# Cisco Nexus 9000 ACI-Mode Switches Release Notes, Release 13.1(1)

The Cisco NX-OS software for the Cisco Nexus 9000 series switches 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 13.1 works only on Cisco Nexus 9000 Series switches in ACI Mode.

This document describes the features, bugs, and limitations for the Cisco NX-OS software. Use this document in combination with the *Cisco Application Policy Infrastructure Controller, 3.1(1), Release Notes*, which you can view 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

Additional product documentation is listed in the "Related Documentation" section.

Release notes are sometimes updated with new information about restrictions and bugs. See the following website for the most recent version of the *Cisco NX-OS Release 13.1(1) 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 |
|---|---|
| March 13, 2020 | 13.1(1i): In the Resolved Bugs section, added bug CSCvr98827. |
| September 20, 2019 | In the Usage Guidelines section, added the following bullet:<br>■ A 25G link that is using the IEEE-RS-FEC mode can communicate with a link that is using the CL16-RS-FEC mode. There will not be a FEC mismatch and the link will not be impacted. |
| September 11, 2019 | In the Supported Hardware section, for the N9K-C9348GC-FXP, N9K-C93108TC-FX, and N9K-C93180YC-FX switches, added the following note:<br>Note: Incoming FCOE packets are redirected by the supervisor module. The data plane-forwarded packets are dropped and are counted as forward drops instead of as supervisor module drops. |
| August 14, 2019 | 13.1(1i): In the Open Bugs section, added bugs CSCvp92269 and CSCvq43058. |

| Date | Description |
|---|---|
| July 31, 2019 | In the Compatibility Information section, added the following bullet:<br>■ On Cisco ACI platforms, 25G copper optics do not honor auto-negotiation, and therefore auto-negotiation on the peer device (ESX or standalone) must be disabled to bring up the links. |
| June 5, 2019 | In the Supported Hardware section, for the N9K-C9364C switch, removed the following erroneous sentence:<br>The last 16 of the QSFP28 ports are colored green to indicate that they support wire-rate MACsec encryption. |
| February 12, 2019 | In the Supported Hardware section, added APIC L2 and APIC M2. |
| February 6, 2019 | 13.1(1i): In the Known Behaviors section, added bug CSCvo22890. |
| January 30, 2019 | 13.1(1i): In the Open Bugs section, added bug CSCvn69340. |
| June 7, 2018 | 13.1(1i): In the Resolved Bugs section, added bug CSCvg35892. |
| May 4, 2018 | 13.1(1i): In the Open Bugs section, added bug CSCvg66700. |
| April 24, 2018 | 13.1(1i): In the Open Bugs section, added bug CSCvi57920. |
| March 5, 2018 | 13.1(1i): In the Resolved Bugs section, added bug CSCvg35224. |
| February 21, 2018 | In the New Hardware Features section, added the following feature:<br>The N9K-C1880LC-EX switch in ACI mode now supports 100G breakout. |
| February 15, 2018 | In the Supported Hardware section, removed N9K-C9516-FM-E2. This fabric module is not supported. |
| January 11, 2018 | In the Supported Hardware section, for the N9K-C9364C spine switch, added the following note:<br>A 930W-DC PSU (NXA-PDC-930W-PE or NXA-PDC-930W-PI) is supported in redundancy mode if 3.5W QSFP+ modules or passive QSFP cables are used and the system is used in 40C ambient temperature or less; for other optics or a higher ambient temperature, a 930W-DC PSU is supported only with 2 PSUs in non-redundancy mode. |
| January 9, 2018 | In the Usage Guidelines section, added the following guideline:<br>■ When using a 25G Mellanox cable that is connected to a Mellanox NIC, you can set the ACI leaf switch port to run at a speed of 25G or 10G. |
| January 3, 2018 | In the Supported Hardware section, added the following note for the N9K-C9364C switch:<br>Multipod is supported for N9K-C9364C. |
| December 22, 2017 | Release 13.1(1i) became available. |

Contents

# Contents

This document includes the following sections:

