Cisco Nexus 3500 Series NX-OS Release Notes, Release 9.2(1)

This document describes the features, bugs, and limitations for Cisco Nexus 3500 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 about restrictions and bugs. See the following website for the most recent version of the Cisco Nexus 3500 Series release notes: http://www.cisco.com/c/en/us/support/switches/nexus-3000-series-switches/products-release-notes-list.html.

Table 1 shows the online change history for this document.

Table 1. Online History Change

Date	Description
October 17, 2020	Updated the limitations section.
March 13, 2020	Updated upgrade path section to reflect the limitations of CSCvt02249.
July 17, 2018	Created NX-OS Release 9.2(1) release notes.

Contents

Introduction

Several new hardware and software features are introduced for the Cisco Nexus 3548 switch to improve the performance, scalability, and management of the product line. Cisco NX-OS Release 9.x also supports all hardware and software supported in Cisco NX-OS Release 7x, Cisco NX-OS Release 6.x, Cisco NX-OS Release 5.1 and Cisco NX-OS Release 5.0.

Cisco NX-OS offers the following benefits:

■ Cisco NX-OS runs on all Cisco data center switch platforms: Cisco Nexus 7000, Nexus 5000, Nexus 4000, Nexus 3000, Nexus 2000, and Nexus 1000V Series switches.

■ Cisco NX-OS software interoperates with Cisco products that run any variant of Cisco IOS software and also with any networking operating system that conforms to common networking standards.

■ Cisco NX-OS modular processes are triggered on demand, each in a separate protected memory space. Processes are started and system resources are allocated only when a feature is enabled. The modular processes are governed by a real-time preemptive scheduler that helps ensure timely processing of critical functions.

■ Cisco NX-OS provides a programmatic XML interface that is based on the NETCONF industry standard. The Cisco NX-OS XML interface provides a consistent API for devices. Cisco NX-OS also provides support for Simple Network Management Protocol (SNMP) Versions 1, 2, and 3 MIBs.

■ Cisco NX-OS enables administrators to limit access to switch operations by assigning roles to users. Administrators can customize access and restrict it to the users who require it.

This section includes the following topics:

■ Cisco Nexus 3500 Series Switches

■ Cisco Nexus 3548 Switch

■ Cisco Nexus 3524 Switch

Cisco NX-OS Release 9.2(1) is the first release that adopts unified version numbering. As more platforms have been added, there is no need to have a "platform" designator as used in the past. An example of a previous release number is 7.0(3)I7(4). In this format, the 'I' is the platform designator.

Moving forward for the previously identified platforms, we will be adopting the simplified 3-letter versioning scheme. For example, 9.2(1).

Note: In order to accommodate upgrade compatibility from an older software version that is expecting a platform designator, when 'install all' is performed or 'show install all impact' is performed the version string for 9.2(1) will appear as "9.2(1)I9(1)". The "I9(1)" portion of the string can be safely ignored, and it will disappear post upgrade to 9.2(1).

Cisco Nexus 3500 Series Switches

The Cisco Nexus 3500 platform is an extension of the Cisco Nexus 3000 Series of 100M, 1, 10, and 40 Gigabit Ethernet switches built from a switch-on-a-chip (SoC) architecture. Switches in the Cisco Nexus 3500 series include Algorithm Boost (or Algo Boost) technology that is built into the switch application-specific integrated circuit (ASIC). Algo Boost allows the Cisco Nexus 3548 switch to achieve Layer 2 and Layer 3 switching latencies of less than 200 nanoseconds (ns). In addition, Algo Boost contains several innovations for latency, forwarding features, and performance visibility, including two configurable modes for low latency:

■ Normal mode: This mode is suitable for environments needing low latency and high scalability.

■ Warp mode: This mode consolidates forwarding operations within the switching ASIC, lowering latency by up to an additional 20 percent compared to normal operation.

Active buffer monitoring accelerates the collection of buffer utilization data in hardware, allowing significantly faster sampling intervals. Even on the lowest-latency switches, data packets can incur a millisecond or more of latency during periods of congestion. Previous buffer utilization monitoring techniques were based entirely on software polling algorithms with polling with higher polling intervals that can miss important congestion events.

