

Dell Connectrix® Cisco MDS-9000 NX-OS

Version 8.4(2e)

Release Notes

Rev 16
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The Dell Connectrix MDS 9000 NX-OS Family of multilayer directors and fabric switches offers intelligent fabric-switching services that realize maximum performance while ensuring high reliability levels. These release notes provide the most up-to-date information and changes. Topics include:

◆ Revision history	2
◆ Product description	2
◆ New features and changes.....	3
◆ Fixed problems.....	3
◆ Environment and system requirements.....	4
◆ Deprecated and Changed Features	5
◆ Technical notes	17
◆ Documentation	19
◆ Software media, organization, and files.....	20
◆ Installation	20
◆ Troubleshooting and getting help	20

Revision history

The following table presents the revision history of this document.

Revision	Date	Description
8.4(2e)	12/12/2022	Maintenance release
8.4(2d)	04/18/2022	Maintenance release
8.4(2c)	6/21/2021	Maintenance release with FICON support
8.5(1)	5/17/2021	New platform support, feature, enhancements and bug fixes
8.4(2b)	1/11/2021	Maintenance release
8.4(2a)	10/12/2020	Maintenance release
8.4(2)	06/22/2020	Maintenance release
8.4(1a)	02/24/2020	Maintenance release with FICON support
8.4(1)	08/19/19	New platform support, feature, enhancements and bug fixes
8.3(2)	02/11/19	Maintenance release with bug fixes
8.3(1)	09/17/18	New platform support, features, enhancements and bug fixes
8.2(2)	06/11/18	Maintenance release with Bug fixes and ESRS enhancements
8.1(1b)	11/19/18	New platform support, features, enhancements and bug fixes FICON support for 32G Line card.
8.1(1a)	04/30/18	Maintenance release with FICON support
8.2(1)	11/13/17	New platform support, features, enhancements, and bug fixes.
8.1(1)	06/12/17	New platform support, features, enhancements, and bug fixes.

Product description

Thank you for purchasing an MDS 9000 multilayer fabric director or switch. The information contained in this document is a supplement to the MDS 9000 documentation that can be found on <https://www.cisco.com>. Readers familiar with standard Dell Connectrix release notes may notice that the organization of this document is somewhat different than they are used to. Take the time to familiarize yourself with the information provided.

Readers will find information from the original Cisco release notes for NX-OS and annotations in the technical section including Call Home capability, zoning and configuration parameters.

As always in a Dell Connectrix environment, refer to the *Dell Support Matrix* available through E-Lab™ Interoperability Navigator at:

<https://elabnavigator.dell.com/elc/modernHomeSSM> for the latest information on supported configurations.

The answers to many MDS 9000 related questions can be found in the Dell Knowledgebase located on Dell Online Support on <https://www.dell.com/support>.

The Dell Connectrix® MDS 9000 Family of multilayer directors and fabric switches offers intelligent fabric-switching services that realize maximum performance while ensuring high reliability levels. They combine robust and flexible hardware architecture with multiple layers of network and storage management intelligence. This powerful combination enables highly available, scalable storage networks that provide advanced security and unified management features. These release notes provide the most up-to-date information on new features and changes.

New features and changes

New Hardware Support in Cisco MDS NX-OS Release 8.4(2e)

None.

New Software Features in Cisco MDS NX-OS Release 8.4(2e)

None

Unsupported features

The following features are not currently supported in Dell environments. This list is inclusive of past releases:

- ◆ Fabric-Device Management Interface
- ◆ Slow Drain Detection and Isolation Enhancement
- ◆ FICON tape Acceleration
- ◆ Tunneling (IPv4 and v6) is not supported on the same interface
- ◆ Data Encryption Standard (DES) Encryption for SNMP
- ◆ TACACS is not supported for switch-to-switch authentication

Note: To obtain the most up-to-date information on Dell supported configurations, reference the most current release notes available at <https://www.dell.com/support>, and the *Dell Support Matrix*, available through E-Lab Interoperability Navigator at <https://elabnavigator.dell.com/elc/modernHomeSSM>.

Fixed problems

Cisco-specific caveats for resolved problems can be found in the Cisco release-noted documentation with the equivalent firmware level at the following Cisco website:

http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html

Note: Cisco makes all release notes, past and present, available on this web site.

Environment and system requirements

This section describes the system requirements for MDS NX-OS Release 8.4(2e) and includes the following information:

- ◆ Hardware and software requirements
- ◆ Software selection and upgrade considerations
- ◆ Downgrading your Cisco MDS NX-OS software image

Cisco Data Center Network Manager

Take note that NX-OS 8.4(2e) requires the use of Cisco Data Center Network Manager version 11.0.x or higher.

