Release Notes for Cisco MDS 9000 Series

Release 8.4(1a)

December 12, 2019

This document describes the features, caveats, and limitations 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: Release notes are sometimes updated 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
April 04, 2023	Added CSCvw32460 caveat in the open Caveats section.
January 14, 2022	Added the CSCvz61883 caveat in the Open Caveats section.
December 15, 2021	Added the CSCuv76123 caveat in the Open Caveats section.
September 20, 2021	Added the CSCvz09012 caveat in the Open Caveats section.
August 26, 2021	Added ISSD guideline for OBFL TxWait.
July 9, 2021	Added the CSCvu52058 caveat in the Open Caveats section.
November 24, 2020	Added the CSCvs87512 caveat in the Open Caveats section. Updated the Components Supported section to indicate that Cisco MDS 9148S and MDS 9396S switches are not supported in this release.
November 5, 2020	Added the CSCvu86801 caveat in the Open Caveats section.
November 2, 2020	Added the CSCvv27832 caveat in the Open Caveats section.
October 22, 2020	Added the CSCvs57660 and CSCvt87216 caveats in the Open Caveats section.
October 9, 2020	Removed the CSCvt41379 caveat from the Open Caveats section and added the CSCvv98829 caveat in the Open Caveats section.
September 29, 2020	Added the CSCvt41379 caveat in the Open Caveats section.
September 2, 2020	Added the CSCvv56650 caveat in the Open Caveats section.
June 29, 2020	Added the CSCvu28005 caveat in the Open Caveats section.
May 5, 2020	Added the CSCvs45930 caveat in the Open Caveats section.
February 25, 2020	Added the CSCvs97168 caveat in the Open Caveats section.
February 5, 2020	Added the CSCve32147 caveat in the Open Caveats section.
December 12, 2019	Updated Release Notes for Cisco MDS NX-OS Release 8.4(1a).

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 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 http://www.cisco.com/cisco/software/navigator.html.

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(1a) 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. Cisco MDS NX-OS Release 8.4(1a) is not supported on Cisco MDS 9148S and 9396S4 switches.

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

FICON is supported on the following Cisco MDS 9000 Series switches:

- 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:

- IBM SAN192C-6
    - IBM 48-Port 32-Gbps Fibre Channel Switching Module (01FT644)
    - 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 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), and Release 8.4(1a) 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 list of Cisco MDS NX-OS releases that are qualified for FICON. Refer to the specific release notes for FICON upgrade path information.

- Release 8.4(1a)
- Release 8.1(1b)
- Release 8.1(1a)
- Release 6.2(11e)

- 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:

For detailed instructions for performing a software upgrade using the switch CLI, see the *Cisco MDS 9000 NX-OS Software Upgrade and Downgrade Guide, Release 8.x*.

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.
  - Gigabit Ethernet Ports: Traffic on Gigabit Ethernet or IP storage ports is disrupted during an upgrade or downgrade. This includes IP storage ports on the MDS 9250i and Cisco MDS 24/10 Port SAN Extension Module. Nodes that are members of VSANs traversing an FCIP ISL are impacted, and a fabric reconfiguration occurs. iSCSI initiators connected to the Gigabit Ethernet 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 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 Switches from Cisco MDS NX-OS Release 8.3(1), Release 8.3(2), Release 8.4(1), and Release 8.4(1a) to Release 8.4(2) or later, 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(1a).

Table 1. Nondisruptive Upgrade Paths to Cisco MDS NX-OS Release 8.4(1a)

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

For FICON upgrade paths, see the FICON Systems Nondisruptive Upgrade Paths section.

