Cisco MDS 9000 Series Release Notes

Release 9.4(1a)

This document describes the features, issues, and deployment guidelines for the Cisco MDS NX-OS software for use on the Cisco MDS 9000 Series Switches.

Note: The documentation set for this product strives to use bias-free language. For 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. See the following website for the most recent version of the Cisco MDS 9000 Series Release Notes.

Date	Description
February 26, 2024	Added CSCwi94490 to the Open Issues section.
January 13, 2024	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 has the flexibility to fit small deployments and to address the stringent requirements of large data center storage environments: high availability, security, scalability, sustainability, ease of management, and seamless integration of new technologies.

MDS NX-OS Release 9.4(1a) is a FICON-qualified release. Fibre Connection (FICON) interface capabilities enhance certain Cisco MDS 9000 Series switches by supporting both open systems and mainframe storage network environments.

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 the 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 9.x.

To download the new Cisco MDS 9000 Series Switches NX-OS software, go to the Storage Networking Software download website at https://software.cisco.com/download/find/MDS.

About Firmware Images

Cisco MDS 9000 Series Switches contain a number of hardware components with updatable firmware. The Transceiver Firmware bundle contains updates for various port transceivers. The EPLD Firmware bundle contains updates for programmable logic devices in the system.

These updates can be disruptive and so are not part of the Cisco NX-OS software image. They are released with every Cisco NX-OS release but do not frequently contain changes. Refer to the specific Release Notes for any recommended fixes.

For more information on Transceiver Firmware, see the Cisco MDS 9000 Series Transceiver Firmware Release Notes, Release 9.4(1a).

For more information on EPLD bundles, see the Cisco MDS 9000 Series EPLD Release Notes, Release 9.4(1a).

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 bugs may not yet have been fixed. After an initial release, minor version numbers of the release train are incremented as bugs are resolved, and minor feature enhancements and security patches are integrated. This provides increased stability to the new features and updated security.

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.

IBM FICON Qualification Status

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 with MDS NX-OS Release 9.4(1a)

- Cisco MDS 9706 Director Switch
  - Cisco MDS 9700 48-port 64-Gbps Switching Module (DS-X9748-3072K9)

    Note: The 64G transceivers are not supported for FICON Channel or Control Unit connections.

  - 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)

    Note: This switching module is not supported on IBM Z16 System.

  - 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 Director Switch

- Cisco MDS 9700 48-port 64-Gbps Switching Module (DS-X9748-3072K9)

  Note: The 64G transceivers are not supported for FICON Channel or Control Unit connections.

- 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)

  Note: This switching module is not supported on IBM Z16 System.

- 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 Multiservice Fabric Switches
- Cisco MDS 9220i Multiservice Fabric Switches

FICON on IBM OEM switches and modules

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

- IBM SAN192C-6

  - IBM 48-Port 64-Gbps Fibre Channel Switching Module (03FR076)

    Note: The 64G transceivers are not supported for FICON Channel or Control Unit connections.

  - 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 64-Gbps Fibre Channel Switching Module (03FR076)

    Note: The 64G transceivers are not supported for FICON Channel or Control Unit connections.

  - 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
- IBM SAN16C-R

FICON Supported Releases

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 9.4(1a)
	Release 8.4(2e)
	Release 8.4(2c)
	Release 8.4(2b)
	Release 8.4(1a)
	Release 8.1(1b)
	Release 8.1(1a)

FICON Tape Acceleration

FICON Tape Acceleration (FTA) is not supported with Release 9.4(1a) on any MDS 9000 platform.

Upgrading Cisco MDS NX-OS Software Image

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

- General Upgrading Guidelines
- Open Systems Nondisruptive Upgrade Paths
- FICON Systems Nondisruptive Upgrade Paths

For detailed instructions for performing a software upgrade using Cisco NDFC, see Cisco NDFC Release Notes.

General Upgrading Guidelines

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

- Before the software upgrade, collect the output of the **show tech-support details** command. Save the output in a secure location.

- Cisco MDS 9700 Series Director switches support dual redundant supervisor modules. To allow a nondisruptive upgrade on these platforms, ensure that both the modules are installed and functional. The **show module** command must display one with the status "active" and the other as "ha-standby".

- Use the **show install all impact** *<target-system-image>* command to determine if the upgrade will be nondisruptive.

- Some features are impacted by 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.

- **IPStorage Ports**: Traffic on IPStorage 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 to the IPStorage ports lose connectivity to iSCSI targets while the upgrade is in progress.

