

## Cisco MDS 9000 NX-OS Software Release 4.1(1)

PB491260

This product bulletin discusses the Cisco<sup>®</sup> MDS 9000 family multilayer switches that run Cisco MDS 9000 NX-OS Software Release 4.1(1). It summarizes the hardware features supported and the software features available and provides software ordering information.

### Supported Hardware

Table 1 summarizes the hardware features that Cisco MDS 9000 NX-OS Software Release 4.1(1) supports.

**Table 1.** Cisco MDS 9000 NX-OS Software Release 4.1(1) Supported Hardware Features.

Part Number	Description
<b>Cisco MDS 9513 Multilayer Director (DS-C9513)</b>	13-slot multilayer director: <ul style="list-style-type: none"> <li>• Modular chassis requires 2 slots for supervisor-2 modules, with 11 slots available for switching modules</li> <li>• Supervisor-2 module provides control engine for Cisco MDS 9513</li> <li>• Two crossbar modules provide 2.2 terabytes per second (Tbps) of chassis switching bandwidth</li> </ul>
<b>Cisco MDS 9509 Multilayer Director (DS-C9509)</b>	9-slot multilayer director: <ul style="list-style-type: none"> <li>• Modular chassis requires 2 slots for supervisor modules, with 7 slots available for switching modules</li> <li>• Supervisor module consists of control engine and integrated crossbar</li> </ul>
<b>Cisco MDS 9506 Multilayer Director (DS-C9506)</b>	6-slot multilayer director: <ul style="list-style-type: none"> <li>• Modular chassis requires 2 slots for supervisor modules, with 4 slots available for switching modules</li> <li>• Supervisor module consists of control engine and integrated crossbar</li> </ul>
<b>Cisco MDS 9222i Multilayer Fabric Switch (DS-C9222i-K9)</b>	3-rack-unit (3RU) semimodular multilayer fabric switch with 18 4-Gbps Fibre Channel ports, 4 Gigabit Ethernet ports, and optional switching module or services module
<b>Cisco MDS 9216i Multilayer Fabric Switch (DS-C9216i-K9)</b>	3RU semimodular multilayer fabric switch with 14 2-Gbps Fibre Channel ports, 2 Gigabit Ethernet ports, and optional switching module or services module
<b>Cisco MDS 9134 34-Port Multilayer Fabric Switch (DS-C9134-K9)</b>	1RU fixed-configuration multilayer fabric switch with 32 4-Gbps and 2 10-Gbps Fibre Channel ports
<b>Cisco MDS 9124 24-Port Multilayer Fabric Switch (DS-C9124-K9)</b>	1RU fixed-configuration multilayer fabric switch with 24 4-Gbps Fibre Channel ports
<b>Cisco MDS 9500 Series Supervisor-2 Module (DS-X9530-SF2-K9)</b>	Supervisor-2 module for Cisco MDS 9500 Series Multilayer Directors
<b>Cisco MDS 9000 16-Port Fibre Channel Switching Module with Small Form-Factor Pluggable (SFP) LC (DS-X9016)</b>	16-port, 2-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9216i and Cisco MDS 9500 Series
<b>Cisco MDS 9000 32-Port 2-Gbps Fibre Channel Switching Module with SFP LC (DS-X9032)</b>	32-port, 2-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9216i and MDS 9500 Series
<b>Cisco MDS 9000 12-port 4-Gbps Fibre Channel Switching Module with SFP LC (DS-X9112)</b>	12-port, 4-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9200 and MDS 9500 Series Multilayer Directors
<b>Cisco 24-port 4-Gbps Fibre Channel Switching Module with SFP LC (DS-X9124)</b>	24-port, 4-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9200 and MDS 9500 Series

