



# Release Notes for Cisco MDS 9000 Series

Release 8.4(2c)

This document describes the features, issues, and deployment guidelines for the Cisco MDS NX-OS software for the use on the Cisco MDS 9000 Series Switches. Use this document in combination with documents listed in the “[Obtaining Documentation and Submitting a Service Request](#)” section.

**Note:** The documentation set for this product strives to use bias-free language. For the purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

**Note:** Release notes are updated on an as needed basis with new information on restrictions and caveats. Refer to the following website for the most recent version of the [Cisco MDS 9000 Series Release Notes](#).

Date	Description
August 18, 2025	Added <a href="#">CSCwo00133</a> to the Open Issues section.
November 06, 2023	Added <a href="#">CSCvw93277</a> to the Resolved Caveats section.
March 23, 2022	Added <a href="#">CSCwb14523</a> to the Open Caveats section.
January 14, 2022	Added <a href="#">CSCvz61883</a> to the Open Caveats section.
December 20, 2021	Added Cisco MDS NX-OS Release 8.4(2c) as an IBM-qualified FICON release.
December 15, 2021	Added <a href="#">CSCuy76123</a> to the Open Caveats section.
September 20, 2021	Added <a href="#">CSCvz09012</a> to the Open Caveats section.
August 26, 2021	Added ISSD guideline for OBFL TxWait.
May 27, 2021	Added <a href="#">CSCvw32460</a> , <a href="#">CSCvw45427</a> , and <a href="#">CSCvw55288</a> to the Resolved Caveats section.
May 13, 2021	Initial release.

## Introduction

The Cisco MDS 9000 Series of Multilayer Directors and Fabric Switches provide best-in-class high availability, scalability, security, and management, that enables to deploy high-performance storage-area networks. Layering a rich set of intelligent features onto a high-performance switch fabric, the Cisco MDS 9000 Series addresses the stringent requirements of large data center storage environments: high availability, security, scalability, ease of management, and seamless integration of new technologies.

### About Software Images

The Cisco MDS NX-OS operating system is shipped with the Cisco MDS 9000 Series Switches. The Cisco MDS NX-OS software consists of two images: the kickstart image and the system image. These images can be upgraded or downgraded to different versions. The versions of both images must match for the system to boot.

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Each model of Cisco MDS switch has unique kickstart and system images. For more information on the image names for each Cisco MDS switch, see the [Cisco MDS 9000 NX-OS Software Upgrade and Downgrade Guide, Release 8.x](#).

To download new Cisco MDS 9000 Series software, including Cisco MDS NX-OS and Cisco DCNM management software, go to the Storage Networking Software download website at <https://software.cisco.com/download/home>.

## Choosing Between Cisco MDS NX-OS Open Systems Releases

Cisco uses release numbering to indicate the maturity of a Cisco MDS NX-OS release train. Cisco MDS NX-OS major versions are incremented when significant software features or hardware support are added. Because of the focus on new features and hardware, all defects may not yet have been fixed. After an initial release, minor version numbers of the train are incremented, and only security patches and defect fixes are added, providing better stability to the new features and updated security.

Details about the new features and hardware supported by Cisco MDS NX-OS Release 8.4(2c) can be found in the “[New Hardware and Software Features](#)” section. For information about other releases, refer to the Release Notes on the [Cisco MDS 9000 NX-OS and SAN-OS Software](#) documentation page.

For Cisco recommended MDS NX-OS releases for each type of hardware, see the [Recommended Releases for Cisco MDS 9000 Series Switches](#) document.

## Components Supported

For information on supported software and hardware components, see the [Cisco MDS 9000 Series Compatibility Matrix](#).

## FICON

Fibre Connection (FICON) interface capabilities enhance certain Cisco MDS 9000 Series switches by supporting both open systems and mainframe storage network environments.