- **I/O Acceleration**: Traffic that uses I/O Acceleration is disrupted during an upgrade.

  Note: In addition to these guidelines, review the information in Limitations and Restrictions before a software upgrade to determine if a feature may behave differently after the upgrade.

- The same release of the target 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 releases, ensure that you perform a switchover before upgrading. For more information, see CSCvt87216.

- Starting with Release 9.2(1), the size of the TxWait log file has increased. After the upgrade is complete, ensure that you use **clear logging onboard txwait** to clear the logging area. 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 the Cisco MDS 9000 Series Interfaces Configuration Guide, Release 9.x.

- For upgrading FICON-qualified MDS switches to Release 9.4(1a), ensure the following:

  - No FICON port swap configurations are present, and,

  - No Ports in FICON VSANs have Prohibit/Allow or Block/Unblock configurations.

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.

Nondisruptive Upgrade Paths to Cisco MDS NX-OS Release 9.4(1a)

Current MDS NX-OS Release	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
9.4(1)	Upgrade directly to MDS NX-OS Release 9.4(1a).
9.3(x)	Upgrade directly to MDS NX-OS Release 9.4(1a)
9.2(x)	Upgrade directly to MDS NX-OS Release 9.4(1a)
8.5(1)	Upgrade directly to MDS NX-OS Release 9.4(1a)
8.4(2c), 8.4(2d), 8.4(2e), 8.4(2f)	Upgrade directly to MDS NX-OS Release 9.4(1a)

Current MDS NX-OS Release	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
Any 8.x prior to 8.4(2c)	Step 1.Upgrade to MDS NX-OS Release 8.4(2c) or 8.4(2d) or 8.4(2e) or 8.4(2f). Step 2.Upgrade to MDS NX-OS Release 9.4(1a)
7.3(1)DY	Step 1.Upgrade to MDS NX-OS Release 8.1(1b). Step 2.Upgrade to MDS NX-OS Release 8.4(2c). Step 3.Upgrade to MDS NX-OS Release 9.4(1a)
6.2(29), 6.2(31), 6.2(33)	Step 1.Upgrade to MDS NX-OS Release 8.4(2c) or 8.4(2d). Step 2.Upgrade to MDS NX-OS Release 9.4(1a)

Note: Upgrading MDS NX-OS from unsupported releases to MDS NX-OS Release 9.4(1a) is disruptive.

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.

FICON Nondisruptive Upgrade Paths from MDS NX-OS Release 9.4(1a)

Current FICON-qualified Release	Nondisruptive Upgrade Paths and Ordered Upgrade Steps
8.4(2e)	Upgrade directly to MDS NX-OS Release 9.4(1a).
8.4(2c)	Upgrade directly to MDS NX-OS Release 9.4(1a).
8.4(2b)	Step 1.Upgrade directly to MDS NX-OS Release 8.4(2c). Step 2.Upgrade to MDS NX-OS Release 9.4(1a).
8.4(1a)	Step 1.Upgrade directly to MDS NX-OS Release 8.4(2c). Step 2.Upgrade to MDS NX-OS Release 9.4(1a).
8.1(1b)	Step 1.Upgrade directly to MDS NX-OS Release 8.4(2c). Step 2.Upgrade to MDS NX-OS Release 9.4(1a).
8.1(1a)	Step 1.Upgrade to MDS NX-OS Release 8.1(1b). Step 2.Upgrade to MDS NX-OS Release 8.4(2c). Step 3.Upgrade to MDS NX-OS Release 9.4(1a).
6.2(11e)	Step 1.Upgrade to MDS NX-OS Release 8.1(1a). Step 2.Upgrade to MDS NX-OS Release 8.1(1b). Step 3.Upgrade to MDS NX-OS Release 8.4(2c). Step 4.Upgrade to MDS NX-OS Release 9.4(1a).

Note: Upgrading MDS NX-OS from unsupported releases to MDS NX-OS Release 9.4(1a) is disruptive.

Downgrading Cisco MDS NX-OS Software Image

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

- General Downgrading Guidelines

- Open Systems Nondisruptive Downgrade Paths

- FICON Systems Nondisruptive Downgrade Paths

General Downgrading Guidelines

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

- Before the software downgrade, collect the output of the **show tech-support details** command. Save the output in a secure location.

- Cisco MDS 9700 Series Director switches support dual redundant supervisor modules. To allow a nondisruptive downgrade on these platforms, ensure that both the supervisor modules are installed and functional. The **show module** command must display one with status as "active" and the other as "ha-standby".