FICON Systems Nondisruptive Upgrade Paths

Use the 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 2. FICON Nondisruptive Upgrade Paths

Current Release with FICON Enabled	Upgrade Path
MDS NX-OS Release 8.1(1b)	Upgrade directly to MDS NX-OS Release 8.4(1a).
MDS NX-OS Release 8.1(1a)	1. Upgrade directly to MDS NX-OS Release 8.1(1b) 2. Upgrade to MDS NX-OS Release 8.4(1a)
MDS NX-OS Release 6.2(11e)	1. Upgrade directly to MDS NX-OS Release 8.1(1a) 2. Upgrade to MDS NX-OS Release 8.1(1b) 3. Upgrade to MDS NX-OS Release 8.4(1a)
MDS NX-OS Release 6.2(11d)	1. Upgrade directly to MDS NX-OS Release 8.1(1a) 2. Upgrade to MDS NX-OS Release 8.1(1b) 3. Upgrade to MDS NX-OS Release 8.4(1a)
MDS NX-OS Release 6.2(11c)	1. Upgrade directly to MDS NX-OS Release 8.1(1a) 2. Upgrade to MDS NX-OS Release 8.1(1b) 3. Upgrade to MDS NX-OS Release 8.4(1a)

Downgrading Cisco MDS NX-OS Software Image

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

For detailed instructions for performing a software downgrade using the switch CLI, see the *Cisco MDS 9000 NX-OS Software Upgrade and Downgrade Guide, Release 8.x*.

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.
  - **Gigabit Ethernet Ports**: Traffic on IP storage ports is disrupted during a downgrade. This includes IP storage ports in MDS 9250i and 24/10 Port SAN Extension Module. Nodes that are members of VSANs traversing an FCIP ISL are impacted, and a fabric reconfiguration occurs. iSCSI initiators connected to the Gigabit Ethernet ports lose connectivity to iSCSI targets while the downgrade is in progress.

Find the MDS NX-OS image that you want to downgrade to in the To MDS NX-OS Release column of the Nondisruptive Downgrade Paths from NX-OS Release 8.4(1a) 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 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 the *Cisco MDS 9000 Series Compatibility Matrix*.

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.

Nondisruptive Downgrade Paths

Table 3. Nondisruptive Downgrade Paths from NX-OS Release 8.4(1a)

To MDS NX-OS Release	Nondisruptive Downgrade Path and Ordered Downgrade Steps
All 8.x releases	Downgrade to the target release
All 7.3(x) releases	1. Downgrade directly to MDS NX-OS Release 8.1(1b) 2. Downgrade to the target release
All 6.2(13a) and above releases	1. Downgrade directly to MDS NX-OS Release 8.1(1b) 2. Downgrade to the target release
All 6.2(x) releases prior to 6.2(13a)	1. Downgrade directly to MDS NX-OS Release 8.1(1b) 2. Downgrade to MDS NX-OS Release 6.2(13a) 3. Downgrade to the target release

FICON Systems Nondisruptive Downgrade Paths

The 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 4. FICON Nondisruptive Downgrade Paths

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

New Hardware Features

FICON Support for Cisco MDS 9700 Series Supervisor-4 Module

FICON is supported on Cisco MDS 9700 Series Supervisor-4 Module (DS-X97-SF4-K9) and the module is supported on Cisco MDS 9706 and 9710 Multilayer Directors.

Note: Supervisor-4 Module is not supported for the Cisco MDS 9718 Multilayer Director in this release.

For more information, see the Cisco MDS 9700 Series Supervisor-4 Module section in the *Cisco MDS 9700 Series Hardware Installation Guide*.

FICON Support for Cisco MDS 9710 Crossbar Fabric-3 Switching Module

FICON is supported on Cisco MDS 9710 Crossbar Fabric-3 Switching Module (DS-X9710-FAB3).

For more information, see the Cisco MDS 9710 Director Crossbar Fabric Switching Modules section in the *Cisco MDS 9700 Series Hardware Installation Guide*.

FICON Support for Cisco MDS 9706 Crossbar Fabric-3 Switching Module

FICON is supported on Cisco MDS 9706 Crossbar Fabric-3 Switching Module (DS-X9706-FAB3).