### FICON Supported Platforms

- Cisco MDS 9706
  - Cisco MDS 9700 48-Port 32-Gbps Fibre Channel Switching Module (DS-X9648-1536K9)
  - Cisco MDS 24/10-Port SAN Extension Module (DS-X9334-K9)
  - Cisco MDS 48-Port 16-Gbps Fibre Channel Switching Module (DS-X9448-768K9)
  - Cisco MDS 9706 Crossbar Fabric-1 Switching Module (DS-X9706-FAB1)
  - Cisco MDS 9706 Crossbar Fabric-3 Switching Module (DS-X9706-FAB3)
  - Cisco MDS 9700 Series Supervisor-1 Module (DS-X97-SF1-K9)
  - Cisco MDS 9700 Series Supervisor-4 Module (DS-X97-SF4-K9)
- Cisco MDS 9710
  - Cisco MDS 9700-48 Port 32-Gbps Fibre Channel Switching Module (DS-X9648-1536K9)
  - Cisco MDS 24/10-Port SAN Extension Module (DS-X9334-K9)
  - Cisco MDS 48-Port 16-Gbps Fibre Channel Switching Module (DS-X9448-768K9)

- Cisco MDS 9710 Crossbar Fabric-1 Switching Module (DS-X9710-FAB1)
- Cisco MDS 9710 Crossbar Fabric-3 Switching Module (DS-X9710-FAB3)
- Cisco MDS 9700 Series Supervisor-1 Module (DS-X97-SF1-K9)
- Cisco MDS 9700 Series Supervisor-4 Module (DS-X97-SF4-K9)

- Cisco MDS 9250i

FICON is also supported on the following IBM OEM switches and modules:

- IBM SAN192C-6
  - IBM 48-Port 32-Gbps Fibre Channel Switching Module (01FT644)
  - IBM SAN Director Supervisor Module 4 (02JD753)
  - IBM SAN Director Supervisor Module 1 (01FT600)
  - IBM 24/10 Port SAN Extension Module (01FT645)
- IBM SAN384C-6
  - IBM 48-Port 32-Gbps Fibre Channel Switching Module (01FT644)
  - IBM SAN Director Supervisor Module 4 (02JD753)
  - IBM SAN Director Supervisor Module 1 (01FT600)
  - IBM 24/10 Port SAN Extension Module (01FT645)
- IBM SAN50C-R

### FICON Supported Releases

The Cisco MDS NX-OS Release 8.1(1a), Release 8.1(1b), Release 8.4(1a), Release 8.4(2b), and Release 8.4(2c) are IBM-qualified FICON releases for Cisco MDS. From Cisco MDS NX-OS Release 8.4(1a), FICON is supported on the Cisco MDS 9706 Crossbar Fabric-3 Switching Module (DS-X9706-FAB3), Cisco MDS 9710 Crossbar Fabric-3 Switching Module (DS-X9710-FAB3), and Cisco MDS 9700 Series Supervisor-4 Module (DS-X97-SF4-K9).

The following table lists Cisco MDS NX-OS releases that are qualified for FICON. Refer to the specific release notes for FICON upgrade path information.

**Table 1.** FICON Supported Releases

FICON Supported Releases	
MDS NX-OS	Release 8.4(2c)
	Release 8.4(2b)
	Release 8.4(1a)
	Release 8.1(1b)
	Release 8.1(1a)
	Release 6.2(11e)

## FICON Supported Releases

Release 6.2(11d) for the Cisco MDS 9250i Switch only

Release 6.2(11c) for all FICON supported platforms except the Cisco MDS 9250i Switch

## Upgrading Cisco MDS NX-OS Software Image

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

- [General Upgrading Guidelines](#)
- [Open Systems Nondisruptive Upgrade Paths](#)

For detailed instructions for performing a software upgrade using Cisco DCNM, see the [Cisco DCNM Release Notes](#).

### General Upgrading Guidelines

This section lists the general guidelines for performing a software upgrade:

- Install and configure dual supervisor modules before the upgrade.
- Issue the **show install all impact upgrade-image** command to determine if the upgrade will be nondisruptive.
- Some features are impacted whether an upgrade is disruptive or nondisruptive:
  - **Fibre Channel Ports:** Fibre Channel ports can be nondisruptively upgraded without affecting traffic on the ports. See the "[Open Systems Nondisruptive Upgrade Paths](#)" section for all MDS NX-OS releases.
  - **Fibre Channel over Ethernet (FCoE) Ports:** FCoE ports can be nondisruptively upgraded without affecting traffic on the ports. See the "[Open Systems Nondisruptive Upgrade Paths](#)" section for all MDS NX-OS releases.
  - **IP Storage (IPS) Ports:** Traffic on IPS ports on Cisco MDS 9220i, 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. If supported, iSCSI initiators connected to the IPS ports lose connectivity to iSCSI targets while the upgrade is in progress.

