

Cisco NX-OS Release 11.0(3f) Release Notes for Cisco Nexus 9000 Series ACI-Mode Switches

Publication Date: February 11, 2015

This document describes the features, caveats, and limitations for Cisco NX-OS software that runs on Cisco Nexus 9000 Series Application Centric Infrastructure (ACI) switches. Use this document in combination with the [Cisco Application Policy Infrastructure Controller, Release 1.0\(3f\), Release Notes](#). Additional product documentation is listed in the “[Related Documentation](#)” section on page 10.

Release notes are sometimes updated with new information about restrictions and caveats. See the following website for the most recent version of the *Cisco NX-OS Release 11.0(3f) Release Notes for Cisco Nexus 9000 Series ACI-Mode Switches*:

<http://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/products-release-notes-list.html>

Table 1 shows the online change history for this document.

Table 1 **Online History Change**

Date	Description
February 11, 2015	Created the release notes for Release 11.0(3f).
February 24, 2015	<ul style="list-style-type: none">Added CSCur85686 to “Open Caveats”.Updated “Compatibility Information”.Added CSCus14543 to “Resolved Caveats”.
March 2, 2015	Added bug ID CSCut17637 to “ Open Caveats ”.
April 22, 2015	Added a note to “ Upgrade Instructions ”.
May 12, 2015	Modified the “ Supported FEX Models ” table.
July 8, 2015	Added B22 FEX models to the “ Supported FEX Models ” table.



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Cisco Nexus 9000 Series ACI-Mode

Cisco NX-OS Software for the Cisco Nexus 9000 Series is a data center, purpose-built, operating system designed with performance, resiliency, scalability, manageability, and programmability at its foundation. It provides a robust and comprehensive feature set that meets the requirements of virtualization and automation in data centers

Cisco NX-OS Release 11.0 works only on Cisco Nexus 9000 Series switches in ACI Mode.

See [Table 2](#) for a list of modules that are supported on Cisco Nexus 9000 Series switches in ACI Mode.

Supported Hardware

[Table 2](#) lists the hardware that the Cisco Nexus 9000 Series ACI Mode switches support.

Table 2 **Supported Hardware**

Hardware Type	Product ID	Description
Chassis	N9K-C9504	Cisco Nexus 9504 chassis with four slots
Chassis	N9K-C9508	Cisco Nexus 9508 chassis with 8 slots
Chassis component	N9K-C9508-FAN	Fan tray
Chassis component	N9k-PAC-3000W-B	Cisco Nexus 9500 3000W AC power supply, port side intake
Pluggable module (GEM)	N9K-M6PQ	6-port
Pluggable module (GEM)	N9K-M12PQ	12-port or 8-port
Spine switch	N9K-C9336PQ	Cisco Nexus 9336PQ switch, 36-port 40 Gigabit Ethernet QSFP

Table 2 **Supported Hardware (continued)**

Hardware Type	Product ID	Description
Spine switch	N9K-C9508-B1	Cisco Nexus 9508 chassis bundle with 1 supervisor module, 3 power supplies, 2 system controllers, 3 fan trays, and 3 fabric modules
Spine switch	N9K-C9508-B2	Cisco Nexus 9508 chassis bundle with 1 supervisor module, 3 power supplies, 2 system controllers, 3 fan trays, and 6 fabric modules
Spine switch fan	N9K-C9300-FAN3	Port side exhaust fan
Spine switch fan	N9K-C9300-FAN3-B	Port side intake fan
Spine switch module	N9K-C9504-FM	Cisco Nexus 9504 fabric module
Spine switch module	N9K-C9508-FM	Fabric module
Spine switch module	N9K-X9736PQ	Cisco Nexus 9500 36-port, 40 Gigabit Ethernet QSFP aggregation module
Switch module	N9K-SC-A	Cisco Nexus 9500 Series system controller
Switch module	N9K-SUP-A	Cisco Nexus 9500 Series supervisor module
Switch module	N9K-SUP-B	Cisco Nexus 9500 Series supervisor module
Top-of-rack (ToR) leaf switch	N9K-C93128TX	Cisco Nexus 9300 96-port, 1-/10-Gbps BASE-T and 6-port or 8-port, 40 Gigabit Ethernet QSFP switch
Top-of-rack (ToR) leaf switch	N9K-C9332PQ	Cisco Nexus 9332PQ 32-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch
Top-of-rack (ToR) leaf switch	N9K-C9372PX	Cisco Nexus 9372PX 48-port, 10 Gigabit Ethernet SFP+ and 6-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch
Top-of-rack (ToR) leaf switch	N9K-C9372TX	Cisco Nexus 9372TX 48-port, 1/10 Gbps Base-T and 6-port, 40 Gigabit Ethernet QSFP Top-of-rack (ToR) Layer 3 switch
Top-of-rack (ToR) leaf switch	N9K-C9396PX	Cisco Nexus 9300 48-port, 1/10 Gigabit Ethernet SFP+ and 6-port or 12-port, 40 Gigabit Ethernet QSFP switch
Top-of-rack (ToR) leaf switch	N9K-C9396TX	Cisco Nexus 9300 48-port, 1/10 Gbps Base-T and 6-port or 12-port, 40 Gigabit Ethernet QSFP switch
Top-of-rack (ToR) leaf switch power supply unit	UCSC-PSU-930WDC V01	Port side intake DC power supply compatible with all ToR leaf switches
Top-of-rack (ToR) leaf switch power supply unit	N9K-PAC-650W-B	650W AC Power supply, port side exhaust pluggable