When **snmp-server globalEnforcePriv** is enabled on the switch, Cisco Prime DCNM support Cisco MDS NX-OS Release.

Telco 2 post racks

Note that the MDS 9718, MDS 9710 and MDS 9706 should not be used in a 2 post Telco rack due to weight considerations. Refer to the *Cisco MDS 9000 Hardware Installation Guides* on <http://www.cisco.com> for more information.

EC-1700 configuration information

Configuration information appears in the *Connectrix EC-1700 Cabinet Installation and Setup Manual* on <https://www.dell.com/support>.

Note: Currently, only the MDS 9710 and MDS 9706 are supported in the EC-1700-C cabinet.

8Gb power requirements

Even though Cisco director class models may operate at 100 to 240 VAC, in configurations consisting of 8 Gb modules, 200-240 VAC is highly recommended. Operating at lower voltages will decrease the number of modules that may be installed in your chassis.

For more information on power requirements, please refer to Appendix C of the *Cisco MDS 9500 Series Hardware Installation Guide*.

Hardware and software components

Dell supported hardware and software modules are listed in Cisco NX-OS 8.4(2e) release notes located on the Cisco web site.

Note: Table 1 lists the MDS 9000 Family software and hardware components that are **not** supported by Dell as well as the comparable NX-OS part numbers.

For older NX-OS part numbers, see prior existing versions of release notes.

Table 1 MDS 9000 Family software and hardware modules not supported

Component	Dell part number	Description	Applicable products
Service modules	DS-X9304-18FK9	18-port Fibre Channel/4-port Gigabit Ethernet Multiservice FIPS (MSFM-18/4) module.	MDS 9500 Series and 9200 Series
Optics	DS-X2-FC10G-ER	X2/SC optics, 10-Gbps Fibre Channel for Extended Reach (40 km).	MDS 9500 Series and 9200 Series, except for the MDS 9216
	DS-X2-E10G-SR	X2/SC optics, 10-Gbps Ethernet for Short Reach	
	DS-X2-FC10G_CX4	X2/CX-4 optics, 10-Gbps Fibre Channel, copper	
LC-type fiber-optic SFP	DS-SFP-GE-T	1-Gbps Ethernet SFP.	MDS 9000 Family
Port analyzer adapter	DS-PAA-2, DS-PAA	A standalone Fibre Channel-to-Ethernet adapter that allows for simple, transparent analysis of Fibre Channel traffic in a switched fabric.	MDS 9000 Family

Deprecated and Changed Features

Zoning Features

LUN zoning, read-only zones, and broadcast zones are no longer supported.

If these features are already configured, completely remove all the configurations that include these features before attempting to boot any module. In addition, you cannot configure these features after you bring up any module.

XRC Acceleration License

- Starting from Cisco MDS NX-OS Release 8.1(1a), the Cisco Extended Remote Copy (XRC) acceleration license is obsoleted on Cisco MDS 9000 Series Switches due to improvements in the mainframe XRC feature.

FICON Tape Acceleration

- FICON Tape Acceleration (FTA) is not supported on Cisco MDS 24/10 SAN Extension Module in Cisco MDS NX-OS Release 8.1(1a) but it is supported in Cisco MDS NX-OS Release 8.1(1b), Release 8.4(1a), Release 8.4(2b) and Release 8.4(2c).

Virtual Router Redundancy Protocol (VRRP)

- ◆ From Cisco MDS NX-OS Release 8.3(1) and later, the VRRP feature is not supported on Cisco MDS 9000 Series Switches.

Data Mobility Manager

- ◆ From Cisco MDS NX-OS Release 8.1(1), the Cisco MDS Data Mobility Manager is not supported on Cisco MDS 9000 Series Switches.

Deprecated Hardware

Cisco NX-OS 8.4(2e) does not support the following hardware:

Cisco MDS 9134 Fabric Switch

- ◆ Cisco MDS 9124 Fabric Switch
- ◆ Cisco MDS 9222i Fabric Switch
- ◆ Cisco MDS 9148 Fabric Switch
- ◆ Cisco MDS 9509 Fabric Switch
- ◆ Cisco MDS 9506 Fabric Switch
- ◆ Cisco MDS 9513 Fabric Module ¹
- ◆ Cisco MDS 9500 Series Supervisor-2 Module
- ◆ Cisco MDS 4-Port 10-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 8-port 10-Gbps Fibre Channel over Ethernet (FCoE) Module
- ◆ Cisco MDS 12-port 4-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 24-port 4-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 48-port 4-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 4-Gbps Fabric Switch for HP c-Class BladeSystem
- ◆ Cisco MDS 4-Gbps Fabric Switch for IBM BladeCenter
- ◆ Cisco MDS 24-Port 8-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 48-Port 8-Gbps Fibre Channel Switching Module
- ◆ Cisco MDS 32-Port 8-Gbps Advanced Fibre Channel Switching Module
- ◆ Cisco MDS 48-Port 8-Gbps Advanced Fibre Channel Switching Module

MDS 9000 chassis and module support in Cisco MDS NX-OS 8.4

Table 2 lists the MDS hardware chassis supported by Cisco MDS NX-OS 8.4.

