         |                                   | X      |        |        |         |         |        |        |
| IBM Fiber Connection (FICON) with Control Unit Port (CUP) Interface    |                                   |        |        | X      |         |         |        |        |
| QoS, 4 Fibre Channel Priority Levels                                   |                                   |        |        |        | X       |         |        |        |
| Fibre Channel Port Rate Limiting                                       |                                   |        |        |        | X       |         |        |        |
| Per-VSAN Timers                                                        |                                   |        |        |        | X       |         |        |        |

|                                                                                            | Minimum Software Release Required |        |        |        |        |         |        |        |
|--------------------------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|--------|---------|--------|--------|
| Feature (Part Number)                                                                      | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1) | 2.0(1)  | 2.1(1) | 2.1(2) |
| Dynamic Port VSAN Membership                                                               |                                   |        |        |        | X      |         |        |        |
| Distributed Device Alias Services                                                          |                                   |        |        |        | X      |         |        |        |
| Port Tracking                                                                              |                                   |        |        |        | X      |         |        |        |
| Extended Credits                                                                           |                                   |        |        |        | X      |         |        |        |
| Zone-Based QoS                                                                             |                                   |        |        |        |        | X       |        |        |
| PortChannel Protocol                                                                       |                                   |        |        |        |        | X       |        |        |
| Cisco Fabric Services Protocol                                                             |                                   |        |        |        |        | X       |        |        |
| Graceful Port Shutdown                                                                     |                                   |        |        |        |        | X       |        |        |
| Fibre Channel Identifier (FC-ID) Persistence by Default                                    |                                   |        |        |        |        | X       |        |        |
| Fibre Channel Write Acceleration (FC-WA)                                                   |                                   |        |        |        |        | 2.0(2b) |        |        |
| Small Computer System Interface (SCSI) Flow Statistics                                     |                                   |        |        |        |        | 2.0(2b) |        |        |
| Network-Accelerated Serverless Backup                                                      |                                   |        |        |        |        |         | X      |        |
| Fabric Application Interface Standard (FAIS)-Based Application Programming Interface (API) |                                   |        |        |        |        |         | X      |        |
| SANTap Protocol                                                                            |                                   |        |        |        |        |         | X      |        |
| Non-Disruptive SSM Software Upgrades (for Fibre Channel switching)                         |                                   |        |        |        |        |         |        | X      |
| <b>IP Storage Services</b>                                                                 |                                   |        |        |        |        |         |        |        |
| Fibre Channel over IP (FCIP) Protocol                                                      |                                   | X      |        |        |        |         |        |        |
| SCSI over IP (iSCSI) Protocol                                                              |                                   | X      |        |        |        |         |        |        |
| Auto-Trespass                                                                              |                                   |        |        | X      |        |         |        |        |
| FCIP Compression                                                                           |                                   |        |        |        | X      |         |        |        |
| FCIP Write Acceleration                                                                    |                                   |        |        |        | X      |         |        |        |
| iSCSI Proxy Initiator                                                                      |                                   |        |        |        | X      |         |        |        |
| Internet Storage Name Service (iSNS) Client                                                |                                   |        |        |        | X      |         |        |        |

|                                                                                               | Minimum Software Release Required |        |        |        |        |        |        |        |
|-----------------------------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Feature (Part Number)                                                                         | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1) | 2.0(1) | 2.1(1) | 2.1(2) |
| FCIP Tape Acceleration                                                                        |                                   |        |        |        |        | X      |        |        |
| Storage-Area-Network (SAN) Extension Tuner                                                    |                                   |        |        |        |        | X      |        |        |
| iSNS Services                                                                                 |                                   |        |        |        |        | X      |        |        |
| Hardware-Based FCIP Compression                                                               |                                   |        |        |        |        | X      |        |        |
| Auto-Compression                                                                              |                                   |        |        |        |        |        | X      |        |
| iSCSI Cut-Through                                                                             |                                   |        |        |        |        |        | X      |        |
| iSCSI Immediate Data                                                                          |                                   |        |        |        |        |        | X      |        |
| <b>Network Security</b>                                                                       |                                   |        |        |        |        |        |        |        |
| RADIUS                                                                                        | X                                 |        |        |        |        |        |        |        |
| Role-Based Access Control (RBAC)                                                              | X                                 |        |        |        |        |        |        |        |
| Zoning                                                                                        | X                                 |        |        |        |        |        |        |        |
| Access Control Lists (ACLs) for iSCSI Targets                                                 |                                   | X      |        |        |        |        |        |        |
| Challenge Handshake Authentication Protocol (CHAP)                                            |                                   | X      |        |        |        |        |        |        |
| Zoning, iSCSI                                                                                 |                                   | X      |        |        |        |        |        |        |
| Port Security                                                                                 |                                   | X      |        |        |        |        |        |        |
| ACLs for Management Ports                                                                     |                                   |        | X      |        |        |        |        |        |
| RBAC, Common Simple Network Management Protocol (SNMP) and Command-Line Interface (CLI) Roles |                                   |        | X      |        |        |        |        |        |
| RBAC, VSAN-Based                                                                              |                                   |        | X      |        |        |        |        |        |
| Zoning, Logical Unit Numbers (LUNs)                                                           |                                   |        | X      |        |        |        |        |        |
| Zoning, Read-Only                                                                             |                                   |        | X      |        |        |        |        |        |
| Fabric Binding                                                                                |                                   |        |        |        | X      |        |        |        |
| Inter-VSAN Routing (IVR)                                                                      |                                   |        |        |        | X      |        |        |        |
| Switch-to-Switch and Host-to-Switch                                                           |                                   |        |        |        | X      |        |        |        |