Table 2 Supported Hardware (continued)

Hardware Type	Product ID	Description
Top-of-rack (ToR) leaf switch power supply unit	N9K-PAC-650W	650W AC Power supply, port side intake pluggable
Top-of-rack (ToR) leaf switch power supply unit	N9K-PAC-1200W-B	1200W AC Power supply, port side exhaust pluggable
Top-of-rack (ToR) leaf switch power supply unit	N9K-PAC-1200W	1200W AC Power supply, port side intake pluggable
Top-of-rack (ToR) leaf switch power supply unit	N9K-PUV-3000W-B	3000W AC Power supply, port side exhaust pluggable
Top-of-rack (ToR) leaf switch fan	NXA-FAN-30CFM-F	Port side exhaust fan
Top-of-rack (ToR) leaf switch fan	NXA-FAN-30CFM-B	Port side intake fan

Supported FEX Models

Table 3 lists the FEX models that the Cisco Nexus 9000 Series ACI Mode switches support. For more information on the FEX models, see [Cisco Nexus 2000 Series Fabric Extenders Data Sheet](#).



Note FEX requires software version 5.x or later to be brought up successfully.

Table 3 Supported FEX Models

Product ID	Description
N2K-B22DELL-P	B22 FEX for Dell
N2K-B22IBM-P	B22 FEX for IBM
N2K-C2232PP-10GE	Cisco Nexus 2232PP Series 10GE Fabric Extender, 2 AC PS, 1 Fan Module (Standard Airflow/port side exhaust), 32x1/10GE (req SFP/SFP+) + 8x10GE (req SFP+), same as N2K-C2232PP
N2K-C2232TM-E-10GE	Cisco Nexus 2232TM-E Series 10GBASE-T Fabric Extender, 2PS, 1 Fan Module, 32x1/10GBase-T + 8x10GE Module (req SFP+), choice of airflow and power supply
N2K-C2248PQ-10GE	Cisco Nexus 2248PQ 10GE Fabric Extender, 2PS, 4 Fan Module, 48x1/10GE (req SFP/SFP+) + 4x40G QSFP+(req QSFP+), choice of airflow and power supply
N2K-C2248TP-1GE	Cisco Nexus 2248TP Series 1GE Fabric Extender, 2 AC PS, 1 Fan Module (Standard Airflow/port side exhaust), 48x100/1000Base-T + 4x10GE (req SFP+), same as N2K-C2248TP
N2K-C2248TP-E-1GE	Cisco Nexus 2248TP-E Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10GE (req SFP+), 32MB buffer, choice of airflow and power supply

New and Changed Information

This section lists the new and changed features in Release 11.0(3f), and includes the following topics:

- [New Hardware Features, page 5](#)
- [New Software Features, page 5](#)

New Hardware Features

The Cisco Nexus 9000 Series ACI Mode Release 11.0(3f) supports the following new hardware:

- Supported ToRs:
 - N9K-C9332PQ - Cisco Nexus 9332PQ 32-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch
 - N9K-C9372PX - Cisco Nexus 9372PX 48-port, 10 Gigabit Ethernet SFP+ and 6-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch
 - N9K-C9372TX - Cisco Nexus 9372TX 48-port, 1/10 Gbps Base-T and 6-port, 40 Gigabit Ethernet QSFP Top-of-rack (ToR) Layer 3 switch
- Supported Power Supplies:
 - N9K-PAC-650W-B - 650W AC Power supply, port side exhaust pluggable
 - N9K-PAC-650W - 650W AC Power supply, port side intake pluggable
 - N9K-PAC-1200W-B - 1200W AC Power supply, port side exhaust pluggable
 - N9K-PAC-1200W - 1200W AC Power supply, port side intake pluggable
 - UCSC-PSU-930WDC V01 - Port side intake DC power supply compatible with all ToR leaf switches
 - N9K-PUV-3000W-B - 3000W AC Power supply, port side exhaust pluggable
- Supported Fans:
 - N9K-C9300-FAN3 - Port side exhaust fan
 - N9K-C9300-FAN3-B - Port side intake fan
 - NXA-FAN-30CFM-F - Port side exhaust fan
 - NXA-FAN-30CFM-B - Port side intake fan