# 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 | N9K-C9504 | Cisco Nexus 9504 chassis with 4 I/O slots |
| Chassis | N9K-C9508 | Cisco Nexus 9508 chassis with 8 I/O 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-M12PQ | 12-port or 8-port |
| Pluggable module (GEM) | N9K-M6PQ | 6-port |
| Pluggable module (GEM) | N9K-M6PQ-E | 6-port, 40 Gigabit Ethernet expansion module |
| Server | APIC-L1 | Cisco APIC with large CPU, hard drive, and memory configurations (more than 1000 edge ports) |
| Server | APIC-L2 | Cisco APIC with large CPU, hard drive, and memory configurations (more than 1000 edge ports) |
| Server | APIC-M1 | Cisco APIC with medium-size CPU, hard drive, and memory configurations (up to 1000 edge ports) |
| Server | APIC-M2 | Cisco APIC with medium-size CPU, hard drive, and memory configurations (up to 1000 edge ports) |
| Spine switch | N9K-C9336PQ | Cisco Nexus 9336PQ switch, 36-port 40 Gigabit Ethernet QSFP |

| Hardware Type | Product ID | Description |
|---|---|---|
| Spine switch | N9K-C9364C | Cisco Nexus 9364C switch is a 2-rack unit (RU), fixed-port switch designed for spine-leaf-APIC deployment in data centers. This switch supports 64 40/100-Gigabit QSFP28 ports and two 1/10-Gigabit SFP+ ports.<br><br>The following PSUs are supported for N9K-C9364C:<br><br>■ NXA-PAC-1200W-PE<br>■ NXA-PAC-1200W-PI<br>■ N9K-PUV-1200W<br>■ NXA-PDC-930W-PE<br>■ NXA-PDC-930W-PI<br><br>Note: Multipod is supported for N9K-C9364C. Multipod and Cisco ACI Multi-Site together are currently not supported for N9K-C9364C.<br><br>A 930W-DC PSU (NXA-PDC-930W-PE or NXA-PDC-930W-PI) is supported in redundancy mode if 3.5W QSFP+ modules or passive QSFP cables are used and the system is used in 40C ambient temperature or less; for other optics or a higher ambient temperature, a 930W-DC PSU is supported only with 2 PSUs in non-redundancy mode. |
| 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 | N9K-C9516 | Cisco Nexus 9516 switch with 16 line card slots |
| Spine switch fan | N9K-C9300-FAN3 | Port side intake fan |
| Spine switch fan | N9K-C9300-FAN3-B | Port side exhaust fan |
| Spine switch module | N9K-C9504-FM | Cisco Nexus 9504 fabric module supporting 40 Gigabit line cards |
| Spine switch module | N9K-C9504-FM-E | Cisco Nexus 9504 fabric module supporting 100 Gigabit line cards |
| Spine switch module | N9K-C9508-FM | Cisco Nexus 9508 fabric module supporting 40 Gigabit line cards |

| Hardware Type | Product ID | Description |
|---|---|---|
| Spine switch module | N9K-C9508-FM-E | Cisco Nexus 9508 Fabric module supporting 100 Gigabit line cards |
| Spine switch module | N9K-C9508-FM-E2 | Cisco Nexus 9508 Fabric module supporting 100 Gigabit line cards |
| Spine switch module | N9K-X9732C-EX | Cisco Nexus 9500 32-port, 40/100 Gigabit Ethernet QSFP28 aggregation module |
| Spine switch module | N9K-X9736C-FX | Cisco Nexus 9500 36-port, 40/100 Gigabit Ethernet QSFP28 aggregation 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-A+ | Cisco Nexus 9500 Series supervisor module |
| Switch module | N9K-SUP-B | Cisco Nexus 9500 Series supervisor module |
| Switch module | N9K-SUP-B+ | Cisco Nexus 9500 Series supervisor module |
| Top-of-rack (ToR) leaf switch | N9K-C93108TC-EX | Cisco Nexus 9300 platform switch with 48 1/10GBASE-T (copper) front panel ports and 6 40/100-Gigabit QSFP28 spine facing ports. |
| Top-of-rack (ToR) leaf switch | N9K-C93108TC-FX | Cisco Nexus 9300 platform switch with 48 1/10GBASE-T (copper) front panel ports and 6 fixed 40/100-Gigabit Ethernet QSFP28 spine-facing ports.<br><br>Note: Incoming FCOE packets are redirected by the supervisor module. The data plane-forwarded packets are dropped and are counted as forward drops instead of as supervisor module drops. |
| Top-of-rack (ToR) leaf switch | N9K-C93120TX | Cisco Nexus 9300 platform switch with 96 1/10GBASE-T (copper) front panel ports and 6-port 40-Gigabit Ethernet QSFP spine-facing ports. |
| Top-of-rack (ToR) leaf switch | N9K-C93128TX | Cisco Nexus 9300 platform switch with 96 1/10GBASE-T (copper) front panel ports and 6 or 8 40-Gigabit Ethernet QSFP spine-facing ports. |