**Note:** In addition to these guidelines, review the information in the "[Limitations and Restrictions](#)" section before a software upgrade to determine if a feature may possibly behave differently following the upgrade.

- To upgrade or downgrade to a Cisco MDS NX-OS release, the same release of the kickstart and system images in the install all command must be used.
- If you are upgrading Cisco MDS 9700 Series Directors from Cisco MDS NX-OS Release 8.3(1), Release 8.3(2), Release 8.4(1), or Release 8.4(1a) to Release 8.4(2), ensure that you perform a switchover before upgrading. For more information, see [CSCvt87216](#).

### Open Systems Nondisruptive Upgrade Paths

The software upgrade information in this section applies only to Fibre Channel switching traffic. Upgrading system software disrupts IP traffic and intelligent services traffic.

**Note:** If the SAN Analytics feature is enabled, then disable the SAN Analytics feature using the **no feature analytics** command before upgrading from Cisco MDS NX-OS 8.2(x) or Cisco MDS NX-OS 8.3(x) to Cisco MDS NX-OS Release 8.4(2c). However, you can upgrade from Cisco MDS NX-OS Release 8.4(1) and above releases to Cisco MDS NX-OS Release 8.4(2c) without disabling the feature.

**Table 2.** Nondisruptive Upgrade Paths to Cisco MDS NX-OS Release 8.4(2c)

Target Release	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
<b>MDS NX-OS:</b>	
<b>Note:</b> Upgrading from MDS NX-OS Release 8.4(2x) to Release 8.5(1) is not supported and is a disruptive operation. The only way to upgrade is to set the boot variables and perform switch reload. For more information, see <a href="#">CSCvx99164</a> .	
8.1(x) until 8.4(1a)	Upgrade directly to MDS NX-OS Release 8.4(2c)
All 7.3(x) releases	<b>Step 1.</b> Upgrade directly to MDS NX-OS Release 8.1(1b) <b>Step 2.</b> Upgrade to MDS NX-OS Release 8.4(2c)
6.2(29) and above releases	Upgrade directly to MDS NX-OS Release 8.4(2c)
6.2(13a) until 6.2(27)	<b>Step 1.</b> Upgrade directly to MDS NX-OS Release 8.1(1b) <b>Step 2.</b> Upgrade to MDS NX-OS Release 8.4(2c)
All 6.2(x) releases prior to 6.2(13a)	<b>Step 1.</b> Upgrade directly to MDS NX-OS Release 6.2(13a) <b>Step 2.</b> Upgrade to MDS NX-OS Release 8.1(1b) <b>Step 3.</b> Upgrade to MDS NX-OS Release 8.4(2c)

## FICON Systems Nondisruptive Upgrade Paths

Use the following table to determine the nondisruptive upgrade path for FICON-qualified releases. Find the image release number using the Current Release with the FICON Enabled column of the table and follow the recommended path.

**Table 3.** FICON Nondisruptive Upgrade Paths from MDS NX-OS Release 8.4(2c)

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

Current Release with FICON Enabled	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
	<b>Step 3.</b> Upgrade to MDS NX-OS Release 8.1(1b) <b>Step 4.</b> Upgrade to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 5.</b> Upgrade to MDS NX-OS Release 8.4(2c)
MDS NX-OS Release 6.2(11c)	<b>Step 1.</b> Upgrade directly to MDS NX-OS Release 6.2(11e) <b>Step 2.</b> Upgrade to MDS NX-OS Release 8.1(1a) <b>Step 3.</b> Upgrade to MDS NX-OS Release 8.1(1b) <b>Step 4.</b> Upgrade to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 5.</b> Upgrade to MDS NX-OS Release 8.4(2c)

## Downgrading Cisco MDS NX-OS Software Image

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

- [General Downgrading Guidelines](#)
- [Open Systems Nondisruptive Downgrade Paths](#)

### General Downgrading Guidelines

Follow these general guidelines before performing a software downgrade:

- Disable all features that are not supported by the downgrade release. Use the **show incompatibility system downgrade-image** command to determine the features that needs to be disabled.
- Use the **show install all impact downgrade-image** command to determine if the downgrade is nondisruptive.
- The following features are impacted during a downgrade, whether it is a nondisruptive downgrade or a disruptive downgrade:
  - **Fibre Channel Ports:** Fibre Channel ports can be nondisruptively downgraded without affecting traffic on the ports. See the “[Open Systems Nondisruptive Downgrade Paths](#)” section for all MDS NX-OS releases.
  - **Fibre Channel over Ethernet (FCoE) Ports:** FCoE ports can be nondisruptively downgraded without affecting traffic on the ports. See the “[Open Systems Nondisruptive Downgrade Paths](#)” section for all MDS NX-OS releases.
  - **FCoE Ports:** FCoE ports can be nondisruptively downgraded without affecting traffic on the ports.
  - **IPS Ports:** Traffic on IPS ports on Cisco MDS 9220i, 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. If supported, iSCSI initiators connected to the IPS ports lose connectivity to iSCSI targets while the upgrade is in progress.

Find the MDS NX-OS image that you want to downgrade to in the *Target Release* column of the Table 4 and follow the steps in the order specified to perform the downgrade.

**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 reen able these features after downgrading or performing the switchover. For more information, see [CSCvy19014](#).

**Note:** If you are downgrading from Cisco MDS NX-OS Release 9.2(1) or later releases to a release prior to Cisco MDS NX-OS Release 9.2(1), ensure that you use the **clear logging onboard txwait** command after downgrading. Otherwise, logging to the OBFL TxWait file may cease with an error. For more information, see the [Cisco MDS 9000 Series Interfaces Configuration Guide, Release 9.x](#).

### ISSD Guidelines for Cisco MDS 9396S Switch

- Downgrading from Cisco MDS NX-OS Release 8.x to Cisco MDS NX-OS Release 7.3(0)D1(1) or Cisco MDS NX-OS Release 6.2(13a) is not supported on a Cisco MDS 9396S Switch which has DS-CAC-1200W as a power supply unit (PSU) and DS-C96S-FAN-I as port side intake fan tray.
- Downgrading from Cisco MDS NX-OS Release 8.x to Cisco MDS NX-OS Release 6.2(13) is not supported on the Cisco MDS 9396S Multilayer Fabric Switch. The minimum recommended image for Cisco MDS 9396S Multilayer Fabric Switch is 6.2(13a).

### ISSD Guidelines for Cisco MDS 9250i Switch

- Downgrading from Cisco MDS NX-OS Release 8.x to Cisco MDS NX-OS Release 7.3(0)D1(1), or 6.2(13a) and lower is not supported on a Cisco MDS 9250i Switch which has only one online PSU.
- Downgrading from Cisco MDS NX-OS Release 8.x to Cisco MDS NX-OS Release 7.3(0)D1(1), or 6.2(13a) and lower on a Cisco MDS 9250i Switch with two online PSUs results in loss of N:N grid redundancy. The switch will run in non-redundant mode.
- Downgrading from Cisco MDS NX-OS Release 8.x to Cisco MDS NX-OS Release 7.3(0)D1(1), or 6.2(13a) and lower on a Cisco MDS 9250i Switch with three online PSUs results in loss of N:N grid redundancy. The switch will run in N+1 power redundant mode.

### Open Systems Nondisruptive Downgrade Paths

- Downgrading directly from Cisco MDS NX-OS Release 8.1(1) and Release 8.1(1b) to releases before Cisco MDS NX-OS Release 6.2(9) is not supported. In such a scenario, we recommend that you first downgrade to Cisco MDS NX-OS Release 6.2(13a) or higher and then downgrade to the required release.
- Downgrading directly from Cisco MDS NX-OS Release 8.1(1) to Cisco MDS NX-OS Release 7.3(0)DY(1) is not supported. In such a scenario, we recommend that you first downgrade to Cisco MDS NX-OS Release 7.3(0)D1(1) and then upgrade to 7.3(0)DY(1).
- Downgrading directly from Cisco MDS NX-OS Release 8.1(1) to Cisco MDS NX-OS Release 7.3(1)DY(1) is not supported. In such a scenario, we recommend that you first downgrade to Cisco MDS NX-OS Release 7.3(0)D1(1) and then upgrade to 7.3(1)DY(1).



