



Cisco MDS 9000 Series Release Notes, Release 9.2(1a)

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.

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 issues. Refer to the following website for the most recent version of the [Cisco MDS 9000 Series Release Notes](#).

Date	Description
May 15, 2025	Added CSCwd00610 in the Open Issues section.
March 25, 2025	Added CSCwo03706 to the Open Issues section.
December 22, 2023	Added CSCwf85545 to the Open Issues section.
November 06, 2023	Added CSCwv93277 in the Resolved Issues section.
July 03, 2023	Added CSCwe08911 in the Open Issues section.
June 16, 2023	Add restriction for oversubscription caused by FPIN notifications.
March 16, 2023	Added in the CSCwb48133 in the Open Issues section.
October 27, 2022	Added CSCwb29379 in the Resolved Issues section.
September 02, 2022	Release 9.2(1a) became available.

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.

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 [Cisco MDS 9000 NX-OS Software Upgrade and Downgrade Guide, Release 9.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.

For information about other releases, refer to *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 [Recommended Releases for Cisco MDS 9000 Series Switches](#).

Components Supported

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

FICON

Cisco MDS NX-OS Release 9.2(1a) is not IBM FICON qualified. For more information on releases that are IBM FICON qualified, see <http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-release-notes-list.html>.

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 [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 [Open Systems Nondisruptive Upgrade Paths](#) 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 [Open Systems Nondisruptive Upgrade Paths](#) for all MDS NX-OS releases.

- **IP Storage (IPS) Ports:** Traffic on IPS ports on Cisco MDS 9220i, Cisco 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 [Limitations and Restrictions](#) 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 version, the same release version 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) or later, ensure that you perform a switchover before upgrading. For more information, see [CSCvt87216](#).
- If you are upgrading from a release prior to Cisco MDS NX-OS Release 9.2(1) or later to Release 9.2(1a), ensure that you use the **clear logging onboard txwait** command after upgrading. Otherwise, the file will be automatically deleted and recreated at the new file size when the file size exceeds 512 KB. For more information, see [Cisco MDS 9000 Series Interfaces Configuration Guide, Release 9.x](#).
- If you are upgrading from Cisco MDS NX-OS Release 8.5(1) to Release 9.2(1a), ensure that you disable the Fabric Performance Monitor (FPM) feature using the **no feature fpm** command before upgrading.
- We recommend that if all three of the following conditions are true that the Cisco MDS 48-Port 64-Gbps Fibre Channel Switching Module (DS-X9748-3072K9) NOT be inserted in the chassis:
 - Cisco MDS 9706, MDS 9710, or MDS 9718
 - Cisco MDS NX-OS Release 9.2(1a)
 - Non-default FCoE FCMAP is configured. This can be checked by issuing the **show fcoe | i FC-MAP** command. The default value of FCMAP is 0x0e:fc:00.

Also, for the switches running Release 9.2(1a) and equipped with Cisco MDS 48-Port 64-Gbps Fibre Channel Switching Module (DS-X9748-3072K9), the FCMAP should NOT be changed to non-default value. However, after the switch has been upgraded to Release 9.2(2) or later, the FCoE FCMAP can be configured to a non-default value. For more information, see [CSCwa34016](#).

- If you are downgrading from this release to a release before Cisco MDS NX-OS Release 9.2(1), ensure that you run the clear logging onboard txwait command after the downgrade is complete. 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](#).

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.

Table 1. Nondisruptive Upgrade Paths to Cisco MDS NX-OS Release 9.2(1a)

Current Release	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
9.2(1)	Upgrade to MDS NX-OS Release 9.2(1a)
All 8.x releases	Upgrade directly to MDS NX-OS Release 9.2(1a)
All 7.3(x) releases	Step 1. Upgrade directly to MDS NX-OS Release 8.1(1b) Step 2. Upgrade to MDS NX-OS Release 9.2(1a)
6.2(29) and above releases	Step 1. Upgrade directly to MDS NX-OS Release 8.4(2c) Step 2. Upgrade to MDS NX-OS Release 9.2(1a)
6.2(13a) until 6.2(27)	Step 1. Upgrade directly to MDS NX-OS Release 6.2(29) Step 2. Upgrade to MDS NX-OS Release 8.4(2c) Step 3. Upgrade to MDS NX-OS Release 9.2(1a)
All 6.2(x) releases prior to 6.2(13a)	Step 1. Upgrade directly to MDS NX-OS Release 6.2(13a) Step 2. Upgrade to MDS NX-OS Release 6.2(29) Step 3. Upgrade to MDS NX-OS Release 8.4(2c) Step 4. Upgrade to MDS NX-OS Release 9.2(1a)

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.
- Some features are impacted whether a downgrade is disruptive or nondisruptive:
 - **Fibre Channel Ports:** Fibre Channel ports can be nondisruptively downgraded without affecting traffic on the ports. See [Open Systems Nondisruptive Downgrade Paths](#) 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 [Open Systems Nondisruptive Downgrade Paths](#) for all MDS NX-OS releases.
 - **IPStorage Ports:** Traffic on IPS ports on Cisco MDS 9220i, 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. If supported, iSCSI initiators connected to the IPS ports lose connectivity to iSCSI targets while the upgrade is in progress.
 - **I/O Acceleration:** Traffic that uses I/O Acceleration is disrupted during a downgrade.