| Hardware Type | Product ID | Description |
|---|---|---|
| Top-of-rack (ToR) leaf switch | N9K-C93180LC-EX | Cisco Nexus 9300 platform switch with 24 40-Gigabit front panel ports and 6 40/100-Gigabit QSFP28 spine-facing ports.<br><br>The switch can be used either 24 40G ports or 12 100G ports. If 100G is connected the Port1, Port 2 will be HW disabled.<br><br>Note: This switch has the following limitations:<br><br>■ This release does not support 1 Gbps for QSA.<br><br>■ The top and bottom ports must use the same speed. If there is a speed mismatch, the top port takes precedence and bottom port will be error disabled. Both ports both must be used in either the 40 Gbps or 10 Gbps mode.<br><br>■ Ports 26 and 28 are hardware disabled.<br><br>■ This release supports 40 and 100 Gbps for the front panel ports. The uplink ports can be used at the 100 Gbps speed. |
| Top-of-rack (ToR) leaf switch | N9K-C93180YC-EX | Cisco Nexus 9300 platform switch with 48 1/10/25-Gigabit front panel ports and 6-port 40/100 Gigabit QSFP28 spine-facing ports |
| Top-of-rack (ToR) leaf switch | N9K-C93180YC-FX | Cisco Nexus 9300 platform switch with 48 1/10/25-Gigabit Ethernet SFP28 front panel ports and 6 fixed 40/100-Gigabit Ethernet QSFP28 spine-facing ports. The SFP28 ports support 1-, 10-, and 25-Gigabit Ethernet connections and 8-, 16-, and 32-Gigabit Fibre Channel connections.<br><br>Note: Incoming FCOE packets are redirected by the supervisor module. The data plane-forwarded packets are dropped and are counted as forward drops instead of as supervisor module drops. |
| Top-of-rack (ToR) leaf switch | N9K-C9332PQ | Cisco Nexus 9332PQ Top-of-rack (ToR) Layer 3 switch with 26 APIC-facing ports and 6 fixed-Gigabit spine facing ports. |