- Downgrading from Cisco MDS NX-OS Release 8.1(1) and Release 8.1(1b) is not supported if the FLOGI Scale Optimization feature is enabled on the Cisco MDS 9718 Switches.

**Table 4.** Nondisruptive Downgrade Paths from NX-OS Release 8.4(2c)

Target Release	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
<b>MDS NX-OS:</b>	
<b>Note:</b> Downgrading from MDS NX-OS Release 8.5(1) to Release 8.4(2x) is not supported and is a disruptive operation. The only way to downgrade is to set the boot variables and perform switch reload. For more information, see <a href="#">CSCvx99164</a> .	
8.1(x) until 8.4(1a)	Downgrade to the target release
All 7.3(x) releases	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.1(1b) <b>Step 2.</b> Downgrade to the target release
6.2(29) and above releases	Downgrade to the target release
6.2(13a) until 6.2(27)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.1(1b) <b>Step 2.</b> Downgrade to the target release
All 6.2(x) releases prior to 6.2(13a)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.1(1b) <b>Step 2.</b> Downgrade to MDS NX-OS Release 6.2(13a) <b>Step 3.</b> Downgrade to the target release

## FICON Systems Nondisruptive Downgrade Paths

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 5.** FICON Nondisruptive Downgrade Paths from MDS NX-OS Release 8.4(2c)

To Release with FICON Enabled	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
MDS NX-OS Release 8.4(1a) and 8.4(2b)	Downgrade directly from MDS NX-OS 8.4(2c)
MDS NX-OS Release 8.1(1b)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 2.</b> Downgrade to the target release
MDS NX-OS Release 8.1(1a)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 2.</b> Downgrade to MDS NX-OS Release 8.1(1b) <b>Step 3.</b> Downgrade to the target release
MDS NX-OS Release 6.2(11e)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 2.</b> Downgrade to MDS NX-OS Release 8.1(1b) <b>Step 3.</b> Downgrade to MDS NX-OS Release 8.1(1a) <b>Step 4.</b> Downgrade to the target release
MDS NX-OS Release 6.2(11d)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 2.</b> Downgrade to MDS NX-OS Release 8.1(1b) <b>Step 3.</b> Downgrade to MDS NX-OS Release 8.1(1a)

To Release with FICON Enabled	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
	<b>Step 4.</b> Downgrade to MDS NX-OS Release 6.2(11e) <b>Step 5.</b> Downgrade to the target release
MDS NX-OS Release 6.2(11c)	<b>Step 1.</b> Downgrade directly to MDS NX-OS Release 8.4(1a) or 8.4(2b) <b>Step 2.</b> Downgrade to MDS NX-OS Release 8.1(1b) <b>Step 3.</b> Downgrade to MDS NX-OS Release 8.1(1a) <b>Step 4.</b> Downgrade to MDS NX-OS Release 6.2(11e) <b>Step 5.</b> Downgrade to the target release

## New Hardware and Software Features

- [New Hardware Features in Cisco MDS NX-OS Release 8.4\(2c\)](#)
- [New Software Features in Cisco MDS NX-OS Release 8.4\(2c\)](#)

### New Hardware Features in Cisco MDS NX-OS Release 8.4(2c)

There are no new hardware features in Cisco MDS NX-OS Release 8.4(2c).

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

#### Kernel Core Logging

Support for saving kernel cores on MDS 9700 Supervisor-1 and Supervisor-4 was added. Kernel cores are produced when NX-OS encounters an unrecoverable fault, and this feature is enabled. The **system kernel core** command was introduced as part of this feature. For more information see the 'Monitoring System Processes and Logs' chapter in the [Cisco MDS 9000 Series System Management Configuration Guide, Release 8.x](#).

## Unsupported Features

### 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.

### 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 bring up these modules. In addition, you cannot configure these features after you bring up these modules.

### Slow Drain Detection and Congestion Isolation Enhancements

ER\_RDY is not supported on FC interfaces running at 10 Gbps.

### XRC Acceleration License

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.

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## 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.