Table 2 Cisco MDS NX-OS 8.4 chassis support matrix

Switch	NX-OS 8.4.x support
MDS 9148T	Yes ⁶
MDS 9396T	Yes ⁶
MDS 9132T	Yes
MDS 9718	Yes ⁵
MDS 9710	Yes ¹
MDS 9706	Yes ²
MDS 9718-V3	Yes ⁷
MDS 9710-V2	Yes ⁸
MDS 9706-V2	Yes ⁸
MDS-9396S-48-1 (Port Side intake)	Yes ⁴
MDS 9396S-48	Yes ³
MDS 9250i	Yes
MDS 9148s	Yes ²

¹ Requires NX-OS 6.2(1) or higher.

² Requires NX-OS 6.2(9) or higher.

³ Requires NX-OS 6.2(13) or higher.

⁴ Requires 6.2(15) or NX-OS 7.3.1(D1) or higher

⁵ Requires NX-OS 7.3(0)D1(1) or higher.

⁶ Requires NX-OS 8.3(1) or higher.

⁷ Requires NX-OS 8.4(2a) or higher

⁸ Requires NX-OS 8.4(1) or higher

Table 3 lists the MDS hardware modules supported by Cisco MDS NX-OS 8.4.

Table 3 Module support matrix for Cisco MDS NX-OS release 8.4 (page 1 of 2)

Module	Description	MDS 9700 Series	MDS 9500 Series	MDS 9200 Series
DS-X97-SF4-K9	Cisco MDS 9700 Series Supervisor-4 Module	Yes	No	No
DS-X9710-FAB3	Cisco MDS 9710 Crossbar Fabric-3 Switching Module	Yes ¹	No	No
DS-X9706-FAB3	Cisco MDS 9706 Crossbar Fabric-3 Switching Module	Yes ²	No	No
DS-X9718-FAB3	Cisco MDS 9718 Crossbar Fabric-3 switching module	Yes ³	No	No
DS-9396T	MDS 9396T Fabric Module	No	No	No
DS-9148T	MDS 9148T Fabric Module	No	No	No
DS-9132T	MDS 9132T Fabric Module	No	No	No

Table 3 Module support matrix for Cisco MDS NX-OS release 8.4 (page 2 of 2)

Module	Description	MDS 9700 Series	MDS 9500 Series	MDS 9200 Series
DS-X9448-768K9	MDS 48-Port 16-Gbps Fibre Channel Switching Module	Yes	No	No
DS-X9448-768K9	48 Port 16 Gbps Fibre Channel Switching Module	Yes	No	No
DS-X97-SF1E-K9	MDS 9700 Supervisor-1E Module	Yes		
DS-X9718-FAB1	MDS 9718 Fabric1 Module	Yes ³	No	No
DS-X9710-FAB1	MDS 9710 Fabric1 Module	Yes ¹	No	No
DS-X9706-FAB1	MDS 9706 Fabric1 Module	Yes ²	No	No
DS-X9824-960K9	MDS 24 Port 40 Gbps FCoE Module	Yes	No	No
DS-X9648-1536K9	MDS 9700 48-Port 32-Gbps Fibre Channel Switching Module	Yes	No	No
DS-X9848-480K9	48-Port 10-Gigabit FCoE Module	Yes	No	No
DS-X9334-K9	Cisco MDS 9000 Family 24/10 SAN Extension Module	Yes	No	No
DS-X9530-SF2A-K9	MDS 9500 Supervisor-2 A Module	No	No	No
DS-13SLT-FAB3	MDS 9513 Fabric Module 3	No	No	No
DS-13SLT-FAB2	MDS 9513 Fabric Module 2	No	No	No
DS-X9232-256K9	32-port 8-Gbps Advanced Fibre Channel Switching Module	No	No	No
DS-X9248-256K9	48-port 8-Gbps Advanced Fibre Channel Switching Module	No	No	No
DS-X9224-96K9	24-port 8-Gbps Fibre Channel Switching Module	No	No	No
DS-X9248-96K9	48-port 8-Gbps Fibre Channel Switching Module	No	No	No
DS-X9248-48K9	4/44-port Host Optimized 8-Gbps Fibre Channel Switching Module	No	Yes	Yes
DS-X9316-SSNK9	16-port Storage Services Node (SSN-16)	No	Yes	Yes
DS-X9304-18K9	18/4-port Multiprotocol Services Module (MSM-18/4)	No	Yes	Yes

¹ Supported on Cisco MDS 9710 Director only.