| Hardware Type | Product ID | Description |
|---|---|---|
| Top-of-rack (ToR) leaf switch | N9K-C9348GC-FXP | The Cisco Nexus 9348GC-FXP switch (N9K-C9348GC-FXP) is a 1-RU fixed-port, L2/L3 switch, designed for ACI deployments. This switch has 48 100/1000-Megabit 1GBASE-T downlink ports, 4 10-/25-Gigabit SFP28 downlink ports, and 2 40-/100-Gigabit QSFP28 uplink ports.<br><br>This switch supports the following PSUs:<br><br>■ NXA-PAC-350W-PI<br><br>■ NXA-PAC-350W-PE<br><br>Note: The fabric ports (53 and 54) do not support 1 Gigabit nor 10 Gigabit speeds.<br><br>Incoming FCOE packets are redirected by the supervisor module. The data plane-forwarded packets are dropped and are counted as forward drops instead of as supervisor module drops.<br><br>When a Cisco N9K-C9348GC-FXP switch has only one PSU inserted and connected, the PSU status for the empty PSU slot will be displayed as "shut" instead of "absent" due to a hardware limitation. |
| Top-of-rack (ToR) leaf switch | N9K-C9372PX | Cisco Nexus 9372PX Top-of-rack (ToR) Layer 3 switch with 48 Port 1/10-Gigabit APIC-facing ports Ethernet SFP+ front panel ports and 6 40-Gbps Ethernet QSFP+ spine-facing ports<br><br>Note: Only the downlink ports 1-16 and 33-48 are capable of supporting SFP1-10G-ZR SFP+. |
| Top-of-rack (ToR) leaf switch | N9K-C9372PX-E | Cisco Nexus 9372PX-E Top-of-rack (ToR) Layer 3 switch with 48 Port 1/10-Gigabit APIC-facing ports Ethernet SFP+ front panel ports and 6 40-Gbps Ethernet QSFP+ spine-facing ports<br><br>Note: Only the downlink ports 1-16 and 33-48 are capable of supporting SFP1-10G-ZR SFP+. |
| Top-of-rack (ToR) leaf switch | N9K-C9372TX | Cisco Nexus 9372TX Top-of-rack (ToR) Layer 3 switch with 48 1/10GBASE-T (copper) front panel ports and 6 40-Gbps Ethernet QSFP spine-facing ports |
| Top-of-rack (ToR) leaf switch | N9K-C9372TX-E | Cisco Nexus 9372TX-E Top-of-rack (ToR) Layer 3 switch with 48 10GBASE-T (copper) front panel ports and 6 40-Gbps Ethernet QSFP+ spine-facing ports |

| Hardware Type | Product ID | Description |
|---|---|---|
| Top-of-rack (ToR) leaf switch | N9K-C9396PX | Cisco Nexus 9300 platform switch with 48 1/10-Gigabit SFP+ front panel ports and 6 or 12 40-Gigabit Ethernet QSFP spine-facing ports |
| Top-of-rack (ToR) leaf switch | N9K-C9396TX | Cisco Nexus 9300 platform switch with 48 1/10GBASE-T (copper) front panel ports and 6 or 12 40-Gigabit Ethernet QSFP spine-facing ports |
| Top-of-rack (ToR) leaf switch fan | NXA-FAN-30CFM-B | Red port side intake fan |
| Top-of-rack (ToR) leaf switch fan | NXA-FAN-30CFM-F | Blue port side exhaust fan |
| Top-of-rack (ToR) leaf switch power supply unit | N9K-PAC-1200W | 1200W AC Power supply, port side intake pluggable<br>Note: This power supply is supported only by the Cisco Nexus 93120TX, 93128TX, and 9336PQ ACI-mode switches |
| Top-of-rack (ToR) leaf switch power supply unit | N9K-PAC-1200W-B | 1200W AC Power supply, port side exhaust pluggable<br>Note: This power supply is supported only by the Cisco Nexus 93120TX, 93128TX, and 9336PQ ACI-mode switches |
| 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-650W-B | 650W AC Power supply, port side exhaust pluggable |
| Top-of-rack (ToR) leaf switch power supply unit | N9K-PUV-1200W | 1200W HVAC/HVDC dual-direction airflow power supply<br>Note: This power supply is supported only by the Cisco Nexus 93120TX, 93128TX, and 9336PQ ACI-mode switches |
| Top-of-rack (ToR) leaf switch power supply unit | N9K-PUV-3000W-B | 3000W AC Power supply, port side exhaust pluggable |

| Hardware Type | Product ID | Description |
|---|---|---|
| Top-of-rack (ToR) leaf switch power supply unit | NXA-PAC-1200W-PE | 1200W AC Power supply, port side exhaust pluggable, with higher fan speeds for NEBS compliance<br><br>Note: This power supply is supported only by the Cisco Nexus 93120TX, 93128TX, and 9336PQ ACI-mode switches. |
| Top-of-rack (ToR) leaf switch power supply unit | NXA-PAC-1200W-PI | 1200W AC Power supply, port side intake pluggable, with higher fan speeds for NEBS compliance<br><br>Note: This power supply is supported only by the Cisco Nexus 93120TX, 93128TX, and 9336PQ ACI-mode switches. |
| Top-of-rack (ToR) leaf switch power supply unit | UCSC-PSU-930WDC V01 | Port side exhaust DC power supply compatible with all ToR leaf switches |
| Top-of-rack (ToR) leaf switch power supply unit | UCS-PSU-6332-DC | 930W DC power supply, reversed airflow (port side exhaust) |

# Supported FEX Models

For tables of the FEX models that the Cisco Nexus 9000 Series ACI Mode switches support, see the following webpage:

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus9000/hw/interoperability/fexmatrix/fextables.html

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

# New and Changed Information

This section lists the new and changed features in this release.

