



Cisco NX-OS Release 11.1(2i) Release Notes for Cisco Nexus 9000 Series ACI-Mode Switches

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 1.1\(2i\), Release Notes](#). Additional product documentation is listed in the "Related Documentation" section.

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 11.1(2i) Release Notes for Cisco Nexus 9000 Series ACI-Mode Switches:

<https://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 15, 2016	Created the release notes for Release 11.1(2i).
March 1, 2016	In the Compatibility Information, fixed incorrect references to spines and leafs.
January 17, 2018	In the Compatibility Information section, changed "You cannot connect the APIC directly to the N9332PQ ACI spine" to "You cannot connect the APIC directly to the N9332PQ ACI leaf switch."

Contents

This document includes the following sections:

- Cisco Nexus 9000 Series ACI-Mode
- Supported Hardware
- Supported FEX Models
- New and Changed Information
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- Compatibility Information
- Usage Guidelines
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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 11.1 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. Cisco Nexus 9000 Series Hardware.

Hardware Type	Product ID	Description
Chassis	NgK-C9504	Cisco Nexus 9504 chassis with four slots
Chassis	NgK-C9508	Cisco Nexus 9508 chassis with 8 slots
Chassis component	NgK-C9508-FAN	Fan tray
Chassis component	Ngk-PAC-3000W-B	Cisco Nexus 9500 3000W AC power supply, port side intake
Pluggable module (GEM)	NgK-M6PQ	6-port
Pluggable module (GEM)	NgK-M6PQ-E	6-port, 40 Gigabit Ethernet expansion module
Pluggable module (GEM)	NgK-M12PQ	12-port or 8-port
Spine switch	NgK-C9336PQ	Cisco Nexus 9336PQ switch, 36-port 40 Gigabit Ethernet QSFP
Spine switch	NgK-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	NgK-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	NgK-C9516	Cisco Nexus 9516 switch with 16 linecard slots (slots 1-8 only)
Spine switch fan	NgK-C9300-FAN3	Port side intake fan
Spine switch fan	NgK-C9300-FAN3-B	Port side exhaust fan

Supported Hardware

Hardware Type	Product ID	Description
Spine switch module	NgK-C9504-FM	Cisco Nexus 9504 fabric module
Spine switch module	NgK-C9508-FM	Fabric module
Spine switch module	NgK-X9736PQ	Cisco Nexus 9500 36-port, 40 Gigabit Ethernet QSFP aggregation module
Switch module	NgK-SC-A	Cisco Nexus 9500 Series system controller
Switch module	NgK-SUP-A	Cisco Nexus 9500 Series supervisor module
Switch module	NgK-SUP-B	Cisco Nexus 9500 Series supervisor module
Top-of-rack (ToR) leaf switch	NgK-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	NgK-C9332PQ	Cisco Nexus 9332PQ 32-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch
Top-of-rack (ToR) leaf switch	NgK-C9372PX	Cisco Nexus 9372PX 48-port, 10 Gigabit Ethernet SFP+ and 6-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch Note: Only the downlink ports 1-16 and 33-48 are capable of supporting SFP1-10G-ZR SFP+.
Top-of-rack (ToR) leaf switch	NgK-C9372PX-E	Cisco Nexus 9372PX-E 48-port, 10 Gigabit Ethernet SFP+ and 6-port 40 Gigabit Ethernet QSFP+ Top-of-rack (ToR) Layer 3 switch Note: Only the downlink ports 1-16 and 33-48 are capable of supporting SFP1-10G-ZR SFP+.
Top-of-rack (ToR) leaf switch	NgK-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	NgK-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	NgK-C9396TX	Cisco Nexus 9300 48-port, 1/10 Gbps Base-T and 6-port or 12-port, 40 Gigabit Ethernet QSFP switch

Supported FEX Models

Hardware Type	Product ID	Description
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	NgK-PAC-650W-B	650W AC Power supply, port side exhaust pluggable
Top-of-rack (ToR) leaf switch power supply unit	NgK-PAC-650W	650W AC Power supply, port side intake pluggable
Top-of-rack (ToR) leaf switch power supply unit	NgK-PAC-1200W-B	1200W AC Power supply, port side exhaust pluggable
Top-of-rack (ToR) leaf switch power supply unit	NgK-PAC-1200W	1200W AC Power supply, port side intake pluggable
Top-of-rack (ToR) leaf switch power supply unit	NgK-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 the *Cisco Nexus 2000 Series Fabric Extenders Data Sheet* at the following location:

<https://www.cisco.com/c/en/us/products/switches/nexus-2000-series-fabric-extenders/datasheet-listing.html>

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-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

Product ID	Description
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
N2K-C2332TQ	Cisco Nexus 2332TQ 10G BASE T Fabric Extender, 2PS, 3 Fan Module, 48x100M/1/10GE + 4x40G QSFP+(req QSFP+), choice of airflow and power supply
N2K-C2348TQ	Cisco Nexus 2348TQ 10G BASE T Fabric Extender, 2PS, 3 Fan Module, 48x100M/1/10GE + 6x40G QSFP+(req QSFP+), choice of airflow and power supply
N2K-C2348UPQ	48 100M /1/10 Gigabit Ethernet and Unified Port host interfaces (SFP+) and up to 6 QSFP+ 10/40 Gigabit Ethernet fabric interfaces
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

New and Changed Information

This section lists the new and changed features in Release 11.1(2i).