² Supported on Cisco MDS 9706 Director only.

³ Supported on 9718 director only.

Software download process

Use the software download procedure to upgrade to a later version, or downgrade to an earlier version, of an operating system. This section describes the software download process for the Cisco MDS NX-OS software and includes the following topics.

- ◆ [“Determining the software version” on page 9.](#)
- ◆ [“Downloading software” on page 9.](#)
- ◆ [“Selecting the correct software image for an MDS 9148s switch” on page 10](#)
- ◆ [“Selecting the correct software image for an MDS 9250i switch” on page 10](#)

- ◆ “Selecting the software image for an MDS 9700 Series switch” on page 10
- ◆ “Software images for MDS 9396s switches” on page 10.
- ◆ “Software images for MDS 9132T switch” on page 10
- ◆ “Selecting the software image for an MDS 9396T switch” on page 11.
- ◆ “Selecting the software image for an MDS 9148T switch” on page 11.

Determining the software version

To determine the version of Cisco MDS NX-OS or SAN-OS software currently running on a Cisco MDS 9000 Family switch using the CLI, log in to the switch and enter the **show version EXEC** command.

To determine the version of Cisco MDS NX-OS or SAN-OS software currently running on a Cisco MDS 9000 Family switch using Cisco DCNM for SAN, view the Switches tab in the Information pane, locate the switch using the IP address, logical name, or WWN, and check its version in the Release column.

Note: Dell strongly recommends that you use the current target software release for all MDS 9000 Family products. Refer to the *Dell Support Matrix*, available through E-Lab Interoperability Navigator (ELN) at <https://elabnavigator.dell.com/eln/modernHomeSSM> for the latest information on qualified and target firmware revisions.

Downloading software

The Cisco MDS NX-OS software is designed for mission-critical high availability environments.

Before performing upgrades, submit all requested changes to the Dell Global Services CCA change control process so that any potential operating environment impacts can be analyzed beforehand.

Firmware upgrade instructions, prerequisites, and other caveats can be found in the Dell Connectrix Procedure Generator. The Connectrix Procedure Generator can be downloaded from Dell Online Support at <https://www.dell.com/support>. Search for **Connectrix Procedure Generator**.

See the following sections in this release note for details on how you can nondisruptively upgrade your Cisco MDS 9000 switch. Issuing the **install all** command from the CLI, or using Cisco DCNM for SAN to perform the downgrade, enables the compatibility check. The check indicates if the upgrade can happen nondisruptively or disruptively depending on the current configuration of your switch and the reason.

Compatibility check is done:

Module	bootable	Impact	Install-type	Reason
1	yes	non-disruptive	rolling	
2	yes	disruptive	rolling	Hitless upgrade is not supported
3	yes	disruptive	rolling	Hitless upgrade is not supported
4	yes	non-disruptive	rolling	
5	yes	non-disruptive	reset	
6	yes	non-disruptive	reset	

At a minimum, you need to disable the default device alias distribution feature using the **no device-alias distribute** command in global configuration mode. The **show incompatibility system bootflash: system image filename** command determines which additional features need to be disabled.

Selecting the correct software image for an MDS 9148s switch

The system and kickstart image that you use for an MDS 9148s switch is shown in [Table 4](#).

Table 4 Software Images for MDS 9148s Switches

Cisco MDS 9148s Series switch type	Naming convention
9148s	Filename begins with m9100-s5ek9

Selecting the correct software image for an MDS 9250i switch

The system and kickstart image that you use for an MDS 9250i is shown in [Table 5](#).

Table 5 Software images for MDS 9250i switches

Cisco MDS 9250i switch type	Naming convention
9250i	Filename begins with m9250-s5ek9

Selecting the correct software image for an MDS 9396s switch

The system and kickstart image that you use for an MDS 9396s is shown in [Table 6](#).

Table 6 Software images for MDS 9396s switches

Cisco MDS 9396s switch type	Naming convention
9396s	Filename begins with m9300-s1ek9

Selecting the software image for an MDS 9700 Series switch

The system and kickstart image that you use for an MDS 9700 series switch is shown in [Table 7](#).

Table 7 Software images for MDS 9700 Series switch with SUPervisor-1 Module

Cisco MDS 9700 Series Switch Type	Switching naming conventions
9706, 9710 and 9718	Filename begins with m9700-sf3ek9

Selecting the software image for an MDS 9132T switch

The system and kickstart image that you use for an MDS 9132T switch is shown in [Table 8](#).