- New Hardware Features
- New Software Features

## New Hardware Features

The following hardware features are now available:

- QSFP-40/100-SRBD - Dual rate 40G/100G QSFP bi-directional transceiver module, duplex multi-mode Fiber, LC Duplex connector, up to 70m reach on OM3 fiber and 100m reach on OM4 fiber at 100G.
- The Cisco Nexus 93180LC-EX switch now supports the breakout feature for the odd-numbered downlink ports, numbered 1 to 23. When any of these ports use the breakout feature, the even-numbered port below that port is hardware disabled.
- The N9K-C1880LC-EX switch in ACI mode now supports 100G breakout. Before configuring a 100G port, connect it using a Cisco QSFP-4SFP25G-CuxM cable to four 25G SFP ports of a Cisco switch or server on the other end. The breakout feature is not supported on ports with port profiles or fast link failure profiles. For more information, see the "Dynamic Breakout Ports" section in the *Cisco APIC Layer 2 Networking Configuration Guide*.

## New Software Features

For new software features, see the *Cisco APIC 13.1(1) 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

- This release supports the hardware and software listed on the ACI Ecosystem Compatibility List, and supports the Cisco AVS, Release 5.2(1)SV3(3.10).
- Link level flow control is not supported on ACI-mode switches.
- 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 10G ports on all other ACI leaf switches

  Note: A fabric uplink port cannot be used as a FEX fabric port.

- 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.
- We do not qualify third party optics in Cisco ACI. When using third party optics, the behavior across releases is not guaranteed, meaning that the optics might not work in some NX-OS releases. Use third party optics at your own risk. We recommend that you use Cisco SFPs, which have been fully tested in each release to ensure consistent behavior.
- On Cisco ACI platforms, 25G copper optics do not honor auto-negotiation, and therefore auto-negotiation on the peer device (ESX or standalone) must be disabled to bring up the links.

# 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: 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 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
- Leaf and spine switches from two different fabrics cannot be connected regardless of whether the links are administratively kept down.
- Only one instance of OSPF (or any multi-instance process using the managed object hierarchy for configurations) can have the write access to operate the database. Due to this, the operational database is limited to the default OSPF process alone and the multipodInternal instance does not store any operational data. To debug an OSPF instance ospf-multipodInternal, use the command in VSH prompt. Do not use ibash because some ibash commands depend on Operational data stored in the database.

- When you enable or disable Federal Information Processing Standards (FIPS) on a Cisco ACI fabric, you must reload each of the switches in the fabric for the change to take effect. The configured scale profile setting is lost when you issue the first reload after changing the FIPS configuration. The switch remains operational, but it uses the default port scale profile. This issue does not happen on subsequent reloads if the FIPS configuration has not changed.

  FIPS is supported on Cisco NX-OS release 13.1(1) or later. If you must downgrade the firmware from a release that supports FIPS to a release that does not support FIPS, you must first disable FIPS on the Cisco ACI fabric and reload all of the switches in the fabric.

- Link-level flow control is not supported on leaf switches that are running in ACI mode.

- The dual rate BiDirectional (BiDi) transceiver QSFP-40/100-SRBD requires approximately 5 minutes for the link to come up after auto-negotiating the speed on both the local and remote end.

  - If both ends support the 40/100 combination, the link comes up quickly as 100G.

  - If one end is 40G and other end supports 40/100, then the link takes longer to negotiate to 40G.

- You cannot use the breakout feature on a port that has a port profile configured on a Cisco N9K-C93180LC-EX switch. With a port profile on an access port, the port is converted to an uplink, and breakout is not supported on an uplink. With a port profile on a fabric port, the port is converted to a downlink. Breakout is currently supported only on ports 1 through 24.

