Cisco Nexus 9000 Series NX-OS Release Notes, Release 6.1(2)I2(2)

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This document describes the features, caveats, and limitations for Cisco NX-OS Release 6.1(2)I2(2) software for use on the Cisco Nexus 9000 Series switches. Use this document in combination with documents listed in the Related Documentation, page 11.

Table 1 shows the online change history for this document.

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Table 1 Online History Change

Part Number	Revision	Date	Description
OL-31713-02	A0	April 21, 2014	Created the release notes for Release 6.1(2)I2(2).
	B0	May 14, 2014	Added a statement about support for uplink ports as SPAN destinations to the "New Software Features in Cisco NX-OS Release 6.1(2)I2(2)" section.
	C0	May 29, 2014	Added a workaround to the limitation about no support for Auto negotiation with copper cables to the "Limitations" section.
	D0	June 20, 2014	Removed the BGP FIB pending suppress updates feature from the "New Software Features in Cisco NX-OS Release 6.1(2)I2(2)" section.
	E0	August 15, 2014	Updated the Limitation about auto negotiation on the N9K-M12PQ GEM module front panel ports.
	F0	August 29, 2014	Added the "Software Maintenance Upgrades" section.
	G0	October 16, 2014	Updated hardware information for the Cisco Nexus 93128TX switch.
	H0	February 19, 2015	• Added NLB limitation in the "Limitations" section. • Added bug ID CSCuq03168 to "Open Caveats—Cisco NX-OS Release 6.1"
	I0	February 23, 2015	Added a new line to explain a Cisco ALE port limitation in the "Limitations" section.
	I0	May 4, 2015	Added new limitations to "Limitations".
	J0	January 11, 2015	Added link to ALE port limitations in "Limitations".

Contents

This document includes the following sections:

Introduction

Cisco NX-OS software is a data center-class operating system designed for performance, resiliency, scalability, manageability, and programmability at its foundation. The Cisco NX-OS software provides a robust and comprehensive feature set that meets the requirements of virtualization and automation in mission-critical data center environments. The modular design of the Cisco NX-OS operating system makes zero-impact operations a reality and enables exceptional operational flexibility.

The Cisco Nexus 9000 Series uses an enhanced version of Cisco NX-OS software with a single binary image that supports every switch in the series, which simplifies image management.

System Requirements

This section includes the following topics:

Supported Device Hardware

Table 2 lists the Cisco Nexus 9000 Series hardware that Cisco NX-OS Release 6.1(2)I2(2) supports.

Table 2 Cisco Nexus 9000 Series Hardware

Product ID	Hardware	Quantity
N9K-C9508	Cisco Nexus 9508 8-slot chassis	1
N9K-C9508-FM	Cisco Nexus 9500 Series fabric module	6
N9K-X9564PX	Cisco Nexus 9500 Series 48-port, 1-/10-Gbps SFP+ plus 4-port QSFP+ I/O module	Up to 8 in the Cisco Nexus 9508 Up to 4 in the Cisco Nexus 9504
N9K-X9564TX	Cisco Nexus 9500 Series 48-port, 1-/10-Gbps BASE-T plus 4-port QSFP+ I/O module	Up to 8 in the Cisco Nexus 9508 Up to 4 in the Cisco Nexus 9504
N9K-X9636PQ	Cisco Nexus 9500 36-port, 40 Gigabit Ethernet QSPF aggregation module	Up to 8 in the Cisco Nexus 9508 Up to 4 in the Cisco Nexus 9504
N9K-SC-A	Cisco Nexus 9500 Series System Controller Module	2
N9K-SUP-A	Cisco Nexus 9500 Series supervisor module	2
N9K-C9508-FAN	Cisco Nexus 9508 fan trays	3

Table 2 Cisco Nexus 9000 Series Hardware (continued)