For more information, see the Cisco MDS 9706 Director Crossbar Fabric Switching Modules section in the *Cisco MDS 9700 Series Hardware Installation Guide*.

New Software Features

There are no new hardware features in Cisco MDS NX-OS Release 8.4(1a).

New Software Enhancements

SAN Analytics and SAN Telemetry Streaming

The **ShowAnalytics** command supports the --**alias** argument for the --top option to display the initiator and target device alias information.

For more information, see the *Cisco MDS 9000 Series SAN Analytics and Telemetry Configuration Guide, Release 8.x* and the *Cisco MDS 9000 Series Command Reference, Release 8.x*.

Licensed Cisco NX-OS Software Packages

Most Cisco MDS 9000 Series software features are included in the standard package. However, some features are logically grouped into add-on packages that must be licensed separately, such as the Cisco MDS 9000 Enterprise package, SAN Analytics Solution Package, SAN Extension over IP package, On-Demand Port Activation, and the Mainframe package.

Note: Cisco MDS 24-Port 40-Gigabit Fibre Channel over Ethernet Module (DS-X9824-960K9), and the Cisco MDS 48-Port 10-Gigabit Fibre Channel over Ethernet Module (DS-X9848-480K9) does not require a license.

For more information about licensed Cisco NX-OS software packages, see Cisco MDS Licensing Datasheets.

Enterprise Package

The standard software package that is bundled at no charge with the Cisco MDS 9000 Series switches includes the base set of features that we believe are required by most customers for building a SAN. The Cisco MDS 9000 Series also has a set of advanced features that are recommended for all enterprise SANs. These features are bundled together in the Cisco MDS 9000 Enterprise package. Refer to the Cisco MDS 9000 Enterprise Package Data Sheet for more information.

Note: The IVR feature on Cisco MDS 9700 Series Directors with the Cisco MDS 24/10 port SAN Extension Module (DS- X9334-K9) requires an Enterprise package.

SAN Analytics Solution Package

To use the SAN Analytics and SAN Telemetry Streaming features, install appropriate license packages using the install license command. For more information, see the *Cisco MDS 9000 Series Licensing Guide*.

SAN Extension Over IP Package

The Cisco MDS 9000 SAN Extension over IP package allows the customer to use FCIP to extend SANs over wide distances on IP networks using the Cisco MDS 9000 Series IP storage services. Refer to the Cisco MDS 9000 SAN Extension over IP Package fact sheet for more information.

Note: The FCIP feature on Cisco MDS 9250i Multiservice Fabric Switch and Cisco MDS 9700 Series Directors with the Cisco MDS 24/10 port SAN Extension Module (DS-X9334-K9) does not require a license.

On-Demand Port Activation License

On-Demand Port Activation license allows customers to benefit from Cisco NX-OS Software features while initially purchasing only a few activated ports on the Cisco MDS 9250i Multiservice Fabric Switch, Cisco MDS 9148S 48-Port Multilayer Fabric Switch, Cisco MDS 9396S Multilayer Fabric Switch, Cisco MDS

9148T Fibre Channel Switch, the Cisco MDS 9132T Fiber Channel Switch, and the Cisco MDS 9396T Fibre Channel Switch. As needed, customers can expand switch connectivity by licensing additional ports.

For more information on the On-Demand Port Activation License, see the *Cisco MDS 9000 Series Licensing Guide, Release 8.x*.

I/O Accelerator Package

Starting from Cisco MDS NX-OS Release 8.2(1), the Cisco I/O Accelerator (IOA) package activates IOA on the Cisco MDS 24/10 Port SAN Extension module. Single license is applicable for both the engines in Cisco MDS 24/10 port SAN Extension Module. The IOA package is licensed per module and is tied to the chassis. Each Cisco MDS 24/10 Port SAN Extension module engine that you configure for IOA checks out a license from the pool managed at the chassis level. Cisco MDS 24/10 Port SAN Extension module IOA licenses are available as single licenses.