Table 8 Software images for MDS 9132T switch

Cisco MDS 9132 switch type	Switch Naming convention
9132T	Filename begins with m9100-s6ek9

Selecting the software image for an MDS 9396T switch

The system and kickstart image that you use for an MDS 9396T switch is shown in [Table 9](#).

Table 9 Software images for MDS 9396T switch

Cisco MDS 9396T switch Type	Switching naming conventions
9396T	Filename begins with m9300-s2ek9

Selecting the software image for an MDS 9148T switch

The system and kickstart image that you use for an MDS 9148T switch is shown in [Table 10](#).

Table 10 Software images for MDS 9148T switch

Cisco MDS 9148T switch Type	Switching naming conventions
9148T	Filename begins with m9148-s6ek9

Selecting the software image for an MDS 9700 series switches with Supervisor-4 Module

The system and kickstart image that you use for MDS 9700 series switches with Supervisor-4 Module is shown in [Table 11](#).

Table 11 Software Image for MDS 9700 series switches with Supervisor-4 Module

Cisco MDS 9700 Series Switch Type	Module Naming Conventions
9710-V2, 9706-V2 and 9718-V3	Filename begins with m9700-sf4ek9

Upgrading Your Cisco MDS NX-OS Software Image

This section lists the guidelines recommended for upgrading your Cisco MDS NX-OS software image and includes the following topics:

- ◆ [“General upgrading guidelines” on page 12](#)

Note: Before you begin the upgrade process, review the list of chassis and modules that NX-OS Release 8.4(2e) supports. See the [“Table 2 Cisco MDS NX-OS 8.4 chassis support matrix” on page 7](#).

Note: For detailed instructions for performing a software upgrade using Cisco DCNM, see the *Cisco DCNM Fundamentals Guide*, on the list of Cisco Prime Data Center Network Manager Configuration Guides at <http://www.cisco.com>.

General upgrading guidelines

Note: To upgrade non-disruptively to NX-OS Release 8.4(2e), you must be running NX-OS Release 8.1.x or higher. To upgrade to 8.4(2e) from 6.2(13a) until 6.2(27), a step upgrade to 8.1(1b) must occur. The only exception is from 6.2(21) where you must first go to 6.2(23) then to 8.1(1b) prior to 8.4(2e).

Note: To upgrade NX-OS 6.2(29) and above releases, upgrade directly to NX-OS 8.4(2e).

Use the following guidelines when upgrading:

- ◆ Non disruptive upgrade and downgrade paths may be changed by Cisco at any time due to reported issues. Refer to their online release notes for the current paths. Those release notes can be found at the following Cisco web site:
http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html
- ◆ Install and configure dual supervisor modules.
- ◆ Issue the **show install all impact upgrade-image** CLI command to determine if your upgrade will be nondisruptive.
- ◆ Redundant fabrics should be upgraded separately. Test and confirm all devices have connectivity prior to upgrading the redundant fabric.
- ◆ Be aware that some features impact whether an upgrade is disruptive or nondisruptive:
 - **Fibre Channel Ports:** Traffic on Fibre Channel ports can be nondisruptively upgraded.
 - **Fibre Channel over Ethernet (FCoE) Ports:** FCoE ports can be nondisruptively upgraded without affecting traffic on the ports.
 - **IP Storage (IPS) Ports:** Traffic on IPS ports on Cisco MDS 9250i and Cisco MDS 24/10-Port SAN Extension Modules is disrupted during an upgrade or downgrade. Nodes that are members of VSANs traversing an FCIP ISL are impacted, and a fabric reconfiguration may occur. iSCSI initiators connected to the IPS ports lose connectivity to iSCSI targets while the upgrade is in progress.

FICON releases and upgrade paths

The Connectrix Cisco MDS NX-OS Release 8.4(2e) is an IBM-qualified FICON release for Cisco MDS switches and directors.

The following table lists the FICON-enabled releases with the corresponding nondisruptive upgrade paths.

Table 12 FICON Nondisruptive Upgrade Paths from MDS NX-OS Release 8.4(2e)

Current Release with FICON Enabled	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
MDS NX-OS Release 8.4(1a), 8.4(2b) and 8.4(2c)	Upgrade directly to MDS NX-OS Release 8.4(2e)
MDS NX-OS Release 8.1(1b)	Step 1. Upgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 2. Upgrade to MDS NX-OS Release 8.4(2e)
MDS NX-OS Release 8.1(1a)	Step 1. Upgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 2. Upgrade to MDS NX-OS Release 8.4(2e)
MDS NX-OS Release 6.2(11e)	Step 1. Upgrade directly to MDS NX-OS Release 8.1(1a)
	Step 2. Upgrade to MDS NX-OS Release 8.1(1b)
	Step 3. Upgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 4. Upgrade to MDS NX-OS Release 8.4(2e)

Downgrading your Cisco MDS NX-OS software image

This section lists the guidelines recommended for downgrading your Cisco MDS NX-OS software image and includes the following topics:

Follow these general guidelines before you perform a firmware downgrade.