New Software Features

The Cisco Nexus 9000 Series ACI Mode Release 11.0(3f) supports the following new software:

- Stretched Fabric - This feature allows for each leaf and all spines that participate in creating a fabric to be located up to 30 KMs apart and removes the restriction for every leaf to be connected to all spines.

For more information about the stretched fabric feature, see the *KB: ACI Stretched Fabric Design* knowledge base article:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/b_kb-aci-stretched-fabric.html

Installation Notes

For installation instructions, see the *Cisco ACI Fabric Hardware Installation Guide*.

Upgrade Instructions

Follow this procedure when upgrading from a 1.0(2x) release to a 1.0(3x) release:

1. Upgrade the APIC controller software image.
2. After all APICs in the cluster are successfully upgraded, upgrade all the switches in the fabric.



Note The switches may need to be rebooted after upgrading (See [CSCut32029](#)).

Downgrade Instructions

Follow this procedure when downgrading from 1.0(3x) release to a 1.0(2x) release:

1. Downgrade the APIC controller software image.
2. After all APICs in the cluster are successfully downgraded, downgrade all the switches in the fabric.



Note

Switch models N9K-C9372PX, N9K-C9332PQ, and N9K-C9372TX are not supported for downgrading in the APIC 1.0(2x) or the Cisco Nexus 9000 11.0(2x) releases. If your fabric has those models, do not downgrade.

Compatibility Information

- Cisco NX-OS Release 11.0(3f) supports the hardware and software listed on the [ACI Ecosystem Compatibility List](#) and the Cisco AVS, Release 4.2(1)SV2(2.3).
- The breakout of 40G ports to 4x10G on the N9332PQ switch is not supported in ACI-Mode.
- To connect the APIC (the controller cluster) to the ACI fabric, it is required to have a 10G interface on the ACI leaf. You cannot connect the APIC directly to the N9332PQ ACI Leaf.

Usage Guidelines

- The current list of protocols that are allowed (and cannot be blocked through contracts) include the following. Some of the protocols have SrcPort/DstPort distinction.



Note

Also see the APIC release notes for policy information:

<http://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/products-release-notes-list.html>

<http://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/products-release-notes-list.html>

- UDP DestPort 161: SNMP. These cannot be blocked through contracts. Creating an SNMP ClientGroup with a list of Client-IP Addresses restricts SNMP access to only those configured Client-IP Addresses. If no Client-IP address is configured, SNMP packets are allowed from anywhere.
- TCP SrcPort 179: BGP
- TCP DstPort 179: BGP
- OSPF
- UDP DstPort 67: BOOTP/DHCP
- UDP DstPort 68: BOOTP/DHCP
- IGMP
- PIM
- UDP SrcPort 53: DNS replies
- TCP SrcPort 25: SMTP replies
- TCP DstPort 443: HTTPS
- UDP SrcPort 123: NTP
- UDP DstPort 123: NTP

Caveats

This section includes the following topics:

- [Open Caveats, page 7](#)
- [Resolved Caveats, page 8](#)
- [Known Behaviors, page 9](#)

Open Caveats

This section lists the open caveats in Cisco NX-OS Release 11.0(3f). Click a Bug ID shown in [Table 4](#) to access the Bug Search Tool and see additional information about the bug.

Table 4 **Open Caveats**

Bug ID	Description
CSCun35596	FEX logs are missing in the output of the show fex detail command.
CSCun96495	Events and faults for interfaces are not updated under Ports in the GUI.
CSCup05629	The output of some CLI commands displays very slowly.
CSCur32247	FEX related diagnostic results are missing.
CSCur40736	The Logical Interface Profile configuration for SVI does not require the user to enter a subnet mask.
CSCur51625	Packet loss occurs during the restore of a line card after a line card is reloaded.