- Use the **show install all impact** *<downgrade-system-image>* command to determine if the downgrade will be nondisruptive.

- From Cisco MDS NX-OS Release 9.4(1), ensure that the LLDP feature is disabled before you perform the downgrade to the target release.

- Some features are impacted by 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 IPStorage ports on MDS 9220i, MDS 9250i, and 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 that are connected to the IPStorage 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, log in 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 the Cisco MDS 9000 Series Compatibility Matrix.

Open Systems Nondisruptive Downgrade Paths

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

Nondisruptive Downgrade Paths from NX-OS Release 9.4(1a)

Target MDS NX-OS Release	Nondisruptive Downgrade Paths and Ordered Upgrade Steps
9.4(1)	Downgrade directly to the target release.
9.3(x)	Downgrade directly to the target release.
9.2(x)	Downgrade directly to the target release.
8.5(1)	Downgrade directly to the target release.
8.4(2c), 8.4(2d), 8.4(2e), 8.4(2f)	Downgrade directly to the target release.
Any 8.x prior to 8.4(2c)	Step 1.Downgrade to MDS NX-OS Release 8.4(2c). Step 2.Downgrade to the target release.
7.3(1)DY	Step 1.Downgrade to MDS NX-OS Release 8.4(2c). Step 2.Downgrade to MDS NX-OS Release 8.1(1b). Step 3.Downgrade to the target release.
6.2(29), 6.2(31), 6.2(33)	Step 1.Downgrade to MDS NX-OS Release 8.4(2c). Step 2.Downgrade to the target release.

Note: Downgrading to an unsupported release from Release 9.4(1a) is disruptive.

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.

FICON Nondisruptive Downgrade Paths from MDS NX-OS Release 9.4(1a)

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

Target FICON-qualified Release	Nondisruptive Downgrade Paths and Ordered Downgrade Steps
6.2(11e)	Step 1. Downgrade to MDS NX-OS Release 8.4(2c). Step 2. Downgrade to MDS NX-OS Release 8.1(1b). Step 3. Downgrade to MDS NX-OS Release 8.1(1a). Step 4. Downgrade to the target release.

Note: Downgrading to an unsupported release from Release 9.4(1a) is disruptive.

New Hardware Features

There are no new hardware features in Cisco MDS NX-OS Release 9.4(1a).

New Software Features

Product Impact	Feature	Description
Licensing	Licensing Package	From MDS Release 9.4(1a), the Mainframe License Package is not required to configure FICON. For more information, see the Cisco MDS 9000 Series Licensing Guide, Release 9.x.
	FICON	Support for FICON is available as part of the base feature set and does not require any license for FICON-supported platforms, including MDS 9706, MDS 9710, MDS 9220i, and MDS 9250i switches. For more information, see the Cisco MDS 9000 Series Fundamentals Configuration Guide, Release 9.x.
	Fabric Binding	Support for the Fabric Binding feature is available as part of the base feature set and does not require any license. For more information, see the Cisco MDS 9000 Series Fundamentals Configuration Guide, Release 9.x.

Unsupported Features

SDV feature

Cisco MDS NX-OS Release 9.3(2) and later releases do not support Cisco SAN device virtualization (SDV).

Traditional and Smart Licensing Version 1.0 Licenses

Cisco MDS NX-OS Release 9.2(2) and later releases do not support installation of Product Authorization Key (PAK) or Smart Licensing version 1.0 licenses.

For more information such as how to migrate licenses software updates, see the *Smart Licensing Using Policy* chapter in [Cisco MDS 9000 Series Licensing Guide, Release 9.x](#).

Python 2

Support for Python 2 is deprecated from Cisco MDS NX-OS Release 9.2(2). Python 3 remains supported instead. Python 2 scripts should be checked for compatibility with Python 3 to ensure they continue to function as expected.

For more information, see the *Python API* chapter in the [Cisco MDS 9000 Series Programmability Guide, Release 9.x](#).

Zoning Features

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

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

XRC Acceleration License

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.

Virtual Router Redundancy Protocol (VRRP)

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

Data 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 the [Cisco MDS 9000 Series System Management Configuration Guide, Release 9.x](#).

FPIN Notifications

Fabric Performance Impact Notifications (FPIN) notifications for oversubscription-based congestion is not supported.

FCWA, XER, DMM, SME

FCWA, XRC, DMM, and SME features are not supported from Release 8.x.

FICON Port Swap

FICON Port Swap is not supported from Release 9.4(1a).