<b>Cisco MDS 9000 48-port 4-Gbps Fibre Channel Switching Module with SFP LC (DS-X9148)</b>	48-port, 4-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco MDS 9000 Family 4-Port 10-Gbps Fibre Channel Switching Module with SFP LC (DS-X9704)</b>	4-port, 10-Gbps Fibre Channel switching module with X2 SC connectors for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco MDS 9000 24-Port 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC (DS-X9224-96K9)</b>	24-port, 8-Gbps Fibre Channel switching module with SFP and SFP+ LC connectors for Cisco MDS 9500 Series
<b>Cisco MDS 9000 48-Port 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC (DS-X9248-96K9)</b>	48-port, 8-Gbps Fibre Channel switching module with SFP and SFP+ LC connectors for Cisco MDS 9500 Series
<b>Cisco MDS 9000 4/44-Port Host-Optimized 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC (DS-X9248-48K9)</b>	4/44-port, Host-Optimized 8-Gbps Fibre Channel switching module with SFP and SFP+ LC connectors for Cisco MDS 9222i and MDS 9500 Series
<b>Cisco MDS 9000 18/4-Port Multiprotocol Services Module (MSM) (DS-X9304-18K9)</b>	18-port, 4-Gbps Fibre Channel plus 4-port Gigabit Ethernet IP services and switching module with SFP LC connectors for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco MDS 9000 14/2-Port Multiprotocol Services Module (DS-X9302-14K9)</b>	14-port, 2-Gbps Fibre Channel plus 2-port Gigabit Ethernet IP services and switching module with SFP LC connectors for Cisco MDS 9216i and MDS 9500 Series
<b>Cisco MDS 9000 32-Port Storage Services Module (DS-X9032-SSM)</b>	32-port, 2-Gbps storage services module with SFP LC connectors for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco MDS 9513 Switching Fabric Module (DS-13SLT-FAB1)</b>	Cisco MDS Switching Fabric Module for Cisco MDS 9513 Multilayer Director
<b>Cisco MDS 9513 Switching Fabric2 Module (DS-13SLT-FAB2)</b>	Cisco MDS Switching Fabric 2 Module for Cisco MDS 9513 Multilayer Director
<b>Cisco 10-Gbps X2 Fibre Channel Short-Reach Interface (DS-X2-FC10G-SR)</b>	X2 SC optics for 10-Gbps Fibre Channel for short reach for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco 10-Gbps X2 Fibre Channel Long-Reach Interface (DS-X2-FC10G-LR)</b>	X2 SC optics for 10-Gbps Fibre Channel for long reach (10 km) for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco 10-Gbps X2 Fibre Channel Extended-Reach Interface (DS-X2-FC10G-ER)</b>	X2,SC optics for 10-Gbps Fibre Channel for extended reach (40 km) for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco 10-Gbps X2 Fibre Channel Copper Interface (DS-X2-FC10G-CX4)</b>	X2 SC optics for 10-Gbps Fibre Channel over copper for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco 10-Gbps X2 Ethernet Short-Reach Interface (DS-X2-E10G-SR=)</b>	X2 SC optics for 10-Gbps Ethernet for short reach for Cisco MDS 9200 and MDS 9500 Series
<b>Cisco 2-, 4-, or 8-Gbps Autosensing SFP+ LC Shortwave Interface (DS-SFP-FC8G-SW)</b>	SFP+ optics (LC type) for 2-, 4-, or 8-Gbps Fibre Channel for shortwave mode for Cisco MDS DS-X9200 Series switching modules
<b>Cisco 1-, 2-, or 4-Gbps Autosensing SFP+ LC Longwave Interface (DS-SFP-FC8G-LW)</b>	SFP+ optics (LC type) for 2-, 4-, or 8-Gbps Fibre Channel for longwave mode for Cisco MDS DS-X9200 Series switching modules; supports distances up to 10 km
<b>Cisco 1-, 2-, or 4-Gbps Autosensing SFP LC Shortwave Interface (DS-SFP-FC4G-SW)</b>	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for shortwave mode for Cisco MDS 9124 and DS-X9100 Series switching modules
<b>Cisco 1-, 2-, or 4-Gbps Autosensing SFP LC Longwave (4-km Reach) Interface (DS-SFP-FC4G-MR)</b>	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for longwave mode for Cisco MDS 9124 and DS-X9100 Series switching modules; supports distances up to 4 km
<b>Cisco 1-, 2-, or 4-Gbps Autosensing SFP LC Longwave Interface (DS-SFP-FC4G-LW)</b>	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for longwave mode for Cisco MDS 9124 and DS-X9100 Series switching modules; supports distances up to 10 km
<b>Cisco 1- or 2-Gbps Autosensing SFP LC Shortwave Interface (DS-SFP-FC-2G-SW)</b>	SFP optics (LC type) for 1- or 2-Gbps Fibre Channel for shortwave mode for Cisco MDS 9500, MDS 9200, and MDS 9100 Series; not supported for use in 4-Gbps-capable ports