- On Cisco 93180LC-EX Switches, ports 25 and 27 are the native uplink ports. Using a port profile, if you convert ports 25 and 27 to downlink ports, ports 29, 30, 31, and 32 are still available as four native uplink ports. Because of the threshold on the number of ports (which is maximum of 12 ports) that can be converted, you can convert 8 more downlink ports to uplink ports. For example, ports 1, 3, 5, 7, 9, 13, 15, 17 are converted to uplink ports and ports 29, 30, 31 and 32 are the 4 native uplink ports, which is the maximum uplink port limit on Cisco 93180LC-EX switches.

  When the switch is in this state and if the port profile configuration is deleted on ports 25 and 27, ports 25 and 27 are converted back to uplink ports, but there are already 12 uplink ports on the switch in the example. To accommodate ports 25 and 27 as uplink ports, 2 random ports from the port range 1, 3, 5, 7, 9, 13, 15, 17 are denied the uplink conversion; the chosen ports cannot be controlled by the user. Therefore, it is mandatory to clear all the faults before reloading the leaf node to avoid any unexpected behavior regarding the port type. If a node is reloaded without clearing the port profile faults, especially when there is a fault related to limit-exceed, the ports might be in an unexpected mode.

- When using a 25G Mellanox cable that is connected to a Mellanox NIC, you can set the ACI leaf switch port to run at a speed of 25G or 10G.

- A 25G link that is using the IEEE-RS-FEC mode can communicate with a link that is using the CL16-RS-FEC mode. There will not be a FEC mismatch and the link will not be impacted.

# Bugs

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

## Known Limitations

The following list describes IpEpg (IpCkt) known limitations in this release:

- An IP/MAC Ckt endpoint configuration is not supported in combination with static endpoint configurations.
- An IP/MAC Ckt endpoint configuration is not supported with Layer 2-only bridge domains. Such a configuration will not be blocked, but the configuration will not take effect as there is no Layer 3 learning in these bridge domains.
- An IP/MAC Ckt endpoint configuration is not supported with external and infra bridge domains because there is no Layer 3 learning in these bridge domains.
- An IP/MAC Ckt endpoint configuration is not supported with a shared services provider configuration. The same or overlapping prefix cannot be used for a shared services provider and IP Ckt endpoint. However, this configuration can be applied in bridge domains having shared services consumer endpoint groups.
- An IP/MAC Ckt endpoint configuration is not supported with dynamic endpoint groups. Only static endpoint groups are supported.
- No fault will be raised if the IP/MAC Ckt endpoint prefix configured is outside of the bridge domain subnet range. This is because a user can configure bridge domain subnet and IP/MAC Ckt endpoint in any order and so this is not error condition. If the final configuration is such that a configured IP/MAC Ckt endpoint prefix is outside all bridge domain subnets, the configuration has no impact and is not an error condition.
- Dynamic deployment of contracts based on instrImmedcy set to onDemand/lazy not supported; only immediate mode is supported.

The following list describes direct server return (DSR) known limitations in this release:

- When a server and load balancer are on the same endpoint group, make sure that the Server does not generate ARP/GARP/ND request/response/solicits. This will lead to learning of LB virtual IP (VIP) towards the Server and defeat the purpose of DSR support
- Load balancers and servers must be Layer 2 adjacent. Layer 3 direct server return is not supported. If a load balancer and servers are Layer 3 adjacent, then they have to be placed behind the Layer 3 out, which works without a specific direct server return virtual IP address configuration.
- Direct server return is not supported for shared services. Direct server return endpoints cannot be spread around different virtual routing and forwarding (VRF) contexts.
- Configurations for a virtual IP address can only be /32 or /128 prefix.
- Client to virtual IP address (load balancer) traffic always will go through proxy-spine because fabric data-path learning of a virtual IP address does not occur.
- GARP learning of a virtual IP address must be explicitly enabled. A load balancer can send GARP when it switches over from active-to-standby (MAC changes).
- Learning through GARP will work only in ARP Flood Mode.

