



Cisco Nexus 9000 Series NX-OS Release Notes, Release 6.1(2)I1(1)

Date: November 21, 2013
Part Number: OL-30668-01
Current Release: Release 6.1(2)I1(1)

This document describes the features, caveats, and limitations for Cisco NX-OS Release 6.1(2)I1(1) software for use on the Cisco Nexus 9000 Series switches. Use this document in combination with documents listed in the [Related Documentation, page 9](#).

[Table 1](#) shows the online change history for this document.

Table 1 *Online History Change*

Part Number	Revision	Date	Description
OL-30668-01	A0	November 21, 2013	Created release notes for Release 6.1(2)I1(1).
	B0	February 19, 2015	<ul style="list-style-type: none">Added NLB limitation in the “Limitations” section.Added bug ID CSCuq03168 to “Open Caveats—Cisco NX-OS Release 6.1”.
	C0	May 4, 2015	Added new limitations to “ Limitations ”.
	D0	January 11, 2015	Added link to ALE port limitations in “ Limitations ”.

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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, page 2](#)
- [Supported Optics, page 3](#)

Supported Device Hardware

[Table 2](#) lists the Cisco Nexus 9000 Series hardware that Cisco NX-OS Release 6.1(2)I1(1) supports.

Table 2 Cisco Nexus 9000 Series Hardware Supported by Cisco NX-OS Release 6.1(2)I1(1)

Product ID	Hardware	Quantity
N9K-C9508	Cisco Nexus 9508, 8-slot chassis	1
N9K-C9508-FM	Cisco Nexus 9500 Series fabric module	6
N9K-X9636PQ	Cisco Nexus 9500 36-port, 40 Gigabit Ethernet QSPF aggregation module	8
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 tray assemblies	3
N9K-PAC-3000W-B	Cisco Nexus 9500 Series, 3000 W AC power supply	6

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

Supported Optics

Table 3 lists the optical components that Cisco NX-OS Release 6.1(2)I1(1) software supports. 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



Note

For the current release, if you are using the 4 10G breakout cables with a Cisco Nexus 9000 Series switch, all ports on the I/O module must be set to breakout mode.

New and Changed Information

This section lists the new and changed features in Cisco NX-OS Release 6.1(2)I1(1) and includes the following topics:

- [New Hardware Features in Cisco NX-OS Release 6.1\(2\)I1\(1\)](#), page 4
- [New Software Features in Cisco NX-OS Release 6.1\(2\)I1\(1\)](#), page 4

New Hardware Features in Cisco NX-OS Release 6.1(2)I1(1)

Cisco NX-OS Release 6.1(2)I1(1) supports the following new hardware:

- The Cisco Nexus 9508 chassis (N9K-C9508)
- Supervisor modules (up to two supervisor modules) (N9K-SUP-A)
- System controllers (up to two system controller modules) (N9K-SC-A)
- I/O modules (up to eight I/O modules):
 - 36-port 40-Gbps QSFP+ aggregation I/O module (N9K-X9636PQ)
- Fabric modules (up to six fabric modules behind the fan trays) (N9K-C9508-FM)
- Fan trays (three) (N9K-C9508-FAN)
- AC power supplies (up to six 3-kW AC power supplies with front-to-back) (N9K-PAC-3000W-B)

New Software Features in Cisco NX-OS Release 6.1(2)I1(1)

Cisco NX-OS Release 6.1(2)I1(1) supports the features listed in the following sections:

- [Layer 3 Features, page 4](#)
- [Multicast Features, page 5](#)
- [Monitoring Capabilities, page 5](#)
- [Interface Types and Features, page 5](#)
- [Device Management Capabilities, page 5](#)
- [Extensibility and Programming Tools, page 6](#)
- [Security Features, page 6](#)

Layer 3 Features

- IPv4 support
 - Static routes
 - Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First version 2 (OSPFv2), and Intermediate System-to-Intermediate System (IS-IS)
 - Virtual routing and forwarding Lite (VRF-Lite), VRF Route Leaking
 - Bidirectional Forwarding Detection (BFD)
 - Dynamic Host Configuration Protocol (DHCP) Relay
- IPv6 support
 - Static routes
 - BGP, OSPFv3
 - VRF-Lite, VRF Route Leaking
 - DHCP Relay
 - Intermediate System-to-Intermediate System (IS-IS)
 - Enhanced Interior Gateway Routing Protocol (EIGRP)

Multicast Features

- Protocol Independent Multicast (PIM)–Sparse, Any Source Multicast (ASM)
- Anycast rendezvous point (RP)
- Multicast Source Discovery Protocol (MSDP)