Product ID	Hardware	Quantity
N9K-PAC-3000W-B	Cisco Nexus 9500 Series 3000 W AC power supply	Up to 6 in the Cisco Nexus 9508 Up to 4 in the Cisco Nexus 9504
N9K-C9504	Cisco Nexus 9504 4-slot chassis	1
N9K-C9504-FM	Cisco Nexus 9504 fabric module	6
N9K-C9504-FAN	Cisco Nexus 9504 fan trays	3
N9K-C9396PX	Cisco Nexus 9300 48-port, 1/10 Gigabit Ethernet SFP+ and 12-port, 40 Gigabit Ethernet QSPF switch	1
N9K-C93128TX	Cisco Nexus 9300 switch with 96 1-/10-Gigabit BASE-T ports and eight 40-Gigabit Ethernet QSPF ports (The 1-/10-Gigabit BASE-T ports also support a speed of 100 Megabits.)	1
N9K-M12PQ	Cisco Nexus 9300 uplink module, 12-port, 40 Gigabit Ethernet QSPF	1 (required)
N9K-PAC-650W[1]	Cisco Nexus 9300 650 W AC power supply, hot air out (red)	2 or less
N9K-PAC-650W-B[1]	Cisco Nexus 9300 650 W AC power supply, cold air in (blue)	2 or less
N9K-PAC-1200W[2]	Cisco Nexus 9300 1200 W AC power supply, hot air out (red)	2 or less
N9K-PAC-1200W-B[2]	Cisco Nexus 9300 1200 W AC power supply, cold air in (blue)	2 or less
N9K-C9300-FAN1[1]	Cisco Nexus 9300 fan 1, hot air out (red)	3
N9K-C9300-FAN1-B[1]	Cisco Nexus 9300 fan 1, cold air in (blue)	3
N9K-C9300-FAN2[2]	Cisco Nexus 9300 fan 2, hot air out (red)	3
N9K-C9300-FAN2-B[2]	Cisco Nexus 9300 fan 2, cold air in (blue)	3

1. For use with the Cisco Nexus 9396 switch (N9K-C9396PX).
2. For use with the Cisco Nexus 93128 switch (N9K-C93128TX).

For additional information about the supported hardware, see the *Cisco Nexus 9508 Switch Site Preparation and Hardware Installation Guide,* the *Cisco Nexus 9508 Switch Site Preparation and Hardware Installation Guide*, and the *Cisco Nexus 9300 Series Switch Site Preparation and Hardware Installation Guide.*

Supported Optics

Table 3 lists the supported optical components. For updated support information, also see the Compatibility Matrix.

Table 3 Transceivers and Cables

Product ID	Transceivers and Cables
QSFP-40G-SR4	40GBASE-SR4 QSFP+ transceiver module for MMF, 4-lanes, 850-nm wavelength, 12-fiber MPO/MTP connector
QSFP-40G-CSR4	40GBASE-CSR4 QSFP+ transceiver module for MMF, 4-lanes, 850-nm wavelength, 12-fiber MPO/MTP connector, 300-m reach with OM3 fiber
QSFP-40G-SR-BD	QSFP+ bidirectional transceiver module, duplex multimode fiber, LC duplex connector, 100-m reach with OM3 fiber
QSFP-40GE-LR4	40GBASE-LR4 QSFP+ 40G transceiver module for single mode fiber, 4 CWDM lanes in 1310-nm window muxed inside module, duplex LC connector, 10-km, 40G Ethernet rate only
QSFP-4x10G-AC7M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 7 meter active
QSFP-4x10G-AC10M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 10 meter active
QSFP-H40G-CU5M	40GBASE-CR4 QSFP+ direct-attach copper cable, 5 meter passive
QSFP-H40G-CU3M	40GBASE-CR4 QSFP+ direct-attach copper cable, 3 meter passive
QSFP-H40G-CU1M	40GBASE-CR4 QSFP+ direct-attach copper cable, 1 meter passive
QSFP-H40G-ACU7M	40GBASE-CR4 QSFP+ direct-attach copper cable, 7 meter active
QSFP-H40G-ACU10M	40GBASE-CR4 QSFP+ direct-attach copper cable, 10 meter active
SFP-10G-SR	10GBASE-SR SFP+ module
SFP-10G-LR	10GBASE-LR SFP+ module
SFP-H10GB-CU1M	10GBASE-CU SFP+ cable 1 meter
SFP-H10GB-CU3M	10GBASE-CU SFP+ cable 3 meter
SFP-H10GB-CU5M	10GBASE-CU SFP+ cable 5 meter
SFP-H10GB-ACU-7M	Active Twinax cable assembly, 7 meter
SFP-H10GB-ACU-10M	Active Twinax cable assembly, 10 meter
GLC-T	1000BASE-T SFP
GLC-SX-MM	GE SFP, LC connector SX transceiver
GLC-LH-SM	GE SFP, LC connector LX/LH transceiver

Note For the current release, if you are using the four 10G breakout cables with a Cisco Nexus 9000 Series switch, all ports on the I/O module must be set to breakout mode. A maximum of three l/O modules can be placed in breakout mode.