FICON Prohibit/Allow and Block Attributes of FICON Ports

Prohibit/Allow and Block attributes that were used on a per FICON Port Address basis is not supported from Release 9.4(1a).

Limitations and Restrictions

SAN Extension Tuner

SAN Extension Tuner (SET) is not supported on Cisco MDS 9220i switches in Cisco MDS NX-OS Release 8.5(1) or later.

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

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

FPIN

FPIN is not supported on switches that are operating in NPV mode.

FCIP Support

- In Cisco MDS NX-OS Release 9.2(2) 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(2) or later releases, Simultaneous use of IVR and FCIP Write Acceleration features is not supported on FCIP tunnels configured on Cisco MDS 9700 Director switches.

- On Cisco MDS 24/10 Port SAN Extension Module, configuring multiple FSPF equal cost paths (ECMP) port channels with FCIP members in the same VSAN is not a valid configuration. If this is configured, then the traffic flows through only one of the port channels.

- On FCIP links that are carrying FICON VSANs, compression and/or encryption should not be used.

iSCSI Support

iSCSI is not supported on Cisco MDS 9700 Directors with Cisco MDS 24/10 port SAN Extension Modules and Cisco MDS 9220i multiservice fabric switch.

Cisco TrustSec FC Link Encryption

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

Model	Description	Cisco TrustSec Capable Ports	Encryption Key Length
DS-X9748-3072K9	64 Gbps Fibre Channel Switching module	9, 11, 13, 15, 25, 27, 29, 31	AES 128 bit
DS-X9648-1536K9	32 Gbps Fibre Channel Switching Module	9-12, 25-28, 41-44	AES 128 bit
DS-X9448-768K9	16 Gbps Fibre Channel Switching module	All FC ports	AES 128 bit
DS-X9334-K9	24/10 Port SAN Extension Module	All FC ports	AES 128 bit

Model	Description	Cisco TrustSec Capable Ports	Encryption Key Length
DS-C9132T-K9	MDS 9132T Fabric Switch	9-12, 25-28	AES 128 bit
DS-C9148T-K9	MDS 9148T Fabric Switch	9-12, 25-28, 41-44	AES 128 bit
DS-C9396T-K9	MDS 9396T Fabric Switch	Base ports: 9-12, 25-28, 41-44 LEM ports: 57-60, 73-76, 89-92	AES 128 bit
DS-C9220I-K9	MDS 9220i 32 Gbps 12-Port Fibre Channel Fabric Switch	9-12	AES 128 bit
DS-C9124V-24PEVK9	MDS 9124V 64 Gbps 24-Port Fibre Channel Fabric Switch	9-12	AES 128 bit
DS-C9148V-48PETK9	MDS 9148V 64 Gbps 48-Port Fibre Channel Fabric Switch	9-12, 33-36	AES 128 bit
DS-C9396V-K9	64 Gbps 96 Port Fibre Channel switch	1-4, 25-28, 57-60, 81-84	AES 128 bit

Resolved Issues

Severity 1 (Catastrophic) Issues

Bug ID	Headline	Known Impacted Releases
CSCwh60299	A fabric switch with SFP checksum errors reloads after an ISSU	8.4(2f)

Severity 3 (Moderate) Issues

Bug ID	Headline	Known Impacted Releases
CSCwf16978	ssh-certificate and ssh-public based authorization parse and assign last group from ldap server	9.4(1)
CSCwf36248	LDAP:network-admin role not assigned to user if role is not the first entry in parsed roles	9.4(1)
CSCwf51090	Analytics treats NVME frames as SCSI frames and records incorrect SCSI metrics	9.4(1)
CSCwf78450	Link does not come up on 64 Gbps FC port randomly	9.4(1)
CSCwf87828	M9718 sup3 : Fib process crashed when triggered a reload	9.4(1)
CSCwh10886	callhome module crash on MDS 9396V platform	9.4(1)
CSCwh14489	MDS Fabric Switches can't save large service core files due to dump partition size	9.2(2)
CSCwh49190	ficonstat crash af ISSU to 8.4(2e)	8.4(2e)

Severity 4 (Minor) Issues

Bug ID	Headline	Known Impacted Releases
CSCvu27928	Need more detail in " Return code 0x4093007E (Issu cannot be done, bootflash is busy)." error	8.5(1)

Open Issues

Severity 2 (Severe) Issues

Bug ID	Headline	Known Impacted Releases
CSCvp48050	MDS 9700 control plane packet drops after switch boot	9.4(1a) 8.4(1)
CSCvv27832	Kernel panic on MDS DS-X97-SF4-K9 model supervisor	8.4(2a), 8.4(1a), 8.4(1)