- If you are downgrading from this release to a release before Cisco MDS NX-OS Release 9.2(1), ensure that you run the **clear logging onboard txwait** command after the downgrade is complete. 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](#).
- Any hardware that is not supported by the downgrade release version 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 [Cisco MDS 9000 Series Compatibility Matrix](#).

Open Systems Nondisruptive Downgrade Paths

Table 2. Nondisruptive Downgrade Paths from NX-OS Release 9.2(1a)

Target Release	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
All 9.2(x) releases	Downgrade to the target release
8.1(x) and above releases	Downgrade to the target release
All 7.3(x) releases	Step 1. Downgrade directly to MDS NX-OS Release 8.1(1b) Step 2. Downgrade to the target release
6.2(29) and above releases	Step 1. Downgrade directly to MDS NX-OS Release 8.4(2c) Step 2. Downgrade to the target release
6.2(13a) until 6.2(27)	Step 1. Downgrade directly to MDS NX-OS Release 8.1(1b) Step 2. Downgrade to the target release
All 6.2(x) releases prior to 6.2(13a)	Step 1. Downgrade directly to MDS NX-OS Release 8.1(1b) Step 2. Downgrade to MDS NX-OS Release 6.2(13a) Step 3. Downgrade to the target release

New Hardware Features

There are no new hardware features introduced in Cisco MDS NX-OS Release 9.2(1a).

New Software Features

There are no new software features introduced in Cisco MDS NX-OS Release 9.2(1a).

Unsupported Features

Smart Licensing Using Policy (SLP)

SLP is not supported on Cisco MDS 9000 Series Switches.

Data Mobility Manager

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.

XRC Acceleration License

Cisco Extended Remote Copy (XRC) acceleration license is obsoleted on Cisco MDS 9000 Series Switches due to improvements in the mainframe XRC feature.

Virtual Router Redundancy Protocol (VRRP)

VRRP feature is not supported on Cisco MDS 9000 Series Switches.

Data Encryption Standard (DES) Encryption for SNMP

From Cisco MDS NX-OS Release 8.5(1), AES-128 is the default encryption mechanism for SNMPv3. DES encryption for SNMP is supported only for DES users who upgrade from previous releases to Cisco MDS NX-OS Release 8.5(1). Ensure that you delete all the SNMPv3 users configured with DES encryption before upgrading to Cisco MDS NX-OS Release 8.5(1) and later releases. Any downgrades from Cisco MDS NX-OS Release 8.5(1) will be restricted if any of the SNMPv3 users have DES encryption configured as the privacy protocol. All such users will either need to be deleted or reconfigured to use no privacy protocol or AES128 encryption before downgrading.

For more information, see [Cisco MDS 9000 Series System Management Configuration Guide, Release 9.x](#).

Limitations and Restrictions

SAN Extension Tuner

San Extension Tuner (SET) is not supported on Cisco MDS 9220i switches in Cisco MDS NX-OS Release 9.2(1a).

Fibre Channel Read Diagnostic Parameters

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

Slow Drain Detection and Congestion Isolation Enhancements

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

DIRL and FPIN

DIRL and FPIN are not supported on switches that are operating in Cisco NPV mode.

FPIN Notifications

FPIN Notification for oversubscription-based congestion is not supported.

FCIP Support

- In Cisco MDS NX-OS Release 9.2(1a) or later releases, 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 9.2(1a) or later releases, 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 9220i switches, the maximum throughput on a single FCIP tunnel is 7 Gbps. On the 40 Gbps IPS port, the maximum throughput is 28.5 Gbps when 4 FCIP tunnels are created on separate 802.1q VLAN interfaces.
- 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

iSCSI is not supported on Cisco MDS 9700 Directors with Cisco MDS 24/10 port SAN Extension Modules, Cisco MDS 9250i and Cisco MDS 9220i Fabric Switch.

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 64-Gbps Fibre Channel Switching Module (DS-X9748-3072K9)
- 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)
- 48-port 2/4/8/16/64-Gbps Fibre Channel switching module (DS-X9448-768K9)
- 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 9220i Fabric Switch
- Cisco MDS 9700 24-Port 40-Gbps Fibre Channel over Ethernet Module (DS-X9824-960K9)

For more information, see [Cisco MDS 9000 Series Security Configuration Guide, Release 9.x](#).