Unsupported Features

Data Mobility Manager

Starting 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. These features affect the following hardware:

- Cisco MDS 9250i Multiservice Fabric Switch
- Cisco MDS 9396S Multilayer Fabric Switch
- Cisco MDS 9700 48-port 16-Gbps Fibre Channel Module

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

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) and Release 8.4(1a).

FICON on Cisco MDS 48-Port 32-Gbps Fibre Channel Switching Module

FICON is not supported on Cisco MDS 48-Port 32-Gbps Fibre Channel Switching Module in Cisco MDS NX-OS Release 8.1(1a) but it is supported in Cisco MDS NX-OS Release 8.1(1b) and Release 8.4(1a).

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

Starting 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.x, 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.x, 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.

40GE IP Storage Interfaces Support

40GE IP storage interfaces are not supported.

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 for the following modules is available only on certain ports as mentioned below:

- 48-port 32-Gbps Fibre Channel Switching Module (DS-X9648-1536K9)—Support for Cisco TrustSec FC Link Encryption is available only on ports 9–12, 25–28, and 41–44.
- Cisco MDS 9132T Fibre Channel Switch—Support for Cisco TrustSec FC Link Encryption is available only on ports 9– 12, 25–28.
- Cisco MDS 9148T Fibre Channel Switch—Support for Cisco TrustSec FC Link Encryption is available only on ports 9– 12, 25–28, and 41–44.
- Cisco MDS 9396T Fibre Channel Switch—Support for Cisco TrustSec FC Link Encryption is available only on 9–12, 25– 28, 41–44 base ports, and 57–60, 73–76, and 89–92 LEM ports as applicable.

Caveats

Subscribing for Important Product Update Notifications

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

- Cisco Security Advisories
- Field Notices
- End-of-Sale, End-of-Life, and End-of-Support Announcements
- Software Updates [New, Certified, Software Advisories, Deferred, Obsoleted]
- Updates to Known Bugs

We recommend that you at least subscribe to the Field Notices, Security Advisories, and Software Updates [New, Certified, Software Advisories, Deferred, Obsoleted] categories, if not all categories, so that you can receive notifications about any critical product issues.

To subscribe to a category for receiving notifications of important updates:

1. Go to https://cway.cisco.com/mynotifications, and log in to your account.
2. Click Create Subscription.
3. Follow the onscreen instructions.

Note: You must renew your notification subscriptions annually.

Resolved Caveats

Table 5. Resolved Caveats in the Cisco MDS NX-OS Release 8.4(1a)

Nemo enim ipsam	Lorem ipsum	Lorem ipsum dolor sit amet
CSCvc43884	Switch crash due to acl hap reset.	8.3(1), 8.3(2) 8.2(1), 8.2(2)
CSCve32147	Switch scheduler failing to redirect job outputs to TFTP server.	8.1(1)

Nemo enim ipsam	Lorem ipsum	Lorem ipsum dolor sit amet
CSCvo51548	Include RTT statistics on each TCP connection shown in show interface fcip.	8.3(1) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp08536	Include TCP connection number in obfl error stats.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp20713	Add additional FCIP/TCP/IPS counters to OBFL.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp45657	M9250i set of ports going to " hwFailure" state when activating dpvm.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp59888	Module failure trap not sent for specific linecard failure type on MDS9700.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp69217	Standby supervisor goes to 'failure' state during switch over.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp97828	IPv6 SLAAC/Stateless autoconfig is by default Enabled on the Mgmt interface.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq17673	Connectivity lost to end devices that don't register FC4 features.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2)