Table 4 Open Caveats (continued)

Bug ID	Description
CSCur77840	The command Show endpoint vrf all does not provide a summary of all the VRFs.
CSCur85686	The REST API on the CLI of switch throws an error when trying to reload.
CSCus29623	The output incorrectly displays AOC cables as ACU cables.
CSCus61748	<p>If the TOR 1RU system is configured with the RED fan (the reverse airflow), the air will flow from back to front. The temperature sensor in the back will be defined as an Inlet temperature sensor, and the temperature sensor in the front will be defined as an outlet temperature sensor.</p> <p>If the TOR 1RU system is configured with the BLUE fan (normal airflow), the air will flow from front to back. The temperature sensor in the front will be defined as an Inlet temperature sensor, and the temperature sensor in the back will be defined as outlet temperature sensor.</p> <p>From the airflow perspective, the Inlet sensor reading should always be less than the outlet sensor reading. However, in the TOR 1RU family, the front panel temperature sensor has some inaccurate readings due to the front panel utilization & configuration, which causes the Inlet temperature sensor reading to be very close, equal, or even greater than the outlet temperature reading.</p>
CSCus73592	10% to 11% traffic drops occur on Unicast Traffic Streams.
CSCus79641	FEX support is not available when connected behind a N9K-C9332PQ ToR.
CSCut17637	When a traceroute is performed from a VM attached to a regular bridge domain and to a VM behind a border leaf, and both of these VMs are behind two different ToRs, the traceroute does not show the ToR with the border leaf.

Resolved Caveats

This section lists caveats that are resolved in Cisco NX-OS Release 11.0(3f). Click a Bug ID shown in [Table 5](#) to access the Bug Search Tool and see additional information about the bug.

Table 5 Resolved Caveats

Bug ID	Description
CSCur22644	<p>In case of multiple QoS Custom Policies (QoSCustomPol) or multiple operations on an existing QoS Custom Policy, the DSCP and Dot1p rules do not get configured correctly on ToRs.</p> <p>The ToR's object store may or may not show an error.</p> <p>Once the programming fails for DSCP/Dot1p Rules, further DSCP/DoT1p programming on ToR is not possible. It will also affect the contract configuration of new l3extOut/l2extOut (external networks) that requires DSCP remarking.</p>
CSCur38673	Ongoing diagnostic test configuration options needs to be removed for FEX.
CSCur65254	The policy element process crashes when upgrading the spine with supervisor slot-2 as active, preventing the spine from joining the fabric.
CSCur73212	The static route to the DHCP provider's subnet is not deleted from the consumer's private network after deleting the contract and the DHCP label from the consumer Bridge Domain.

Table 5 **Resolved Caveats**

Bug ID	Description
CSCur73570	Some zone rules or Contracts may not be deployed on the switch, on clean reboot of the switch, or on upgrade of the switch.
CSCur73528	The show interface statistics are not showing forwarding drops.
CSCur77825	ARP entries do not time out and remain in “incomplete” state.
CSCus14543	The new host has no network connectivity. The leaf switches keep pinning the IP address on the old MAC address and does not timeout the MAC address.

Known Behaviors

This section lists caveats that describe known behaviors in Cisco NX-OS Release 11.0(3f). Click a Bug ID shown in [Table 6](#) to access the Bug Search Tool and see additional information about the bug.

Table 6 **Known Behaviors**

Bug ID	Description
CSCun47041	Configuring the BGP maximum prefix policy is not supported.
CSCuo37016	Layer 3 switched packets that go out of a FEX Hif interface are not spanned.
CSCuo50533	When output span is enabled on a port where the filter is VLAN, multicast traffic in that VLAN that goes out of that port is not spanned.
CSCup92534	Continuous “threshold exceeded” messages are generated from the fabric.
CSCuq39829	Switch rescue user ("admin") can log into fabric switches even when TACACS is selected as the default login realm.
CSCuq46369	An extra 4 bytes is added to the untagged packet with Egress local and remote SPAN.
CSCuq77095	When the command <code>show ip ospf vrf <vrf_name></code> is run from bash on the border leaf, the checksum field in the output always shows value of zero.
CSCuq83910	When an IP moves from one MAC behind one ToR to another MAC behind another ToR, even though the VM sends a GARP packet, in ARP unicast mode, this GARP packet is not flooded. As a result, any other host with the original MAC to IP binding sending an L2 packet will send to the original ToR where the IP was in the beginning (based on MAC lookup), and the packet will be sent out on the old port (location). Without flooding the GARP packet in the network, all hosts will not update the MAC-to-IP binding.
CSCuq92447	When modifying the <code>L2Unknown</code> Unicast parameter on a Bridge Domain (BD), interfaces on externally connected devices may bounce. Additionally, the endpoint cache for the BD is flushed and all endpoints will have to be re-learned.
CSCuq93389	If an endpoint has multiple IPs, the endpoint will not be aged until all IPs go silent. If one of the IPs is reassigned to another server/host, fabric detects it as an IP move and forwarding will work as expected.
CSCur01336	The PSU is not getting detected after OIR with Power input connected.
CSCur14844	iping picks a source address from a different subnet for a directly connected destination.
CSCur76586	Port-channel remains in the admin-down state after being enabled.