Monitoring Capabilities

- Generic Online Diagnostics (GOLD)
- Minimum, Complete, Bypass, On-Demand, Health Checks
- Onboard Fault Logging (OBFL)
- Embedded Event Manager (EEM)–scheduler, monitor, event manager
- Integrated packet capture/analysis with Wireshark
- Default SSD for logging and data capture
- SPAN
 - Source or destination on the switch
- Encapsulated Remote Switch Port Analyzer (ERSPAN)
 - Source on switch
 - ACL Filtering

Interface Types and Features

- Layer 3 routed
- Loopback interface
- Port channels
 - Static mode
 - 802.3ad Link Aggregation Control Protocol (LACP)
- Unidirectional Link Detection (UDLD)

Device Management Capabilities

- PowerOn Auto Provisioning (PoAP)
- Configuration rollback
- Configuration session manager
- FTP/SFTP/TFTP client
- Network Time Protocol (NTP)
 - Client, peer, server, ACL, and authentication
- SCP Client
- RMON
- Smart Call Home

- SNMP v1, v2, v3
- Syslog
- VTY
- XML (Network Configuration Protocol [NETCONF])
- SSHv2 (client, server)
- Telnet (client, server)
- 100/1000 Management port
- RS-232 Serial Console port
 - Locator LED (Beacon) for line cards (chassis)

Extensibility and Programming Tools

- Linux tools
 - BASH Shell access
- BCM Shell access
- Python Shell
- NX-API
- TCL Shell

Security Features

- Ingress/egress ACLs using Layer 3, Layer 4 fields
- Authentication, authorization, and accounting (AAA)
- LDAP support
- RADIUS
- RBAC
- TACACS+

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.

Limitations

Cisco NX-OS Release 6.1(2)I1(1) does not support the following features:

- The Generic Online Diagnostics (GOLD) port loopback test
- An ERSPAN type destination
- An egress filter on an ACL-based SPAN

- All VLAN features of SPAN/ERSPAN
- FEX
- 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 workaroud 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.

- The following features are not enabled in this release:
 - Layer 2 and vPC
 - FabricPath and OTV
 - LISP
 - MPLS
 - Fiber Channel
 - Fiber Channel over Ethernet (FCoE)
- 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

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 Cisco NX-OS Release 6.1(2)I1(1). 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)I1(1)

Bug ID	Description
CSCui07413	The show hardware command to display internal forwarding utilization has not been implemented.
CSCui54272	Support for link pause is needed on the Cisco Nexus 9500 Series device.
CSCui83920	The Ethalyzer capture filter is not working correctly.
CSCuj03386	There is no interface counter available on Layer 3 subinterfaces
CSCuj56839	After a write erase command, the ASCII configuration must be loaded twice to apply the breakout configuration.
CSCuj97891	The ACL consistency check does not work on subinterfaces and IPv6 ACLs.
CSCul03369	Multicast packet drops occur when the fabric module reloads.
CSCul15720	The show pc load-balance command is not working correctly.
CSCul20901	Jumbo packet counters for subinterfaces are not working correctly for Layer 3 packet sizes of 9216.
CSCul28058	The show port-channel load-balance command is not working correctly for multicast traffic.
CSCul30376	Benign syslog messages appear when there is an online insertion and removal (OIR) of the standby supervisor module.
CSCul34192	A “No HW resource” error appears for a second SPAN session that has the same bidirectional sources as the first session.
CSCul38830	After a module is inserted, the status LED does not instantaneously start blinking.
CSCuq03168	Microsoft NLB traffic being routed into the destination VLAN is experiencing packet loss.

Related Documentation

This section lists the product documentation for Cisco NX-OS Release 6.1(2)I1(1), which is available at the following URL:

http://www.cisco.com/en/US/products/ps13386/tsd_products_support_series_home.html

Cisco NX-OS 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 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

Other Software Documents

Cisco NX-OS Licensing Guide

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

Cisco Nexus 9000 Series NX-OS Programmability Guide

Cisco Nexus 9000 Series NX-OS System Messages Reference

Cisco Nexus 9000 Series NX-OS Troubleshooting Guide

Cisco NX-OS XML Interface User Guide

Hardware Documents

Cisco Nexus 9508 Switch Site Preparation and Hardware Installation Guide

Obtaining Documentation and Submitting a Service Request

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

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

Open a service request online at:

<https://tools.cisco.com/ServiceRequestTool/create/launch.do>

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.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

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