General downgrading guidelines

Follow these general guidelines before you perform a firmware downgrade:

- ◆ Nondisruptive upgrade and downgrade paths may be changed by Cisco at any time due to reported issues. Refer to their online release notes for the current paths. Those release notes can be found at the following Cisco website:
http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html
- ◆ Disable all features not supported by the downgrade release. Use the **show incompatibility system downgrade-image** command to determine what you need to disable.
- ◆ Use the **show install all impact downgrade-image** command to determine if your downgrade will be nondisruptive.
- ◆ Be aware that some features impact whether a downgrade is disruptive or nondisruptive:
 - **Fibre Channel Ports:** Traffic on Fibre Channel ports can be non-disruptively downgraded.
 - **FCoE Port:** FCoE ports can be nondisruptively downgraded without affecting traffic on the ports.

- **IPS Ports:** Traffic on IPS ports on Cisco MDS 9250i and Cisco MDS 24/10-Port SAN Extension Modules is disrupted during an upgrade or downgrade. Nodes that are members of VSANs traversing an FCIP ISL are impacted, and a fabric reconfiguration may occur. iSCSI initiators connected to the IPS ports lose connectivity to iSCSI targets while the upgrade is in progress.

Note: The software downgrade information in the below tables applies only to Fibre Channel switching traffic. Downgrading system software disrupts IP and intelligent services traffic.

- ◆ Any hardware that is not supported by the downgrade release will be powered down when the downgrade release starts running. Power off and or remove any unsupported components before downgrading. For more information about supported hardware see the [Cisco MDS 9000 Series Compatibility Matrix](#).
- ◆ If you are downgrading to Cisco MDS NX-OS Release 8.1(x), Release 8.2(x), Release 8.3(x), or Release 8.4(1x) from Release 8.4(2x) and if smart license and VSAN policy for a role are configured, ensure that you **disable Smart Licensing or disable VSAN policy for only the role** before downgrading or performing a switchover. You can re-enable these features after downgrading or performing the switchover. For more information, see [CSCvy19014](#).

FICON Downgrade Path

The Connectrix Cisco MDS NX-OS Release 8.4(2e) is an IBM-qualified FICON release for Cisco MDS switches and directors.

The following table lists the downgrade paths for FICON releases. Find the image release number that you want to downgrade to in the To Release with FICON Enabled column of the table and follow the recommended downgrade path.

Table 13 FICON Nondisruptive Downgrade Paths from MDS NX-OS Release 8.4(2e)
(page 1 of 2)

Downgrade to Release with FICON Enabled	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
MDS NX-OS Release 8.4(1a), 8.4(2b), and 8.4(2c)	Downgrade directly from MDS NX-OS Release 8.4(2e)
MDS NX-OS Release 8.1(1b)	Step 1. Downgrade to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 2. Downgrade to the target release
MDS NX-OS Release 8.1(1a)	Step 1. Downgrade to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 2. Downgrade to MDS NX-OS Release 8.4(1b)
	Step 3. Downgrade to the target release

Table 13 FICON Nondisruptive Downgrade Paths from MDS NX-OS Release 8.4(2e)
(page 2 of 2)

Downgrade to Release with FICON Enabled	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
MDS NX-OS Release 6.2(11e)	Step 1. Downgrade to MDS NX-OS Release 8.4(1a) or 8.4(2b) or 8.4(2c)
	Step 2. Downgrade to MDS NX-OS Release 8.4(1b)
	Step 3. Downgrade to MDS NX-OS Release 8.4(1a)
	Step 4. Downgrade to the target release

Known problems and limitations'

For a list of problems with this release, please refer to the Cisco Release notes located at:

http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html

This section lists the limitations and restrictions.

Fibre Channel Read Diagnostic Parameters

Fibre Channel RDP querying is not supported on NPV, Port Channel or FCoE links.