New and Changed Information

This section lists the new and changed features in Release 6.1(2)I2(2), and includes the following topics:

New Hardware Features in Cisco NX-OS Release 6.1(2)I2(2)

The Cisco NX-OS Release 6.1(2)I2(2) supports the following hardware-related feature:

- QSA support for the following transceivers:
  - SFP-10G-SR,
  - SFP-H10GB-CU1M
  - SFP-10G-AOC1M

New Software Features in Cisco NX-OS Release 6.1(2)I2(2)

The Cisco NX-OS Release 6.1(2)I2(2) supports the software features listed in this section.

- Ability to filter IGMP snooping reports. For more information, see the *Cisco Nexus 9000 Series NX-OS Multicast Configuration Guide*.
- Explicit Congestion Notification (ECN) with AFD is supported on Cisco Nexus 9300 Series switches. For more information, see the *Cisco Nexus 9000 Series NX-OS Quality of Service Configuration Guide.*
- Cisco QSFP+ to SFP+ Adapter Module Support—The Cisco QSFP to SFP/SFP+ Adapter (QSA) module provides 10G support for the 40G uplink ports that are a part of the Cisco Nexus M12PQ uplink module of the N9K-C9396PX and N9K-C93128TX devices. For additional information, see the *Cisco Nexus 9000 Series NX-OS Interfaces Configuration Guide*.
- Uplink ports are supported as SPAN destinations on Cisco Nexus 9300 Series switches.

Installation Notes

Only one software image (called nx-os) is required to load the Cisco NX-OS operating system. This image runs on all Cisco Nexus 9000 Series switches. For installation instructions, see the *Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide.*

Upgrade Instructions

To perform a software upgrade, follow the installation instructions in the *Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide.*

Software Maintenance Upgrades

For information about software maintenance upgrades, see the "Performing Software Maintenance Upgrades" section in the *Cisco Nexus 9000 Series NX-OS System Management Configuration Guide.*

Note If you perform a software maintenance upgrade (SMU) and later upgrade your device to a new Cisco NX-OS software release, the new image will overwrite both the previous Cisco NX-OS release and the SMU package file.

Limitations

This section lists limitations related to Cisco NX-OS Release 6.1(2)I2(2).

- The uplink module should not be removed from a Cisco 9300 switch that is running Cisco NX-OS Release 6.1(2)I2(2). The ports on the uplink module should be used only for uplinks.
- The N9K-M12PQ GEM module front panel ports do not support auto negotiation with copper cables. Manually configure the speed on the peer switch. In some cases, such as for the Cisco Nexus 6000 Series switches, explicitly disabling auto negotiation might be required.
- GOLD Port loopback tests are not supported.
- The ASIC Memory-NS test is not applicable for N9K-X9636PQ line card and will be removed in future releases for the N9K-X9636PW line card. The test is also shown incorrectly for the N9K-X9636PQ line card. The test is applicable only for the N9K-X9564PX and N9K-X9564TX line cards.
- On the Cisco Nexus 9300 Series switches with the N9K-X9636PQ and N9K-X9636TX line cards, there is no support for PFC.
- Cisco NX-OS Release 6.1(2)I2(2b) supports flooding for Microsoft Network Load Balancing (NLB) unicast mode on Cisco Nexus 9500 Series switches but not on Cisco Nexus 9300 Series switches. NLB is not supported in max-host system routing mode. NLB multicast mode is not supported on Cisco Nexus 9500 or 9300 Series switches.

Note To work around the situation of Unicast NLB limitation, we can statically hard code the ARP and MAC address pointing to the correct interface. Please refer to bug ID CSCuq03168 in detail in the "Open Caveats—Cisco NX-OS Release 6.1" section.