- New Hardware Features
- New Software Features

New Hardware Features

This release supports no new hardware features.

New Software Features

For new software features, see the *Cisco APIC 1.1(2i) Release Notes* at the following location:

<https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>

Installation Notes

The following procedure installs a Gigabit Ethernet module (GEM) in a top-of-rack switch:

1. Clear the switch's current configuration by using the **setup-clean-config** command.
2. Power off the switch by disconnecting the power.
3. Replace the current GEM card with the new GEM card.
4. Power on the switch.

For other installation instructions, see the *Cisco ACI Fabric Hardware Installation Guide* at the following location:

<https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>

Compatibility Information

- Cisco NX-OS Release 11.1(2i) 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 N2348UPQ to ACI leaf switches, the following options are available:
 - Directly connect the 40G FEX ports on the N2348UPQ to the 40G switch ports on the ACI leaf switches
 - Break out the 40G FEX ports on the N2348UPQ to 4x10G ports and connect to the N9396PX, N9372PX, or N9372PX-E switches
- 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 switch.

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: <https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>

- UDP DstPort 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
- Leafs and spines from two different fabrics cannot be connected regardless of whether the links are administratively kept down.

Caveats

This section contains lists of open and resolved caveats and known behaviors.

- Open Caveats
- Resolved Caveats
- Known Behaviors

Open Caveats

Table 4 lists the open caveats in this 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 11.1(2i)

Bug ID	Description
CSCun35596	FEX logs are missing in the output of the show fex detail command.
CSCun76770	The SVI interface does not go down when all SVI ports are down.
CSCun96495	The events and faults for interfaces are not updated under Ports in the GUI.
CSCup05629	The output of some CLI commands display very slowly.
CSCup86130	Because ibash is implemented on top of bash , when using ibash for the CLI, the bash behavior is inherited. For example, the sh mod command works in traditional Cisco switches. But when executed on NgK switches in ibash , because bash interprets sh differently, sh mod will not work. Similarly, if there is a clash in the next available options, the TAB key must be pressed twice to get the options rather than once as in other Cisco switches. In short, the CLI infra for ibash is not exactly the same as the CLI infra for the traditional Cisco switches because NgK ibash is built on top of bash .
CSCur32247	FEX related diagnostic results are missing.
CSCur85686	The REST API on the CLI of the switch throws an error when trying to reload.

Resolved Caveats

This release has no resolved caveats.

Known Behaviors

Table 5 lists caveats that describe known behaviors in this release. Click the Bug ID to access the Bug Search Tool and see additional information about the bug.

Table 5. Known Behaviors in Cisco NX-OS Release 11.1(2i)

Bug ID	Description

Caveats

Bug ID	Description
CSCun47041	Configuring the BGP maximum prefix policy is not supported.
CSCu037016	When configuring the output span on a FEX Hif interface, all the layer 3 switched packets going out of that FEX Hif interface are not spanned. Only layer 2 switched packets going out of that FEX Hif are spanned.
CSCu050533	When output span is enabled on a port where the filter is VLAN, multicast traffic in the VLAN that goes out of that port is not spanned.
CSCup65586	The show interface command shows the tunnel's Rx/Tx counters as 0.
CSCup82908	The show vpc brief command displays the wire-encap VLAN Ids and the show interface .. trunk command displays the internal/hardware VLAN Ids. Both VLAN Ids are allocated and used differently, so there is no correlation between them.
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 show ip ospf vrf <vrf_name> is run from bash on the border leaf, the checksum field in the output always shows a zero value.
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 L2Unknown 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, the 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	The port-channel remains in the admin-down state after being enabled.
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.
CSCus18541	An MSTP topology change notification (TCN) on a flood domain (FD) VLAN may not flush endpoints learned as remote where the FD is not deployed.
CSCus29623	The output incorrectly displays AOC cables as ACU cables.
CSCus43167	Any TCAM that is full, or nearly full, will raise the usage threshold fault. Because the faults for all TCAMs on leaf switches are grouped together, the fault will appear even on those with low usage. Workaround: Review the leaf switch scale and reduce the TCAM usage. Contact TAC to isolate further which TCAM is full.

Caveats

Bug ID	Description
CSCus54135	The default route is not leaked by BGP when the scope is set to context. The scope should be set to Outside for default route leaking.
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.
CSCut59020	If Backbone and NSSA areas are on the same leaf, and default route leak is enabled, Type-5 LSAs may not be redistributed to the Backbone area.
CSCuu11347	Traffic from the orphan port to the vPC pair is not recorded against the tunnel stats. Traffic from the vPC pair to the orphan port is recorded against the tunnel stats.
CSCuu11351	Traffic from the orphan port to the vPC pair is only updated on the destination node, so the traffic count shows as excess.
CSCuu66310	If a BD "Multi Destination Flood" mode is configured as "Drop", the ISIS PDU from the tenant space will get dropped in the fabric.

- The following properties within a QoS class under "Global QoS Class policies," should not be changed from its default value and is only used for debugging purposes:
 - MTU (default – 9216 bytes)
 - Queue Control Method (default – Dynamic)
 - Queue Limit (default – 1522 bytes)
 - Minimum Buffers (default – 0)
- 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.

Related Documentation

- 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

The Cisco Application Policy Infrastructure Controller (APIC) documentation can be accessed from the following website:

<https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>

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