FCIP Support

In Cisco MDS NX-OS Release 8.4(2e), FCIP Write Acceleration is not supported between 24/10 San Extension Module and Cisco 18+4 MSM and Cisco SSN16 Modules. In Cisco MDS NX-OS Release 8.4(2e), FCIP Write Acceleration along with IVR is not supported on FCIP tunnels configured on Cisco MDS 9700 Series switches. FCIP tunnels using Cisco MDS 24/10 Port SAN Extension Module cannot be used across FSPF equal cost paths. On Cisco MDS 24/10 Port SAN Extension Module, configuring multiple ECMP port channels with FCIP members in the same VSAN is not a valid configuration. If this is configured, then the traffic will flow through only one of the port channels.

iSCSI Support

In Cisco MDS NX-OS Release 8.4(2e), iSCSI is not supported on Cisco MDS 9700 Directors with Cisco MDS 24/10 port SAN Extension Modules.

HVDC PSU Support

The Cisco MDS 9700 HVDC PSU (DS-CHV-3.5KW) is not supported in Cisco MDS NX-OS Releases 8.1(1) and 8.1(1a). Do not attempt to load these releases on devices equipped with these PSUs or the systems will fail to power up.

Slow Drain Detection and Congestion Isolation

ER_RDY is not supported on FC interfaces running at 10 Gbps.

Cisco TrustSec FC Link Encryption

Cisco TrustSec FC Link Encryption support for the following modules is available only on certain ports as mentioned below:

Table 14 Cisco TrustSec FC Link Encryption Support

Model	Description	Cisco TrustSec Capable Ports	Encryption Key Length
DS-X9748-3072	64 Gbps Fibre Channel Switching module	9, 11, 13, 15, 25, 27, 29, 31	AES 128 bit
DS-X9648-1536K9	32 Gbps Fibre Channel Switching Module	9-12, 25-28, 41-44	AES 128 bit
DS-X9448-768K9	16 Gbps Fibre Channel Switching module	All FC ports	AES 128 bit
DS-X9334-K9	24/10 Port SAN Extension Module	All FC ports	AES 128 bit
DS-C9132T-K9	MDS 9132T Fabric Switch	9-12, 25-28	AES 128 bit
DS-C9148T-K9	MDS 9148T Fabric Switch	9-12, 25-28, 41-44	AES 128 bit
DS-C9396T-K9	MDS 9396T Fabric Switch	Base ports: 9-12, 25-28, 41-44 LEM ports: 57-60, 73-76, 89-92	AES 128 bit
DS-C9396S-K9	MDS 9396S Fabric Switch	All FC ports	AES 128 bit

Technical notes

The following sections provide further information on technical notes.

Best practices

Log messages are not saved across system reboots or power outages. Therefore, Dell recommends that customers configure a Syslog Server in order to redirect and capture all log messages on a remote server. For more information, please refer to *Cisco MDS 9000 Family Configuration Guide* on the Installation Configuration Guides list at <http://www.cisco.com>:

Maximum ports per chassis

Table 15 shows the maximum ports per chassis.

Table 15 Maximum ports per chassis

Chassis	Maximum number of ports
MDS9396T	96
MDS9148T	48
MDS 9132T	32
MDS 9148s	48
MDS 9250i	50
MDS 9396S	96
MDS 9706 and MDS 9706-V2	192
MDS 9710 and MDS 9710-V2	384
MDS 9718 and MDS 9718-V3	768

SME configuration limits

Table 16 lists the SME configuration limits for this release.

Table 16 SME configuration limits (page 1 of 2)

Configuration	Limits
Number of switches in the fabric	10
Number of clusters per switch	1
Switches in a cluster	4
Fabrics in a cluster	2
Modules in a switch	11
Cisco MSM-18/4 modules in a cluster	32
Initiator-Target-LUNs (ITLs)	1024
LUNs behind a target	32
Host and target ports in a cluster	128
Number of hosts per target	128
Tape backup groups per cluster	2

Table 16 SME configuration limits (page 2 of 2)

Volume groups in a tape backup group	4
Cisco Key Management Center (# of keys)	32K
Targets per switch that can be FC-redirected	32

N_Port virtualization configuration limits

The NPV features have maximum configuration limits. [Table 17](#) shows the verified and maximum limits for the NPV switches running NX-OS Release 5.x.

Table 17 NPV features limitations

Feature	Verified limits	Maximum limits
FLOGIs or F Disc per NPV port group	114	114
NPV switches per NPV core switch	105	105
FLOGIs per line card on NPV core switch	400	400

Supported iSCSI sessions

For the most up-to-date supported iSCSI environment and parameters for Connectrix switches, refer to the iSCSI SAN Topologies guide

<https://elabnavigator.dell.com/vault/pdf/iSCSI.pdf>, available through E-Lab Interoperability Navigator at: <https://elabnavigator.dell.com/eln/modernHomeSSM>.