- When routed ACL is applied to multiple SVIs (switched virtual interfaces) in the egress direction, TCAM resources are not shared.
- When VACL (VLAN ACL) is applied to multiple VLANs, TCAM resources are not shared.
- N9K hardware does not support range checks (layer 4 operators) in egress TCAM. Because of this, ACL/QoS policies with layer 4 operations-based classification need to be expanded to multiple entries in the egress TCAM. Egress TCAM space planning should take this limitation into account.
- If the same QOS policy and ACL is applied on multiple interfaces, the label will be shared only when the qos-policy is applied with the no-stats option.
- Limitations for ALE uplink ports are listed at the following URL:

  https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus9000/sw/ale_ports/b_Limitations_for_ALE_Uplink_Ports_on_Cisco_Nexus_9000_Series_Switches.html

Unsupported Features

This section lists features that are not supported in the current release.

VXLAN Features

This section lists VXLAN features that are not supported.

- VXLAN routing is not supported.

  The default Layer 3 gateway for VXLAN VLANs should be provisioned on a different device.
- Switch virtual interface (SVI) is not supported on VXLAN VLANs.
- VXLAN Layer 3 uplinks are not supported on a nondefault virtual routing and forwarding (VRF) instance.
- Switched Port Analyzer (SPAN) Tx for VXLAN traffic is not supported for the access to the network direction.
- RACLs are not supported on Layer 3 uplinks for VXLAN traffic. Egress VACLs cannot be used on decapsulated packets in the network-to-access direction on the inner payload. As a best practice, use PACLs/VACLs for the access-to-network direction.
- QoS classification is not supported for VXLAN traffic in the network-to-access direction.
- The QoS buffer-boost feature is not applicable for VXLAN traffic.
- Access control list (ACL) and quality of service (QoS) for VXLAN traffic in the network-to-access direction is not supported.
- There is no uplink SVI support. As a best practice, use the Layer 3 port-channel uplinks/equal cost multi path (ECMP) uplinks instead.
- There is no native VLAN support for VXLAN. All traffic on VXLAN Layer 2 trunks need to be tagged.
- Consistency checkers are not supported for VXLAN tables.
- Just one network virtualization edge (NVE) interface is allowed on the switch.
- Because the NVE (VXLAN) process is not restartable, patching support is not supported for VXLAN.
- Per-VNI statistics and per-VTEP statistics are not supported. Only aggregate statistics are available.
- vPC type-1 consistency checkers are not supported for VXLAN configurations.
- Dynamic re-IP of an NVE tunnel is not supported. Tunnels must be shut down prior to live IP address changes.

VXLAN Topology Restrictions

- A device cannot be a VXLAN gateway mode (vxlan-vlan flows) and a VXLAN bridging mode (vxlan-vxlan flows) for the same multicast groups, which are also called the bud-node topology. As a best practice, use the device as either a bridging device or a gateway device, but not both.
- Due to bud node restrictions, a VXLAN tunnel endpoint (VTEP) cannot reach the rendezvous point (RP) through another VTEP. Because of this limitation, there can be no direct Layer 3 links between two VTEPs, unless one of the VTEPs is the RP.

VXLAN ACL Limitations

The following ACL related features are not supported:

- Ingress router access control list (RACL) that is applied on an uplink Layer 3 interface that matches on the inner or outer payload in the network-to-access direction (decapsulated path)
- Egress RACL that is applied on an uplink Layer 3 interface that matches on the inner or outer payload in the access-to-network direction (encapsulate path)
- Egress VACL for decapsulated VXLAN traffic

  We recommend that you use a port access control list (PACL)/VACL on the access side to filter out traffic entering the overlay network.

PVLANs

Private VLANs (PVLANs) are not supported.

DHCP

DHCP subnet broadcast is not supported.

Caveats

This section includes the following topic:

- Open Caveats—Cisco NX-OS Release 6.1

Open Caveats—Cisco NX-OS Release 6.1

Table 4 lists the open caveats in the Cisco NX-OS Release 6.1(2)I2(2) release. Click the Bug ID to access the Bug Search tool and see additional information about the bug.