<b>Cisco 1- or 2-Gbps Autosensing SFP LC Longwave Interface (DS-SFP-FC-2G-LW)</b>	SFP optics (LC type) for 1- or 2-Gbps Fibre Channel for longwave mode for Cisco MDS 9500, MDS 9200, and MDS 9100 Series; not supported for use in 4-Gbps-capable ports
<b>Cisco 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel SFP LC Shortwave Interface (DS-SFP-FCGE-SW)</b>	SFP optics (LC type) for 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel for shortwave mode for Cisco MDS 9500, MDS 9200, and MDS 9100 Series; not supported for use in 4-Gbps-capable ports
<b>Cisco 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel SFP LC Longwave Interface (DS-SFP-FCGE-LW)</b>	SFP optics (LC type) for 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel for longwave mode for Cisco MDS 9500, MDS 9200, and MDS 9100 Series; not supported for use in 4-Gbps-capable ports
<b>Cisco 1-Gbps Copper Ethernet SFP (DS-SFP-GE-T)</b>	SFP (RJ-45 connector) for Gigabit Ethernet over copper for Cisco MDS 9500, MDS 9200, and MDS 9100 Series
<b>Cisco Coarse Wavelength-Division Multiplexing (CWDM) Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC Interface (DS-CWDM-xxxx=)</b>	CWDM Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC type for Cisco MDS 9500, MDS 9200, and MDS 9100 Series, where product number xxxx = 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 nm
<b>Cisco CWDM 4-Gbps Fibre Channel SFP LC Interface (DS-CWDM4Gxxxx=)</b>	CWDM 4-Gbps Fibre Channel SFP LC type for Cisco MDS 9500, MDS 9200, and MDS 9100 Series, where product number xxxx = 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 nm
<b>Cisco 10-Gbps Dense Wavelength-Division Multiplexing (DWDM) X2 Ethernet for Fibre Channel SC Interface (DWDM-X2-xx.xx=)</b>	DWDM X2 SC optics for 10-Gbps Fibre Channel connectivity to an existing Ethernet DWDM infrastructure for Cisco MDS 9500 and MDS 9200 Series, with 15xx.xx nm wavelength, where xx.xx = 60.61, 59.79, 58.98, 58.17, 56.55, 55.75, 54.94, 54.13, 52.52, 51.72, 50.92, 50.12, 48.51, 47.72, 46.92, 46.12, 44.53, 43.73, 42.94, 42.14, 40.56, 39.77, 38.98, 38.19, 36.61, 35.82, 35.04, 34.25, 32.68, 31.90, 31.12, or 30.33
<b>Cisco Dense Wavelength-Division Multiplexing Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC Interface (DWDM-SFP-xxxx=)</b>	DWDM Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC type for Cisco MDS 9500, MDS 9200, and MDS 9100 Series, where product number xxxx = 3033, 3112, 3190, 3268, 3425, 3504, 3582, 3661, 3819, 3898, 3977, 4056, 4214, 4294, 4373, 4453, 4612, 4692, 4772, 4851, 5012, 5092, 5172, 5252, 5413, 5494, 5575, 5655, 5817, 5898, 5979, or 6061nm
<b>Cisco 4-Wavelength Add/Drop Multiplexer (ADM) (DS-CWDMOADM4A=)</b>	4-channel CWDM optical ADM (OADM) module (Cisco CWDM 1470, 1490, 1510, or 1530 NM Add/Drop Module)
<b>Cisco 4-Wavelength ADM (DS-CWDMOADM4B=)</b>	4-channel CWDM OADM module (Cisco CWDM 1550, 1570, 1590, or 1610 NM Add/Drop Module)
<b>Cisco 8-Wavelength ADM (DS-CWDM-MUX8A=)</b>	ADM for 8 CWDM wavelengths
<b>Cisco CWDM Multiplexer Chassis (DS-CWDMCHASSIS=)</b>	2-slot chassis for CWDM ADMs
<b>Cisco 300W AC Power Supply (DS-CAC-300W)</b>	300W AC power supply for Cisco MDS 9100 Series Multilayer Fabric Switches
<b>Cisco 300W AC Power Supply (DS-C24-300AC)</b>	300W AC power supply for Cisco MDs 9124 Multilayer Fabric Switch
<b>Cisco 845W AC Power Supply (DS-CAC-845W)</b>	845W AC power supply for Cisco MDS 9200 Series
<b>Cisco 3000W AC Power Supply (DS-CAC-3000W)</b>	3000W AC power supply for Cisco MDS 9509
<b>Cisco 6000W AC Power Supply (DS-CAC-6000W)</b>	6000W AC power supply for Cisco MDS 9513
<b>Cisco 1900W AC Power Supply (DS-CAC-1900W)</b>	1900W AC power supply for Cisco MDS 9506
<b>Cisco 512-MB Compact Flash Memory (MEM-MDS-FLD512M)</b>	Cisco MDS 9500 Series external 512-MB compact flash memory for supervisor module
<b>Cisco MDS 9000 Port Analyzer Adapter (DS-PAA-2, DS-PAA)</b>	Cisco MDS 9000 port analyzer adapter for troubleshooting and analysis of Fibre Channel traffic
<b>Cisco Storage Media Encryption (SME) Smart Card Reader (DS-SCR-K9=)</b>	Cisco MDS 9000 SME smart card reader
<b>Cisco SME Smart Card (DS-SC-K9=)</b>	Cisco MDS 9000 SME smart card

<b>Cisco MDS 9000 Management Software and Documentation CD-ROM (M90FM-CD-441=)</b>	Cisco MDS 9000 Management software and documentation CD-ROM for Cisco MDS 9000 NX-OS Software Release 4.1(1)
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## New Software Features

Table 2 summarizes the new software features available in Cisco NX-OS Software Release 4.1(1).