Nemo enim ipsam	Lorem ipsum	Lorem ipsum dolor sit amet
CSCvq22086	no-sysmgr crash when running analytics show commands.	8.3(2)
CSCvq38954	Port with a faulty SFP leads to CPU/System busy condition.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2)
CSCvq46350	ISL diag configs cannot be removed when module not present and ISSU fails.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq65903	Discrepancy between Zoning GFEZ responses between Cisco MDS 9148S and MDS 9148T switches.	8.3(1) 8.1(1a)
CSCvq90954	Flogi process crash during upgrade to 8.4(1).	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr20361	False 'low voltage' warnings for operating DS-SFP-FC16G-SW SFP.	8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs11898	MAC RED OBFL counter renaming and OBFL table formatting.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs26693	RNID information is retained in a FICON VSAN.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr43244	Spurious interrupts on 32G linecard DS-X9648-1536K9.	8.4(1)
CSCuq17325	Syslog timestamp incorrect during M9500 Gen4 module upgrade.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

Nemo enim ipsam	Lorem ipsum	Lorem ipsum dolor sit amet
CSCuz93193	show logging onboard starttime with endtime doesn't work properly.	8.4(1) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

Open Caveats

Table 6. Open Caveats in the Cisco MDS NX-OS Release 8.4(1a)

Caveat ID	Description	Known Impacted 8.x Releases
CSCur10170	Enable mgmt0 link on standby supervisor.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCuv76123	fcdomain for VSAN hung in “Principal Switch Selection ongoing”.	8.x 7.x 6.x
CSCvc89231	SAN EXT 24/10 module: FCIP Processor crash while disabling/enabling IPSec/IKE feature at one end.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvi89878	MDS:User scripts should not have access to /var/tmp folder of MDS switch. Need separate partition.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvj64981	PC channel 'oper' status is copy of 'admin' state, not real operational state.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvm07223	Add port config cmds to 'sh tech module'.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvn47925	MDS passwords strings should allow question mark in clear text input.	8.4(1), 8.4(1a) 8.3(1), 8.3(2)

Caveat ID	Description	Known Impacted 8.x Releases
		8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvo22269	ISSU/ISSD from some NX-OS versions is disruptive on MDS fabric switches.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp31065	MDS scheduler doesn't take Daylight Savings time into account with onetime and repeat config.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp51663	MDS9148S reload triggered by high receive multicast traffic rate on IPFC interface.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp74651	'ipfib' process crash after FCIP link flap.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvp81641	Need to log exception for xbar control plane initialisation failure.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq35293	Need to remove port status messages from accounting log.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq39716	An operational PSU shows as 'failed or shutdown' in MDS 9700.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq42012	Port which is configured as reflector shouldn't be part of port-channel with production traffic.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

Caveat ID	Description	Known Impacted 8.x Releases
CSCvq43615	SFTP transfers still work when sftpServer feature is disabled.	8.4(1), 8.4(1a) 8.3(1)
CSCvq59657	After using iscsi interfaces, IVR forwarding fails for new zones.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq62156	Include " show interface counters detailed" in show tech-support details.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq83521	Enable config commands for VNI traps again.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvq98781	SYSLOG should not be disable during ISSU.	8.4(1), 8.4(1a) 8.3(2)
CSCvr13566	Unexpected system time after switch restart.	8.4(1), 8.4(1a) 8.3(1) 8.2(1) 8.1(1)
CSCvr13661	Callhome server crashed due to memory leak.	8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr23972	" Bad IPV4 host address" when configuring snmp-server host with last octet of 255.	8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr25376	Need accurate front panel LED status in CLI for MDS 9132T.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr29422	fcdomain service crash and switch reload while connecting a device in	8.4(1), 8.4(1a)