Severity 3 (Moderate) Issues

Bug ID	Headline	Known Impacted Releases
CSCwe84668	ISLs at 64G auto speed go to notConnected state sometimes after several flaps	9.4(1a), 9.4(1) 9.3(2a), 9.3(2), 9.3(1)
CSCwf94683	GLDN :: MDS[9132U, 9220I, 9148V, 9148T] : WWN Snmpwalk failure	9.4(1)
CSCwf94678	GLDN :: MDS[9396T,9396V] : NTP Snmpwalk failure	9.4(1)
CSCwh76823	9396s : pmon crash seen while running show tech fpm	9.4(1a)
CSCwi36075	Interfaces stuck in offline status after storage processor upgrade	9.4(1a), 9.4(1) 9.3(2a), 9.3(2), 9.3(1)
CSCwi94490	Strings " prohibit" or " block" are falsely interpret as FICON config when performing ISSU	9.4(1a)

Severity 4 (Minor) Issues

Bug ID	Headline	Known Impacted Releases
CSCvf08416	'show tech details' triggers 'pam_ftp(ftp:auth): conversation failed – ftpd' syslogs	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d). 8.4(2e) 8.3(2), 8.3(1) 8.2(2), 8.2(1)

Bug ID	Headline	Known Impacted Releases
CSCvj93031	IPv6 source address not displayed in log in failure logs	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e) 8.3(2), 8.3(1)
CSCvs23106	SCSI target discovery service running even after removal of last DS-X9334-K9 module from switch	8.5(1) 8.4(1), 8.4(1a), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e) 8.3(1), 8.3(2) 8.2(1), 8.2(2) 8.1(1), 8.1(1a), 8.1(1b)
CSCvt15761	Nondisruptive reload causes reinitialization of error disabled ports on other linecards	8.5(1) 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e)
CSCvv00538	Remove misleading ficonstat 'merge failed' message in non-FICON VSAN	8.5(1) 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e)
CSCwc61263	Linecard fails to boot up with '%PORT-5-MODULE_BRINGUP_NOT_ALLOWED' error	8.4(2e), 8.4(2c) 8.1(1)

Severity 5 (Cosmetic) Issues

Bug ID	Headline	Known Impacted Releases
CSCvs67788	"rmon event 5" displays as PMON@INFO instead of NOTIFICATION(5) owner PMON@NOTIFICATION	8.4(1)

Severity 6 (Enhancement) Issues

Bug ID	Headline	Known Impacted Releases
CSCvo22835	All flows are briefly suspended while moving an IOA flow between 2 clusters	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e) 8.3(2), 8.3(1) 8.2(2), 8.2(1) 8.1(1b), 8.1(1a), 8.1(1)
CSCvp70681	Streaming to telemetry receiver stops, receiver stays in "idle" state	8.5(1) 8.4(1), 8.4(2), 8.4(2a), 8.4(2b), 8.4(2c), 8.4(2d), 8.4(2e)

Bug ID	Headline	Known Impacted Releases
CSCvw77444	Need to automatically sync bootflash:/scripts directory between active and standby sups	9.4(1) 8.1(1a)
CSCvx37657	Need to save nonvolatile logs about BIOS programming errors	8.5(1) 8.4(2c), 8.4(2d), 8.4(2e) 8.3(2)
CSCwa89654	Enhancement: Upgrade MDS 9000 nginx version to greater than or equal to 1.20.1	9.4(1) 8.4(2c)
CSCwb13413	A fabric module with a faulty link to a linecard is not powered down	8.4(1)
CSCwe86920	Add option to 'show tech-support' to exclude and include subcommands	9.4(1) 8.1(1)
CSCwf48167	Span tx is not working in NPV mode on all platforms, rx is working	9.4(1)
CSCwf66251	Need a syslog warning when number of zone members exceeds maximum supported	8.4(2d)

Related Documentation

The documentation set for the Cisco MDS 9000 Series includes the documents that are 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

Cisco Nexus Dashboard Fabric Controller (Formerly DCNM)

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/dcn/mds9000/sw/9x/configuration/licensing/cisco-mds-9000-nx-os-licensing-guide-9x.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

CLI

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

Statement of Volatility

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

Documentation Roadmap

https://www.cisco.com/c/en/us/td/docs/storage/san_switches/mds9000/roadmaps/rel90.html

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, send your comments to mds-docfeedback@cisco.com. We appreciate your feedback.

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