For the most up-to-date information, refer to the *Dell Support Matrix*, available through E-Lab Interoperability Navigator at:

<https://elabnavigator.dell.com/eln/modernHomeSSM>, for the latest information on supported configurations.

Supported zoning parameters

Refer to the **Topology Resource Center** for the most up-to-date information on supported zoning parameters at:

<https://elabnavigator.dell.com/eln/topologyResource>.

Supported IVR parameters

- ◆ IVR zone members 4000 per physical fabric
- ◆ IVR zones 2000 per physical fabric
- ◆ IVR zone sets 32 per physical fabric

An RPQ can be submitted for any configurations that exceed this limit.

Managing zone changes in multiswitch fabrics

Zoning changes may be made through Fabric Manager or CLI. When accessing Fabric Manager or CLI, the user does so from the point of view of one switch. That is, Fabric Manager and CLI are accessed by entering the IP address of one switch in the fabric.

When zoning changes are made, the applicable VSAN and zone set data is propagated to the rest of the switches in the fabric via the ISLs.

When zoning changes are made to a VSAN, the zone set data is propagated to the rest of the switches in the fabric via the ISLs. By default, only the active zone set information is relayed to all switches in the VSAN. If the user accesses the Fabric Manager and CLI from another switch in the fabric, the new VSAN and zone set information will not be viewable. To view the active and inactive zone set on the other switches in the fabric, the user must log in to the CLI and issue a command from the EXEC prompt.

Example The following is an example of copying VSAN 1 through 20 zoning data:

```
CiscoMDS_name# zone copy active full vsan 1-20
```

```
CiscoMDS_name# conf t
```

Enter configuration commands, one per line. End with CNTL Z.

```
CiscoMDS_name(config)# zoneset distribute full vsan 1-20
```

```
CiscoMDS_name(config)#
```

Note: This command needs to be issued on all switches in the fabric one time only.

This is a nondisruptive command. After issuing the commands, the user will now see the active and inactive zone sets for the specified VSANs on any switch that is chosen from which to manage the fabric.

After a zoning change is made, save the running configuration to the startup configuration.

Documentation

Send documentation comments to mdsfeedback-doc.com.

Product documentation

As of NX-OS Release 4.2(1a), software configuration information is available in new feature-specific configuration guides for the following information:

- ◆ System management
- ◆ Interfaces
- ◆ Fabric
- ◆ Quality of service
- ◆ Security
- ◆ IP services
- ◆ High availability and redundancy

The information in these new guides previously existed in the *Cisco MDS 9000 Family CLI Configuration Guide*. That configuration guide remains available on Cisco.com and should be used for all software releases prior to NX-OS Release 4.2(1a). Configuration guides address the features introduced in or available in a particular release. Select and view the configuration guide that pertains to the software installed in your switch.

In addition, Data Center Network Manager (DCNM) information has been removed from the MDS NX-OS Release Notes (this document) and placed into standalone DCNM Release Notes that support both Cisco MDS 9000 Family switches and Cisco Nexus 5000 Series switches. The *Cisco Data Center Network Manager (DCNM) Release Notes* are available on <https://www.dell.com/support> or on the Prime Data Center Network Manager Products release notes list at <http://www.cisco.com>:

Technical support

These release notes complement a Cisco documentation set. Each Cisco document refers to where to get help. However, for any items supplied by Dell, see “[Troubleshooting and getting help](#)” on page 20.

Software media, organization, and files

For information on related software environment and system requirements refer to the *Dell Support Matrix* located on E-Lab Interoperability Navigator at <https://elabnavigator.dell.com/eln/modernHomeSSM>, under the **PDFs and Guides** tab.

Installation

For hardware installation information refer to the *Cisco MDS HW Installation Guides* available at Cisco.com.

For Dell -specific installation information refer to “[Environment and system requirements](#)” on page 4 in this document.

Troubleshooting and getting help

Dell support, product, and licensing information can be obtained on the Dell Online Support site as described next.

Note: To open a service request through the Dell Online Support site, you must have a valid support agreement. Contact your Dell sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

Product information

For documentation, release notes, software updates, or for information about Dell products, licensing, and service, go to the Dell Online Support site (registration required) at:

<https://www.dell.com/support/home/en-us/?app=products>

Technical support

Dell offers a variety of support options.

Support by Product. Dell offers consolidated, product-specific information on the Web at: <https://www.dell.com/support/home/en-us/?app=products>

The Support by Product web pages offer quick links to Documentation, White Papers, Advisories (such as frequently used Knowledgebase articles), and Downloads, as well as more dynamic content, such as presentations, discussion, relevant Customer Support Forum entries, and a link to Dell Live Chat.

Dell Live Chat — Open a Chat or instant message session with an Dell Support Engineer.

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