Caveat ID	Description	Known Impacted 8.x Releases
	loop mode.	8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr43451	fcs crashing.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr46924	ISSU fails very rarely when tech-support is taken during upgrade.	8.4(1), 8.4(1a)
CSCvr47810	%LIBDCDI-2-DCDI_ERR: DATACORRUPTION- DATAINCONSISTENCY: copy error -Traceback= cfs.	8.4(1a) 8.2(1)
CSCvr51352	lc_port_mgr service randomly killed with signal 6 on MDS 9396S.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr62676	DS-X9648-1536K9 - EGLIN Card - Failure State After switch reload.	8.4(1), 8.4(1a) 8.3(1), 8.3(2)
CSCvr66862	Fix formatting of %ACLTCAM-2-ACL_TCAM_MTS_FAILURE: MTS operation failed: Unknown request %d Received.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr75237	Syslog messages showing lc/tmp full 100% seen.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvr95974	Inconsistent xbar status in NX-OS command outputs.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs01499	SUP-3 Management port loop back diagnostic test fail.	8.4(1), 8.4(1a)
CSCvs11802	RSCN is sent to end devices when Trishul/IPS card is inserted in 9700 due SCSI target discovery.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2)
CSCvs11667	Random bursts of frame timeout drops without egress congestion.	8.4(1), 8.4(1a)

Caveat ID	Description	Known Impacted 8.x Releases
		8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs15569	IKE negotiation fails when configured with authentication type to rsa- signature.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs16804	MDS streaming out wrong ITN telemetry entry resulting in spikes in DCNM.	8.4(1a)
CSCvs17136	copy http is not working in M9710 SUP-4 and ESRS - call home support needs to be added for SUP-4.	8.4(1), 8.4(1a)
CSCvs21187	MDS : callhome service crashed when switch was trying to send periodic inventory automatically.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs23106	IPS_mgr running even after removal of Trishul card.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs24918	After a module reload, analytics data not captured in E ports in rare situations.	8.4(1), 8.4(1a) 8.3(1), 8.3(2)
CSCvs25404	IKE crash during IPsec & IKE feature disable after copying bootflash config to running.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs26759	ethanlyzer capture write to bootflash fails with displayed-filter option.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs29103	MDS9710: fib crash during IPS card module upgrade having redudant fcip and fcip-pc links.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs45930	After migration from SUP3 to SUP4 error seen while disabling analytics on range of interfaces.	8.4(1), 8.4(1a) 8.3(1), 8.3(2)

Caveat ID	Description	Known Impacted 8.x Releases
		8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs57660	F16_PLDA_RXBUF_MERR error on a single FC ASIC results in a complete module reload.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvs87512	MDS fabric switch with cfs ipv4/ipv6 enabled reloads unexpectedly.	8.4(1), 8.4(1a)
CSCvs97168	Kickstart pre check fails as /var folder is full with nxapi logs.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvt41379	97xx Chassis information missing and logging error message %PLATFORM-2-PS_UNSUPPORTED.	8.4(1), 8.4(1a)
CSCvt87216	NX-OS upgrade fails with 0x40930015 or 0x40930081.	8.4(1), 8.4(1a) 8.3(1), 8.3(2)
CSCvu28005	Timeout drops seen on 32G fabric switches after ISSU.	8.4(1), 8.4(1a) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvu52058	ISSU/D is disruptive on MDS fabric switches with error 0x40930073 after SFTP to bootflash.	8.4(1), 8.4(1a)
CSCvu86801	fc32_mac process is unresponsive while running diagnostic latency test on ISL.	8.4(1), 8.4(1a)
CSCvv27832	Kernel panic on DS-X97-SF4-K9 model supervisor.	8.4(1), 8.4(1a)
CSCvv56650	ISSU on MDS 9250i FCoE VFCs causes switchport to stop sending PFC Pauses leading to frame drops.	8.4(1), 8.4(1a)
CSCvv98829	97xx Chassis information missing and logging error message %PLATFORM-2-PS_UNSUPPORTED.	8.4(1), 8.4(1a)
CSCvw32460	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)
CSCvz09012	End devices encounter errors or do not respond after MDS Fabric switch ISSU.	8.4(1), 8.4(1a)
CSCvz61883	Module hangs or resets after 450-460 days uptime due to 'machine check'	8.4(1), 8.4(1a)

Caveat ID	Description	Known Impacted 8.x Releases
	error.	8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)

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

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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