## Deprecated Hardware

From Cisco MDS NX-OS Release 8.1(1), the following hardware models are not supported:

- Cisco MDS 9513
- Cisco MDS 9509
- Cisco MDS 9506
- Cisco MDS 9500 Series Supervisor-2A Module
- 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
- Cisco MDS 10-Gbps 8-Port FCoE Module
- Cisco MDS 16-Port Storage Services Node (SSN-16)
- Cisco MDS 18/4-Port Multiservice Module (MSM)

## 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 8.1(1) or later, FCIP Write Acceleration is not supported between 24/10 San Extension Module and Cisco 18+4 MSM module and between 24/10 San Extension Module and Cisco SSN16 module.
- In Cisco MDS NX-OS Release 8.1(1) or later, 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.

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## iSCSI Support

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.

## Cisco TrustSec FC Link Encryption

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

- 48-port 2/4/8/16-Gbps Fibre Channel switching module (DS-X9448-768K9)
- 48-port 4/8/16/32-Gbps Fibre Channel switching module (DS-X9648-1536K9)
- 48-port 32-Gbps Fibre Channel Switching Module (DS-X9648-1536K9)
- Cisco MDS 9000 24/10-Port SAN Extension Module (DS-X9334-K9)
- Cisco MDS 9132T 32-Gbps 32-Port Fibre Channel Fabric Switch
- Cisco MDS 9148T 32-Gbps 48-Port Fibre Channel Fabric Switch
- Cisco MDS 9396T 32-Gbps 96-Port Fibre Channel Fabric Switch
- Cisco MDS 9396S 16-Gbps 96-Port Fibre Channel Fabric Switch

## Caveats

- [Subscribing for Important Product Update Notifications](#)
- [Resolved Caveats in Cisco MDS NX-OS Release 8.4\(2c\)](#)
- [Open Caveats in Cisco MDS NX-OS Release 8.4\(2c\)](#)

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Cisco provides a subscription service to notify of important events related to the Cisco MDS software and hardware for the following categories:

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- Software Updates [New, Certified, Software Advisories, Deferred, Obsolete]
- Updates to Known Bugs

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### Resolved Caveats in Cisco MDS NX-OS Release 8.4(2c)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvk36805</a>	F32_TMM_PORT_FRAME_DROP , F16_TMM_PORT_FRM_DROP_CNT not logged in OBFL.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvn78885</a>	tacacs_crypt_service or radius_crypt_service filling up nxos/tmp.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvp00538</a>	Expand `show int counter brief` command in show tech-support details so it can be found.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvr33431</a>	Unable to add interfaces to a port-channel.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvs73805</a>	Need to add support for all hash types to 'show loadbalancing' command.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvt33646</a>	show install all status output displays 'Trying to start the installer' even after successful upgrade.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvu24244</a>	Invalid port-channel bundle-index on fabric switches.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvu41929</a>	%PORT-CHANNEL-5-PORT_DOWN message issued in syslog for sync loss but no corresponding link up message.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvu73734</a>	FLOGI implicit logout needs to transmit F Port Server LOGO to device being logged out.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvu99475</a>	Invalid port-resource configuration can trigger boot loop.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvv07846</a>	Port error disables due to debounce timer shows - Link reset failed due to re-negotiation failure.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvv13288</a>	SNMP returning "Demo" status for Term license installed for SAN_ANALYTICS_PKG.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvv27812</a>	Supervisor stack trace not displayed in 'show logging onboard' or 'show tech details'.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvv40384</a>	Autozone cli change not working.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvv49843</a>	MDS 9396T disruptively reboots during ISSU/D.	8.4(2b)
<a href="#">CSCvv53024</a>	Daylight time is not considered when we use plus option with one-shot start time configuration.	8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvv54821</a>	Port manager service logfile can consume all partition space.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(2)
<a href="#">CSCvv77164</a>	ISSU is disruptive in MDS 9132T, 9148T, 9396T after 'HA policy of reset'.	8.4(2b)
<a href="#">CSCvv84472</a>	Add new N9K OUI to default OUI list.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(2)
<a href="#">CSCvv86192</a>	MDS fails to authorize correct role when using "memberOf" attribute name in Secure LDAP search map.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvw93277</a>	Interface CRCs not incrementing on MDS 32G modules/switches.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvw93541</a>	F32_MAC_KLM_CNTR_RX_FEC_UNCORRECTED_BLOCKS not being recorded in OBFL error-stats counter-stats.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvw04750</a>	IOA tape acceleration fails for already compressed data.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw21395</a>	All MDS switches rebooted when the zoneset activated.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw26332</a>	MDS 9700: During module start lc_port_channel crashes due to amount of port-channels.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw30191</a>	MDS Front panel 'PSU Status' LED is red when one PSU is installed in MDS 9132T.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw32460</a>	MDS 9718 Kernel panic due to kernel memory corruption when PC FOP index changes by 512	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvw45341</a>	IPFC broadcast storm in a VSAN may cause congestion or frame drops on ISLs.	8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw45427</a>	Kernel memory corruption may occur while cleaning up a class F exchange.	8.4(2a), 8.4(2b)
<a href="#">CSCvw55288</a>	Kernel memory corruption may occur after EOBC link flap on supervisor.	8.4(2a), 8.4(2b)
<a href="#">CSCvw66366</a>	Fix module number formatting problem in 'show module' command output.	8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw66708</a>	MTS failure leads to vqi-map discrepancy.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw71873</a>	MDS supervisor reloads due to nxapi memory leak.	8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvw75655</a>	FCNS GA_NXT reply from MDS missing zoned members during zoneset activation/commit.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(2)



Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvw89323</a>	Fabric switch ISSU/D successful but system reset reason reports 'Fatal System Error'.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2)
<a href="#">CSCvw91665</a>	MDS9148S crashes with " Anon_Resident_Mem 0 KB being killed due to lack of memory" .	8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvx22763</a>	No SSH or telnet login prompt after upgrade to 8.4.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvx43070</a>	MDS 9396S reloads due to Fatal Module Error, Service: System Manager when f16_mac_usd crashes.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvx47587</a>	"Some klm entries are missing" logs when collecting tech-support in M9710.	8.5(1)
<a href="#">CSCvx49403</a>	Port-Channel with Cisco switch OUI 0xDC774C does not come up or trunk.	8.4(2b)
<a href="#">CSCvx50421</a>	RSCN sent to device that is not part of IVR zone update.	8.4(2b)
<a href="#">CSCvx52194</a>	MDS 9396T, 9148T reloads during ISSU or internal switching errors or some ports fail loop back tests.	8.4(2b)
<a href="#">CSCvx62467</a>	DS-X9448-768K9 ports should be put in hwfailure status after logging parity errors.	8.4(2), 8.4(2a), 8.4(2b)
<a href="#">CSCvy16321</a>	FCNS crash caused by IPFC.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b)

#### Open Caveats in Cisco MDS NX-OS Release 8.4(2c)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCuv76123</a>	fcdomain for VSAN hung in " Principal Switch Selection ongoing" .	8.x 7.x 6.x

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvf08416</a>	M9132T, M9396S MDS9148T : pam_ftp(ftp:auth): conversation failed syslog is in the show tech details.	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(2), 8.3(1) 8.2(2), 8.2(1)
<a href="#">CSCvj93031</a>	ST:: show system login failures does not display ipv6 addresses.	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(2), 8.3(1)
<a href="#">CSCvo13212</a>	ST:: running snmpwaon ipv6 throws error " Received source port is zero" .	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvo22835</a>	While moving IOA flow between 2 clusters, all flows are briefly suspended.	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(2), 8.3(1) 8.2(2), 8.2(1) 8.1(1b), 8.1(1a), 8.1(1)
<a href="#">CSCvp48050</a>	MDS 9700 Control Plane Packet drop seen during when switch comes up.	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvp70681</a>	MDS: Receiver stays in "idle" ; no streaming to one receiver; single threaded telemetry.	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvs15569</a>	IKE negotiation fails when configured with authentication type to rsa-signature.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvs23106</a>	IPS_mgr running even after removal of DS-X9334-K9 card.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvs83114</a>	aclqos crashed when Cisco MDS 24/10-Port SAN Extension Module with fcip config pulled out and insert back.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvt15096</a>	MDS 9250i/MDS 9148s port goes to not-connected state after cable pull.	8.5(1) 8.4(2b), 8.4(2c)
<a href="#">CSCvt15761</a>	Non-disruptive reload cmd is causing reinitializing of the error disabled ports on other line cards.	8.5(1) 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvt22913</a>	FCIP Links flaps with ioa traffic while adding few more links.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.2(1), 8.2(2)
<a href="#">CSCvt64521</a>	IPSec enabled FCIP tunnels don't come up after switch or module reload if tunnels are more than 18.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvt70406</a>	Certificate for Device Manager HTTPS download from switch is self signed.	8.5(1) 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCvw00538</a>	Remove misleading merge failed message for ficonstat in non-FICON VSAN.	8.5(1) 8.4(2b), 8.4(2c)
<a href="#">CSCvw27832</a>	MDS:Kernel panic on DS-X97-SF4-K9 model supervisor.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvw98829</a>	97xx Chassis information missing and logging error message %PLATFORM-2-PS_UNSUPPORTED.	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvw03816</a>	Port Speed coming as 8G when connecting 16G Brocade AG to MDS 9250i/9148s switches.	8.5(1) 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvw35209</a>	MDS9132T: EXT3-fs error (device sda1): ext3_free_blocks_sb: bit already cleared for block 71414.	8.5(1) 8.4(2c)