Cisco Nexus 3548 Switch

The Cisco Nexus 3548 switch is the first member of the Cisco Nexus 3500 platform. As a compact one-rack-unit (1RU) form-factor 10 Gigabit Ethernet switch, the Cisco Nexus 3548 switch provides line-rate Layer 2 and Layer 3 switching at extremely low latency. The switch runs Cisco NX-OS software that has comprehensive features and functions that are widely deployed globally. The Cisco Nexus 3548 contains no physical layer (PHY) chips, which allows low latency and low power consumption. The switch supports both forward and reversed airflow and both AC and DC power inputs.

Cisco Nexus 3524 Switch

The Cisco Nexus 3524 switch is a Cisco Nexus 3548 switch, but with only 24 ports active and can be upgraded to use all 48 ports. As a compact one-rack-unit (1RU) form-factor 10 Gigabit Ethernet switch, the Cisco Nexus 3548 switch is the lowest entry point for main-stream top-of-rack (TOR) data center deployments which offers line-rate Layer 2 and Layer 3 switching with a comprehensive feature set, including Algo Boost technology, and ultra-low latency.

For information about the Cisco Nexus 3500 Series, see the *Cisco Nexus 3500 Series Hardware Installation Guide.*

System Requirements

This section includes the following topics:

■ Hardware Supported

Hardware Supported

Cisco NX-OS Release 9.2(1) supports the Cisco Nexus 3500 Series switches. You can find detailed information about the supported hardware in the Cisco Nexus 3500 Series Hardware Installation Guide.

Table 2 shows the hardware supported by Cisco NX-OS Release 9.2(1) software.

Table 2. Hardware Supported by Cisco NX-OS Release 9.2(1) Software.

Hardware	Part Number
Cisco Nexus 3500 Series	
Cisco Nexus 3548 switch	N3K-C3548P-10G
Cisco Nexus 3548-XL Switch	N3K-C3548P-XL
Cisco Nexus 3524-XL Switch	N3K-C3524P-XL

Hardware	Part Number
Cisco Nexus 3548x switch, 48 SFP+	N3K-C3548P-10GX
Cisco Nexus 3524 switch	N3K-C3524P-10G
Cisco Nexus 3524 switch, 24 SFP+	N3K-C3524P-10GX
Cisco Nexus 2000 or Nexus 3000 individual fan, forward airflow (port side exhaust	NXA-FAN-30CFM-F
Cisco Nexus 2000 or Nexus 3000 individual fan, reversed airflow (port side intake)	NXA-FAN-30CFM-B
Cisco Nexus 2000 or Nexus 3000 400W AC power supply, forward airflow (port side exhaust)	N2200-PAC-400W
Cisco Nexus 2000 or Nexus 3000 400W AC power supply, reversed airflow (port side intake)	N2200-PAC-400W-B
Cisco Nexus 2000 or Nexus 3000 400W DC power supply, forward airflow (port side exhaust)	N2200-PDC-400W
Cisco Nexus 2000 or Nexus 3000 350W DC power supply, reversed airflow (port side intake)	N3K-PDC-350W-B
Transceivers	
10-Gigabit	
10GBASE-ZR SFP+ module (single-mode fiber [SMF])	SFP-10G-ZR
10GBASE-CU SFP+ cable 1.5 m (Twinax cable)	SFP-H10GB-CU1-5M
10GBASE-CU SFP+ cable 2 m (Twinax cable)	SFP-H10GB-CU2M
10GBASE-CU SFP+ cable 2.5 m (Twinax cable)	SFP-H10GB-CU2-5M
Active optical cable 1 m	SFP-10G-AOC1M
Active optical cable 3 m	SFP-10G-AOC3M
Active optical cable 5 m	SFP-10G-AOC5M
Active optical cable 7 m	SFP-10G-AOC7M
10GBASE-DWDM long-range transceiver module 80 km with single mode duplex fiber	DWDM-SFP10G-C
10GBASE-DWDM long-range transceiver module 80 km with single mode duplex fiber	DWDM-SFP10G
10GBASE-SR SFP+ module (multimode fiber [MMF])	SFP-10G-SR
10GBASE-LR SFP+ module (single-mode fiber [SMF])	SFP-10G-LR