|                                                                                                                                                         | Minimum Software Release Required |        |        |        |        |        |        |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Feature (Part Number)                                                                                                                                   | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1) | 2.0(1) | 2.1(1) | 2.1(2) |
| Authentication                                                                                                                                          |                                   |        |        |        |        |        |        |        |
| TACACS+                                                                                                                                                 |                                   |        |        |        | X      |        |        |        |
| Zoning, Domain and Port                                                                                                                                 |                                   |        |        |        | X      |        |        |        |
| IP Security (IPsec) for FCIP and iSCSI                                                                                                                  |                                   |        |        |        |        | X      |        |        |
| Advanced Encryption Standard (AES) for Traffic Management                                                                                               |                                   |        |        |        |        | X      |        |        |
| Unified Users and Passwords                                                                                                                             |                                   |        |        |        |        | X      |        |        |
| IVR with Network Address Translation (NAT)                                                                                                              |                                   |        |        |        |        |        | X      |        |
| IVR with NAT Static and Persistent FC-IDs                                                                                                               |                                   |        |        |        |        |        |        | X      |
| <b>Switch Management</b>                                                                                                                                |                                   |        |        |        |        |        |        |        |
| CLI                                                                                                                                                     | X                                 |        |        |        |        |        |        |        |
| IP over Fibre Channel                                                                                                                                   | X                                 |        |        |        |        |        |        |        |
| Cisco Discovery Protocol                                                                                                                                |                                   | X      |        |        |        |        |        |        |
| Enterprise and SAN Extension over IP License Packages                                                                                                   |                                   |        | X      |        |        |        |        |        |
| Cisco Fabric Manager Server (FMS)                                                                                                                       |                                   |        |        |        | X      |        |        |        |
| Common Information Model (CIM) Extensible Markup Language (XML) Management Interface, Storage Management Initiative Specification (SMI-S) 1.0 Compliant |                                   |        |        |        | X      |        |        |        |
| Fabric Device Management Interface (FDMI) Support                                                                                                       |                                   |        |        |        | X      |        |        |        |
| Mainframe and FMS License Packages                                                                                                                      |                                   |        |        |        | X      |        |        |        |
| Cisco MDS 9000 Family Storage Services Enabler (SSE) License Package                                                                                    |                                   |        |        |        |        | X      |        |        |
| FDMI Host-Name Attribute                                                                                                                                |                                   |        |        |        |        | X      |        |        |
| Enhanced CIM XML, SMI-S 1.0.2-Compliant                                                                                                                 |                                   |        |        |        |        | X      |        |        |

|                                               | Minimum Software Release Required |        |        |        |        |        |        |        |
|-----------------------------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Feature (Part Number)                         | 1.0(1)                            | 1.1(1) | 1.2(1) | 1.2(2) | 1.3(1) | 2.0(1) | 2.1(1) | 2.1(2) |
| Cisco FMS Web Client for Operational View     |                                   |        |        |        |        | X      |        |        |
| Cisco FMS Performance Thresholds              |                                   |        |        |        |        | X      |        |        |
| Cisco FMS Proxy Services                      |                                   |        |        |        |        |        | X      |        |
| User-Interface Modes                          |                                   |        |        |        |        |        | X      |        |
| Custom Cisco FMS Reports                      |                                   |        |        |        |        |        |        | X      |
| Host Optimized Port Performance Analysis      |                                   |        |        |        |        |        |        | X      |
| Cisco FMS Web Client support for TACACS+      |                                   |        |        |        |        |        |        | X      |
| Export Topology Map to Visio                  |                                   |        |        |        |        |        |        | X      |
| <b>Troubleshooting</b>                        |                                   |        |        |        |        |        |        |        |
| Call Home                                     | X                                 |        |        |        |        |        |        |        |
| Cisco Fabric Analyzer                         | X                                 |        |        |        |        |        |        |        |
| Fibre Channel Ping and Traceroute             | X                                 |        |        |        |        |        |        |        |
| Port-Loopback Testing                         | X                                 |        |        |        |        |        |        |        |
| Switched Port Analyzer (SPAN)                 | X                                 |        |        |        |        |        |        |        |
| Remote SPAN (RSPAN)                           |                                   |        | X      |        |        |        |        |        |
| Call Home Enhancements                        |                                   |        |        | X      |        |        |        |        |
| Online Diagnostics                            |                                   |        |        |        | X      |        |        |        |
| Small Form-Factor Pluggable (SFP) Diagnostics |                                   |        |        |        | X      |        |        |        |
| SPAN for IP Services                          |                                   |        |        |        | X      |        |        |        |

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