Bug ID	Description	Known Impacted 8.x Releases
<a href="#">CSCvx19452</a>	MDS DS-X9648-1536K9 ports went to notConnected state after many port flaps.	8.5(1) 8.4(2c)
<a href="#">CSCvx24216</a>	MDS 9718 with Supervisor1 panics with 'general protection fault'.	8.5(1) 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvx31119</a>	Supervisors crashed within secs one after other with warning \"Service: port hap reset \".	8.5(1) 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvx37657</a>	Need to log nonvolatile logs about BIOS programming errors.	8.5(1) 8.4(2c) 8.3(2)
<a href="#">CSCvx37747</a>	Supervisor 4 usb-storage timeout.	8.5(1) 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvx47078</a>	f32_mac_sw_creditmon: Port 0 Port mode not valid errors floods under fcmac event-history.	8.5(1) 8.4(2c)
<a href="#">CSCvy27979</a>	Copy/auto-copy for Kernel core doesn't work unless "show cores" is executed.	8.4(2c)
<a href="#">CSCvz09012</a>	End devices encounter errors or do not respond after MDS Fabric switch ISSU.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c)
<a href="#">CSCvz61883</a>	Module hangs or resets after 450-460 days uptime due to 'machine check' error.	8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
<a href="#">CSCwb14523</a>	Service "zone" (PID XXXX) hasn't caught signal 6 (core will be saved).	9.2(1), 9.2(2) 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d)
<a href="#">CSCwo00133</a>	"analytics" service crashes	8.4(2c)

## Related Documentation

The documentation set for the Cisco MDS 9000 Series includes the documents listed in this section. To find a document online, access the following URL:

[http://www.cisco.com/en/US/products/ps5989/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps5989/tsd_products_support_series_home.html)

The documentation set for Cisco Prime Data Center Network Manager is available from the following URL:

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[http://www.cisco.com/en/US/products/ps9369/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps9369/tsd_products_support_series_home.html)

### **Release Notes**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-release-notes-list.html>

### **Licensing Information**

[https://www.cisco.com/c/en/us/td/docs/switches/datacenter/mds9000/sw/8\\_x/config/licensing/cisco\\_mds9000\\_licensing\\_guide\\_8x.html](https://www.cisco.com/c/en/us/td/docs/switches/datacenter/mds9000/sw/8_x/config/licensing/cisco_mds9000_licensing_guide_8x.html)

### **Regulatory Compliance and Safety Information**

<http://www.cisco.com/c/en/us/td/docs/switches/datacenter/mds9000/hw/regulatory/compliance/RCSI.html>

### **Compatibility Information**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-device-support-tables-list.html>

### **Installation and Upgrade**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-installation-guides-list.html>

### **Configuration Guides**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-installation-and-configuration-guides-list.html>

### **Command-Line Interface**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-command-reference-list.html>

### **Troubleshooting and Reference**

<http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/tsd-products-support-troubleshoot-and-alerts.html>

## **Obtaining Documentation and Submitting a Service Request**

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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