**Table 2.** Cisco MDS 9000 NX-OS Software Release 4.1(1) Features Available

Software Feature	Description
<b>New platform support</b>	Support has been added for the following new switch hardware platforms and modules: <ul style="list-style-type: none"> <li>• Cisco MDS 9000 24-Port 8-Gbps Fibre Channel Switching Module</li> <li>• Cisco MDS 9000 48-Port 8-Gbps Fibre Channel Switching Module</li> <li>• Cisco MDS 9000 4/44-Port 8-Gbps Host-Optimized Fibre Channel Switching Module</li> </ul>
<b>Cisco SANTap support on new platforms</b>	Cisco SANTap is supported on Cisco MDS 9000 18/4-Port MSM and Cisco MDS 9222i platforms.
<b>Cisco Data Mobility Manager (DMM) support on new platforms</b>	Cisco DMM is supported on Cisco MDS 9000 18/4-Port MSM and Cisco MDS 9222i platforms.
<b>Cisco SME enhancements</b>	Cisco SME enhancements include the following: <ul style="list-style-type: none"> <li>• Decoupling key management and provisioning</li> <li>• Support for single Cisco KMC for managing Cisco SME in multiple data centers</li> </ul>
<b>Cisco Fabric Manager Server (FMS) enhancements</b>	Cisco FMS enhancements include the following: <ul style="list-style-type: none"> <li>• Server Admin tool</li> <li>• Flow management simplification</li> <li>• Web client enhancements</li> <li>• New supported platforms for Cisco Fabric Manager (Solaris 10 containers, VMware ESX 3.5, and Microsoft Vista)</li> <li>• Support for Windows 2000 is being discontinued from Cisco NX-OS Software Release 4.1(1)</li> </ul>

## Ordering Information for Software Images

Table 3 lists the software images and applicable software ordering information for the Cisco MDS 9000 family.

**Table 3.** Software Ordering Information

Part Number	Description
<b>M95S2K9-4.1.1</b>	Cisco MDS 9500 Supervisor/Fabric-2, NX-OS Software Release 4.1(1)
<b>M92S2K9-4.1.1</b>	Cisco MDS 9200 Supervisor/Fabric-2, NX-OS Software Release 4.1(1)
<b>M92S1K9-4.1.1</b>	Cisco MDS 9200 Supervisor/Fabric-I, NX-OS Software Release 4.1(1)
<b>M91S2K9-4.1.1</b>	Cisco MDS 9100 Supervisor/Fabric-2, NX-OS Software Release 4.1(1)
<b>M91S1K9-4.1.1</b>	Cisco MDS 9100 Supervisor/Fabric-I, NX-OS Software Release 4.1(1)
<b>SSI-M9K9-411</b>	Cisco Storage Services Interface- version 4.1.1
<b>M9200SSE184K9=</b>	Cisco Storage Services Enabler License for one 18/4 on Cisco MDS 9200
<b>M9500SSE184K9=</b>	Cisco Storage Services Enabler License for one 18/4 on Cisco MDS 9500
<b>M9222ISSE1K9=</b>	Cisco Storage Services Enabler License on Cisco MDS 9222i
<b>M92DMM184K9=</b>	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9200
<b>M95DMM184K9=</b>	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9500
<b>M9222IDMMK9=</b>	Cisco Data Mobility Manager (DMM) License for Cisco MDS 9222i
<b>M95DMM184TSK9=</b>	Cisco DMM Temporary License for one 18/4 on Cisco MDS 9500 - Time Limited to 180 days only
<b>M92DMM184TSK9=</b>	Cisco DMM Temporary License for one 18/4 on Cisco MDS 9200 - Time Limited to 180 days only
<b>M9222IDMMTSK9=</b>	Cisco DMM Temporary License on Cisco MDS 9222i - Time Limited to 180 days only

**M90FM-CD-411=**

Cisco MDS 9000 Management Software and Documentation CD-ROM for Cisco MDS 9000 NX-OS Software Release 4.1(1)

### For More Information

For more detailed information about this Cisco software release, refer to the Cisco MDS 9000 family release notes at

[http://www.cisco.com/en/US/products/hw/ps4159/ps4358/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/hw/ps4159/ps4358/prod_release_notes_list.html).

For more information about the Cisco MDS 9000 family, refer to the product literature at

[http://www.cisco.com/en/US/products/hw/ps4159/ps4358/prod\\_literature.html](http://www.cisco.com/en/US/products/hw/ps4159/ps4358/prod_literature.html).

For more information about license packages, refer to the fact sheets with the product literature.



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