Hardware	Part Number
Cisco 10GBASE-ER SFP+ Module for SMF	SFP-10G-ER
10GBASE-SR SFP+ module (multimode fiber [MMF])	SFP-10G-SR-S
10GBASE-LR SFP+ module (single-mode fiber [SMF])	SFP-10G-LR-S
Cisco 10GBASE-ER SFP+ Module for SMF	SFP-10G-ER-S
10GBASE-ZR SFP+ module (single-mode fiber [SMF])	SFP-10G-ZR-S
10GBASE-CU SFP+ cable 1 m (Twinax cable)	SFP-H10GB-CU1M
10GBASE-CU SFP+ cable 3 m (Twinax cable)	SFP-H10GB-CU3M
10GBASE-CU SFP+ cable 5 m (Twinax cable)	SFP-H10GB-CU5M
Active Twinax cable assembly, 7 m	SFP-H10GB-ACU7M
Active Twinax cable assembly, 10 m	SFP-H10GB-ACU10M
1-Gigabit Ethernet	
1000BASE-T SFP	GLC-TE
Gigabit Ethernet SFP, LC connector EX transceiver (MMF)	GLC-EX-SMD
Gigabit Ethernet SFP, LC connector ZX transceiver (MMF)	GLC-ZX-SMD
1000BASE-T SFP	GLC-T
Gigabit Ethernet SFP, LC connector SX transceiver (MMF)	GLC-SX-MM
Gigabit Ethernet SFP, LC connector SX transceiver (MMF)	GLC-SX-MMD
Gigabit Ethernet SFP, LC connector LX/LH transceiver (SMF)	GLC-LH-SM
Gigabit Ethernet SFP, LC connector LX/LH transceiver (SMF)	GLC-LH-SMD
100-Megabit Ethernet	
1000BASE-T SFP transceiver module with extended operating temperature range	SFP-GE-T
100BASE-FX SFP module for Gigabit Ethernet ports GLC-GE-100FX	GLC-GE-100FX

New and Changed Information

This section lists the new and changed features in Release 9.2(1).

- [New Supported Hardware](#)

-

-

New Supported Hardware

Cisco NX-OS Release 9.2(1) does not include any new hardware.

New Software Features and Enhancements

Cisco NX-OS Release 9.2(1) includes the following new software features or enhancements:

NAT Features

- NAT Statistics — Beginning with Cisco NX-OS Release 9.2(1) support is now added for NAT statistics to display the various NAT software Statistics.

  For more information, see the Cisco Nexus 3548 Switch NX-OS Interfaces Configuration Guide, Release 9.x

Programmability Features

- Docker containers within Cisco NX-OS — Beginning with Release 9.2(1), support is now added for using Docker within Cisco NX-OS on Cisco Nexus N3K-C3548P-XL switches with 8GB or more of RAM.

- Streaming of YANG models as part of telemetry — Beginning with Release 9.2(1), support is now added for the streaming of YANG models as part of telemetry on Cisco Nexus N3K-C3548P-XL switches with 8GB or more of RAM.

- Streaming telemetry on 3500XL — Beginning with Release 9.2(1), support is now added for the streaming telemetry feature, which continuously streams data out of the network and notifies the client, providing near-real-time access to monitoring data.

- Changes to Guest Shell — As a result of a kernel upgrade that is part of Release 9.2(1), some behaviors with Guest Shell have changed. The Guest Shell is now running in a separate user namespace which allows the host system to be even better protected from activities within the Guest Shell. The user and group id mapping done for user namespace may require more attention to file permission settings when sharing files on bootflash between the host system and the guest shell.

  For more information, see the Cisco Nexus 3500 Series NX-OS Programmability Guide, Release 9.x

NX-API Commands

NX-API provides a session-based cookie, nxapi_auth when users first successfully authenticate. With the session cookie, the username and password are included in all subsequent NX-API requests that are sent to the device. The username and password are used with the session cookie to bypass performing the full authentication process again. If the session cookie is not included with subsequent requests, another session cookie is required and is provided by the authentication process. Avoiding unnecessary use of the authentication process helps to reduce the workload on the device.

Note: A nxapi_auth cookie expires in 600 seconds (10 minutes). This value is fixed and cannot be adjusted. When the cookie expires, you need to resend your user name/password.

The following are notes about JSON:

- The show run | xml command and show run | json command is not supported (NX-OS 9.2(1) and earlier).

- All JSON output is returned as a string (NX-OS 9.2(1) and earlier).

- A JSON-RPC integer is always output as an integer and not as string (NX-OS 9.2(1) and earlier).