Resolved Issues

Bug ID	Description	Known Impacted Releases
CSCvw91665	MDS crashes with "Anon_Resident_Mem 0 KB being killed due to lack of memory"	9.2(2) 9.2(1) 8.4(2b), 8.4(2a), 8.4(2)

Bug ID	Description	Known Impacted Releases
CSCvv93277	Interface CRCs not incrementing on MDS 32G modules/switches.	8.5(1) 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)
CSCvy94319	FCNS GA_NXT reply from MDS missing zoned members after a supervisor switchover	8.4(1a)
CSCvz09012	End devices encounter errors or do not respond after MDS Fabric switch ISSU	8.4(1a) 8.4(1)
CSCvz54740	SSH Host key configured at 9.2(1) does not survive Reload or ISSU (in Single Sup setup)	9.2(1)
CSCvz60478	`reload system non-disruptive` fails if volatile memory is full and reloads switch	8.4(2)
CSCvz64961	Recover after CPU core stall self detected on supervisor	9.2(1) 8.4(1)
CSCvz69842	Improve logging when a spinlock lockup occurs	8.4(2b)
CSCvz81495	DS-X9648-1536K9: 32Gb Linecard acltcam crash seen during ISSU	8.4(2c) 8.4(2)
CSCwa35327	Chassis IDPROM corruption	8.4(2b), 8.4(1)
CSCwb14523	Zone service crashes after zoneset activation	9.2(2) 9.2(1) 8.4(2d), 8.4(2c), 8.4(2b), 8.4(2a), 8.4(2)
CSCwb29379	End devices unable to communicate - FCNS rejecting to all FC CT queries with 'logical busy'	9.2(2) 8.4(2d)
CSCwb90438	Radius Daemon hap reset - Reset triggered due to HA policy of Reset	8.5(1)
CSCwc21467	Custom roles are being removed when MDS is downgraded from version 9.x to 8.x	9.2(2) 9.2(1)
CSCwc58092	fcTrunkIfUpNotify and fcTrunkIfDownNotify traps missing for Director Switches	8.4(2d)

Open Issues

Bug ID	Description	Known Impacted Releases
CSCvf08416	M9132T, M9396S MDS9148T: pam_ftp(ftp:auth): conversation failed syslog is displayed in the show tech details.	9.2(1) 8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b) 8.3(2), 8.3(1) 8.2(2), 8.2(1)
CSCvj93031	"show system login failures" does not display IPv6 addresses.	9.2(1) 8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b) 8.3(2), 8.3(1)
CSCvo22835	While moving IOA flow between 2 clusters, all flows are briefly suspended.	9.2(1) 8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b) 8.3(2), 8.3(1) 8.2(2), 8.2(1) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp48050	MDS 9700 Control Plane Packet drop seen when switch comes up.	9.2(1) 8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b)
CSCvp70681	SAN telemetry: Receiver stays in "idle", no streaming to one receiver, and single threaded telemetry.	9.2(1) 8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b)
CSCvs23106	SCSI target discovery running even after removal of last DS-X9334-K9 module from switch.	9.2(1) 8.5(1) 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)
CSCvt15761	Non-disruptive reload cmd is causing reinitializing of the error disabled ports on other line cards.	9.2(1) 8.5(1) 8.4(2), 8.4(2a), 8.4(2b)

Bug ID	Description	Known Impacted Releases
CSCvw00538	Remove misleading merge failed message for ficonstat in non-FICON VSAN.	9.2(1) 8.5(1) 8.4(2b)
CSCvx37657	Need to log nonvolatile logs about BIOS programming errors.	9.2(1) 8.5(1) 8.3(2)
CSCvy30360	Interop: QLE2742 with ESX port take around 2 mins to come up after shut/no shut at 32G/auto speed.	9.2(1)
CSCvy72945	FCIP engine crash during async replication with Huawei storage.	9.2(1) 8.5(1)
CSCwb48133	MDS 9250i Interface IPStorage1/2 is transmitting with IPStorage1/1's MAC address	9.2(1), 9.2(1a), 9.2(2) 8.5(1)
CSCwc77569	FCIP ports are going down after ISSD	9.2(1)
CSCwd00610	MDS switch slow or unresponsive after reset of multiple interfaces	9.2(1a), 9.2(1) 8.5(1) 8.1(1)
CSCwe08911	Sending clear FPIN to end device, immediately after congestion clear	9.3(2a), 9.3(2), 9.3(1), 9.2(2), 9.2(1a) 8.5(1)
CSCwf85545	"port" service crash	9.2(1a) 8.4(2f), 8.4(2e)
CSCwo03706	An FC interface will not come up / switch to soft zoning	9.2(1a), 9.2(1) 8.5(1)

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

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

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

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>

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