Table 6 **Known Behaviors**

Bug ID	Description
CSCur81822	The access-port operational status is trunk.
CSCur84296	When removing the secondary IP on an external SVI interface, static routes defined in the VRF or context of the SVI are removed causing traffic to be looped in the fabric.
CSCus59893	ARP does not reach hosts in the same endpoint group.

- The Cisco Nexus 9508 ACI-mode switch supports warm (stateless) standby where the state is not synched between the active and the standby supervisor modules. For an online insertion and removal (OIR) or reload of the active supervisor module, the standby supervisor module becomes active, but all modules in the switch are reset because the switchover is stateless. In the output of the **show system redundancy status** command, warm standby indicates stateless mode.
- When a recommissioned APIC controller rejoins the cluster, GUI and CLI commands can time out while the cluster expands to include the recommissioned APIC controller.
- If connectivity to the APIC cluster is lost while a switch is being decommissioned, the decommissioned switch may not complete a clean reboot. In this case, the fabric administrator should manually complete a clean reboot of the decommissioned switch.
- Before expanding the APIC cluster with a recommissioned controller, remove any decommissioned switches from the fabric by powering down and disconnecting them. Doing so will ensure that the recommissioned APIC controller will not attempt to discover and recommission the switch.

IGMP Snooping Known Behaviors:

- Multicast router functionality is not supported when IGMP queries are received with VxLAN encapsulation.
- IGMP Querier election across multiple Endpoint Groups (EPGs) or Layer 2 outsiders (External Bridged Network) in a given Bridge Domain (BD) is not supported. Only one EPG or Layer 2 outside for a given BD should be extended to multiple multicast routers if any.
- The rate of the number of IGMP reports sent to a leaf switch should be limited to 1000 reports per second.
- Unknown IP multicast packets are flooded on ingress leaf switches and border leaf switches, unless “unknown multicast flooding” is set to “Optimized Flood” in a BD. This knob can be set to “Optimized Flood” only for a maximum of 50 BDs per leaf.

If “Optimized Flood” is enabled for more than the supported number of BDs on a leaf, follow these configuration steps to recover:

- Set “unknown multicast flooding” to “Flood” for all BDs mapped to a leaf.
- Set “unknown multicast flooding” to “Optimized Flood” on needed BDs.

Related Documentation

This section lists the product documentation for the Cisco ACI.

Web-Based Documentation

- *Cisco APIC Management Information Model Reference*
- *Cisco APIC Online Help Reference*
- *Cisco ACI MIB Support List*
- *Cisco 10-Gigabit Ethernet Transceiver Modules Compatibility Matrix:*
http://www.cisco.com/c/en/us/td/docs/interfaces_modules/transceiver_modules/compatibility/matrix/10GE_Tx_Matrix.html
- *Cisco 40-Gigabit Ethernet Transceiver Modules Compatibility Matrix:*
http://www.cisco.com/c/en/us/td/docs/interfaces_modules/transceiver_modules/compatibility/matrix/40GE_Tx_Matrix.html

Downloadable Documentation

- *Cisco ACI Fundamentals*
- *Cisco APIC Getting Started Guide*
- *Cisco APIC REST API User Guide*
- *Cisco APIC Command Line Interface User Guide*
- *Cisco ACI Switch CLI Command Reference, NX-OS Release 11.0*
- *Cisco APIC Faults, Events, and Error Messages Guide*
- *Cisco ACI System Messages Reference Guide*
- *Cisco ACI Troubleshooting Guide*
- *Cisco NX-OS to APIC Mapping Guide*
- *Cisco APIC Layer 4 to Layer 7 Device Package Development Guide*
- *Cisco APIC Layer 4 to Layer 7 Services Deployment Guide*
- *Cisco AVS Configuration Guide*
- *Cisco AVS Installation and Upgrade Guide*
- *Cisco ACI MIB Quick Reference*
- *Cisco ACI Fabric Hardware Installation Guide*
- *Cisco ACI MIB Quick Reference*
- *Cisco APIC Release Notes*
- *Cisco Application Centric Infrastructure Release Notes*

Hardware Documentation

Cisco Nexus 9336PQ ACI-Mode Switch Hardware Installation Guide
Cisco Nexus 9508 ACI-Mode Switch Hardware Installation Guide

This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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