Note: The maximum data size supported by NX-API is 4MB. The following commands are not supported when the 20MB limit is exceeded (NX-OS 9.2(1) and earlier releases):

- show hardware profile buffer monitor detail

- show hardware profile buffer monitor multicast 1 detail

- show hardware profile buffer monitor multicast 2 detail

- show hardware profile buffer monitor multicast 3 detail

Caveats

The open and resolved bugs for this release are accessible through the Cisco Bug Search Tool. This web-based tool provides you with access to the Cisco bug tracking system, which maintains information about bugs and vulnerabilities in this product and other Cisco hardware and software products.

Note: You must have a Cisco.com account to log in and access the Cisco Bug Search Tool. If you do not have one, you can register for an account.

For more information about the Cisco Bug Search Tool, see the Bug Search Tool Help & FAQ.

This section includes the following topics:

- Resolved Bugs for this Release

- Open Bugs for this Release

Resolved Bugs for this Release

Table 3 lists descriptions of resolved bugs in Cisco NX-OS Release 9.2(1). You can use the record ID to search Cisco Bug Search Tool for details about the bug.

Table 3 Cisco NX-OS Release 9.2(1) – Resolved Bugs

Record Number	Description
CSCvb94380	Added platform information to multicast TS in Cisco Nexus 3500 switches.
CSCvc53438	Shared tree takes up to 60 seconds to be pruned after 2nd receiver joins.
CSCvd56038	Copper Splitter cables such as QSFP40G-4SFP10G-CU5M connected between Cisco Nexus 3000 switches and Cisco Nexus 3500 switches is not supported.

CSCve76880	Cisco Nexus 3500 switches may be dropping SPAN and/or ERSPAN packets regardless of buffer allocated for SPAN function.
CSCve89395	Cisco Nexus 3500 switches duplicates multicast packets. Duplication rate may range from 1500 to 7500 packets depending on the rate at which the stream is forwarded.
CSCve96924	Cisco Nexus 3500 switches does not forward PTP management packets.
CSCvf00752	Multicast stops working with IGMP host-proxy, lose (S,G) on Cisco Nexus 3500 switches.
CSCvf02296	Cisco Nexus 3500 switches as LHR may multiply multicast traffic due to *G fwd-ing and delayed SGR prune.
CSCvf29916	RPF for pim bidir not getting updated on bring up of primary RP
CSCvf86047	Cisco Nexus 3500 switches incorrectly counts the incoming IGMP packets in CoPP statistics.
CSCvg52207	Control plane traffic on Cisco Nexus 3500 switches gets interrupted due to Inband Tx ring dropping traffic.
CSCvh63645	The command *vpc orphan-port suspend* is not available on Cisco Nexus 3500 switches.
CSCvi25663	RSTP topology change is not propagated between vPC peers if peer-switch is configured.
CSCvi36247	Cisco Nexus 3500 switches counts igmp GQ/GSQ as unicast packet in egress direction
CSCvi49093	Reload reason after MTC double-bit ECC error is incorrect
CSCvi92137	Cisco Nexus 3500 switches may reload due to plog_sup core triggered by IPFIB exhaustion
CSCvj00702	MTC show tech information is not available
CSCvj23969	After an upgrade, the CoPP Policy > 32350 pps max rate. Re-setup causes classes with 0 pps
CSCvj26233	Unable to read or write to CISCO-CONFIG-COPY-MIB with SNMP v3.
CSCvj42738	Cisco Nexus 3500 switches shows Time Traceable even without GM.
CSCvj56815	On Cisco Nexus 3500 switches, ARP packets with VLAN tag=0 received on access port is hitting the CPU and ARP processes. However, the ARP tables are not updated.

Open Bugs for this Release

There are no open bugs in Cisco NX-OS Release 9.2(1).

Upgrade Path to Cisco NX-OS Release 9.x

Install All is the only option that supports upgrade and downgrade between releases. Upgrade from Releases 6.0(2)A8(7b), 6.0(2)A8(8), 6.0(2)A8(9), and 7.0(3)I7(3) is supported.

For Cisco Nexus 3548 Switches, the following upgrade path is supported and recommended: Cisco NX-OS Release 6.0(2)A7(2a) or prior > Cisco NX-OS Release 6.0(2)A8(2) – 6.0(2)A8(9) > Cisco NX-OS Release 9.2(1).

The following table shows the upgrade paths for Cisco NX-OS Release 9.2(1) from Cisco NX-OS Release 6.0(2)A7(2a) and later.