Table 4 Open Caveats in Cisco NX-OS Release 6.1(2)I2(2)

Bug ID	Description
CSCug73220	Storm control counters are not working correctly on Cisco Nexus 9000 Series switches.
CSCui54272	The Link Pause feature is not supported on the Cisco Nexus 9500 Series devices.
CSCuj51631	DHCP relay to a subnet broadcast address does not work.
CSCuj57404	A DLB configuration should be rejected if PFC is also configured.
CSCul18670	The **show license usage** command shows the incorrect license if a valid license is installed over an honor license.
CSCum22205	Priority tagged packets or untagged packets that are received by trunk-mode switch ports do not get encapsulated in VXLAN.
CSCum32811	Multicast packets that are received on Layer 3 to VXLAN groups should not be sent to the CPU.

Table 4 Open Caveats in Cisco NX-OS Release 6.1(2)I2(2) (continued)

Bug ID	Description
CSCum36233	The MAC address for the ToR switch does not match IP packets with the mac packet-classify feature.
CSCun76810	Configuring NTP on a Cisco Nexus 9000 Series switch cause Onep to lose its connection.
CSCun00831	During the bootup of a peer switch, native-vlan mismatch syslog messages with CDP might appear.
CSCun01299	The **show hardware capacity** command should include MAC address table and route table information.
CSCun06345	A VXLAN vPC inconsistency is not detected with mismatched VXLAN configurations.
CSCun14773	Tagged packets in a non-VXLAN VLAN are encapsulated if the trunk port in a native VLAN is a VXLAN VLAN.
CSCun26726	HSRP packet decoding fails with an assertion error.
CSCun30078	After adding a new member to an uplink port channel, an error displays.
CSCun34824	After entering the **clear ip route** command, some VXLAN tunnels are not programmed correctly and traffic to those peers is silently dropped.
CSCun34856	All VLANs are suspended if one has a QoS policy but the TCAM is not configured.
CSCun69358	The **show vlan counters** command does not count decap traffic under the out counters.
CSCun69596	Unicast traffic still goes after out after the VNI configuration is removed.
CSCun87017	NS 40G access port drops cause packet flooding.
CSCuo25060	The consistency checker times out in a multi-VRF context for IPv4 and IPv6.
CSCuo34594	The Layer 2 MAC address consistency checker fails for multicast MAC addresses.
CSCuq03168	Microsoft NLB traffic being routed into the destination VLAN is experiencing packet loss.

Related Documentation

The entire Cisco Nexus 9000 Series NX-OS documentation set is available at the following URL:

http://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/tsd-products-support-series-home.html

Configuration Guides

Cisco Nexus 9000 Series NX-OS Fundamentals Configuration Guide

Cisco Nexus 9000 Series NX-OS High Availability and Redundancy Guide

Cisco Nexus 9000 Series NX-OS Interfaces Configuration Guide

Cisco Nexus 9000 Series NX-OS Layer 2 Switching Configuration Guide

Cisco Nexus 9000 Series NX-OS Multicast Routing Configuration Guide

Cisco Nexus 9000 Series NX-OS Quality of Service Configuration Guide

Cisco Nexus 9000 Series NX-OS Security Configuration Guide

Cisco Nexus 9000 Series NX-OS System Management Configuration Guide

Cisco Nexus 9000 Series NX-OS Unicast Routing Configuration Guide

Cisco Nexus 9000 Series NX-OS Verified Scalability Guide

Cisco Nexus 9000 Series NX-OS VXLAN Configuration Guide

Other Software Documents

Cisco Nexus 7000 Series and 9000 Series NX-OS MIB Quick Reference

Cisco Nexus 9000 Series NX-OS Programmability Guide

Cisco Nexus 9000 Series Software Upgrade and Downgrade Guide

Cisco Nexus 9000 Series NX-OS System Messages Reference

Cisco Nexus 9000 Series NX-OS Troubleshooting Guide

Cisco NX-OS Licensing Guide

Cisco NX-OS XML Interface User Guide

Hardware Documents

Cisco Nexus 9396 Switch Site Preparation and Hardware Installation Guide

Cisco Nexus 93128 Switch Site Preparation and Hardware Installation Guide

Cisco Nexus 9504 Switch Site Preparation and Hardware Installation Guide

Cisco Nexus 9508 Switch Site Preparation and Hardware Installation Guide

Release Notes

Cisco Nexus 9000 Series FPGA/EPLD Upgrade Release Notes

Cisco Nexus 9000 Series NX-OS Release Notes

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

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