From	To	Limitations	Recommended Procedure
6.0(2)A8(2) or later	9.2(1)	None	*Install all* is the only upgrade method supported because of a BIOS upgrade requirement.
6.0(2)A7(2a) or earlier	9.2(1)	You must first upgrade the switch to Cisco NX-OS Release 6.0(2)A8(9) and then to Cisco NX-OS Release 9.2(1)	*Install all* is the only upgrade method supported because of a BIOS upgrade requirement.

The following limitations are applicable when you upgrade from Releases 7.0(3)I7(2) or later to the NX-OS Release 9.2(1):

- If a custom CoPP policy is applied after upgrading to Cisco NX-OS Release 7.0(3)I7(2) or later, and if the Nexus 3548 switch is downgraded to Cisco NX-OS Release 5.0, where changes to the CoPP policy are not permitted, the custom CoPP policy is retained and cannot be modified.
- copy r s and reload is not a supported method for an upgrade.
- You must run the setup script after you upgrade to Cisco NX-OS Release 9.2(1).

- For Cisco Nexus 3548 and 3548-X switches, you must compact the software image before you upgrade from earlier releases to Cisco NX-OS Release 9.2(1). For the Cisco Nexus 3538-XL switch, compaction is not required.

- The following limitations are applicable when you upgrade from Cisco NX-OS Releases 6.0(2)A8(7b), 6.0(2)A8(8), or 6.0(2)A8(9) to Cisco NX-OS Release 9.2(1):

  - If Cisco Catalyst devices are connected via a vPC to a pair of Nexus 3500 switches with the vPC peer switch feature enabled, a partial or complete network outage may be caused as a result of the Cisco Catalyst devices error-disabling their port-channel interfaces due to EtherChannel Guard. To prevent this from happening, we recommend that you temporarily disable the EtherChannel Guard feature on vPC-connected Cisco Catalyst devices while the Nexus 3500 devices are being upgraded. For more information, see CSCvt02249.

Limitations

The following are the known limitations for Cisco NX-OS Release 9.2(1):

- PBR and NAT cannot be supported on the same interface.

- Though the network-qos policy contains the CLI pause pfc-cos <cos_value>, Priority Flow Control feature is not supported.

- set ip default next hop cannot be applied in PBR.

- Ingress multicast RACL applied to physical port does not match multicast traffic. This issue is fixed in NX-OS release 9.3(1) and later releases.

- IGMP packets, which are filtered by report policies on the local switch on which IGMP filtering is enabled, will still get forwarded to the peer switch (See CSCup50141).

- Counters for the warp SPAN destination port do not work. To check these counters, connect another switch to the destination ports (See CSCuq66372).

- In a vPC setup, because of a hardware limitation, non-RPF traffic for (S,G) that comes in on the RPF interface for (*,G) hits the (*,G) entry instead of being treated as (S,G) non-RPF traffic and dropped. (S,G) non-RPF traffic is then incorrectly forwarded by (*,G) entry, thus causing traffic duplication. To avoid duplication of Layer 3 multicast traffic by sending the (S,G) RP-bit prune, run the ip pim pre-build-spt command (See CSCun34760).

- While performing Online Insertion Removal (OIR) on the cable or optics of a 40G bundle, you must perform the following sequence of steps for the OIR to be successful (See CSCuq93225):

  1. Disable (shut) the 40G port

  2. Change the speed from 40G to 10G

  3. Perform an OIR on the cable or optics

  4. Change the speed from 10G to 40G

  5. Re-enable (no shut) the port

Best Practices

The syntax of the poap_script.py file should be validated using the python validation tool before using the file for POAP. Otherwise, if the poap_script.py file is edited with a syntax error, the POAP process will exit without giving an error.

MIB Support

The Cisco Management Information Base (MIB) list includes Cisco proprietary MIBs and many other Internet Engineering Task Force (IETF) standard MIBs. These standard MIBs are defined in Requests for Comments (RFCs). To find specific MIB information, you must examine the Cisco proprietary MIB structure and related IETF-standard MIBs supported by the Cisco Nexus 3000 Series switch. The MIB Support List is available at the following FTP sites:

ftp://ftp.cisco.com/pub/mibs/supportlists/nexus3000/Nexus3000MIBSupportList.html

Related Documentation

Documentation for the Cisco Nexus 3000 Series Switch is available at the following URL:

http://www.cisco.com/en/US/products/ps11541/tsd_products_support_series_home.html

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to nexus3k-docfeedback@cisco.com. We appreciate your feedback.

Obtaining Documentation and Submitting a Service Request

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

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

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.