## Open Bugs

This section lists the open This section lists the open bugs. Click the bug ID to access the Bug Search tool and see additional information about the bug. The "Exists In" column of the table specifies the 13.1(1) releases in which the bug exists. A bug might also exist in releases other than the 13.1(1) releases.

Table 3 Open Bugs in This Release

| Bug ID | Description | Exists In |
|---|---|---|
| CSCve06334 | MAC and IP endpoints are not learned on the local vPC pair. | 13.1(1i) and later |
| CSCvf09313 | In the 12.2(2i) release, the BPDU filter only prevents interfaces from sending BPDUs, but does not prevent interfaces from receiving BPDUs. | 13.1(1i) and later |
| CSCvg23174 | When using FEX model C2248PQ-10GEif you have a port channel that contains a host port in the range of 1/1 to 24 and another host port in the range of 1/24 to 48, the FEX might drop packets due to claiming that it has an incorrect vntag header when it tries to load balance. | 13.1(1i) and later |
| CSCvg66700 | Communication through a shared L3Out is broken when an additional external network is added to the shared L3Out. This occurs because the prefix list that controls redistribution of the bridge domain static route into EIGRP is deleted. | 13.1(1i) and later |
| CSCvg71525 | Traffic is dropped to 3 out of 64,000 endpoints that are learned on a leaf switch that is configured with a high-dual-stack profile. | 13.1(1i) and later |
| CSCvg72327 | Traffic loss is seen when there is unidirectional traffic from an AVS VM and there is a detach/attach operation done at the same time. | 13.1(1i) and later |
| CSCvg73592 | Endpoint (EP) moves will be seen when a host is connected by an orphan port to a Cisco APIC leaf switch that has a vPC domain configuration. This generates a critical fault. | 13.1(1i) and later |
| CSCvg76793 | When a VM behind a DVS is used as an IP-based EPG (with the IP attribute), a policy-based redirect policy to redirect the traffic from the VM to a service node, such as a firewall, does not work. | 13.1(1i) and later |
| CSCvg85886 | When an ARP request is generated from one endpoint to another endpoint in an isolated EPG, an ARP glean request is generated for the first endpoint. | 13.1(1i) and later |
| CSCvg86136 | A fault is raised for a bridge domain, which states that the operational state is down. | 13.1(1i) and later |
| CSCvg87335 | Traffic loss is seen for approximately 22 to 24 seconds after reloading a remote leaf switch. | 13.1(1i) and later |
| CSCvg97944 | The front panel ports do not go down when the sub-interface is shut down in inter-pod network (IPN). | 13.1(1i) and later |
| CSCvg98431 | While sending ping between 2 endpoints from a local leaf switch to a remote leaf switch, IPv6 XR gets learned on the remote leaf switch. IPv4 XR does not get learned. Remote leaf switches do not support vPC orphan ports. | 13.1(1i) and later |
| CSCvh03722 | While doing decommission and recommission, the Spanning Tree Protocol (STP) enters the blocking state for an SVI vPC pair interface on a remote leaf switch. | 13.1(1i) and later |
| CSCvh05960 | When a vPC node goes down, multicast traffic loss is observed for 189ms. ACL create/delete operations are not batched, which take time to complete and affects convergence. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCvh11299 | In COOP, the MAC IP address route has the wrong VNID, and endpoints are missing from the IP address DB of COOP. | 13.1(1i) and later |
| CSCvh11828 | A spine switch does not join the fabric after a policy upgrade. The fabric discovery status is inactive. | 13.1(1i) and later |
| CSCvh14815 | BGP EVPN has the tenant endpoint information, while COOP does not have the endpoint. | 13.1(1i) and later |
| CSCvh16226 | A standby Supervisor Engine is left on the loader prompt, which can be loaded by the boot <image> command. | 13.1(1i) and later |
| CSCvh16915 | Cisco S-class modules for a bridge domain VLAN are incorrectly programmed on a TOR switch after the bridge domain is deleted and added, and traffic gets dropped due to the default deny rule. | 13.1(1i) and later |
| CSCvh17221 | 8 to 10 seconds of traffic loss is seen after reloading one of the top-of-rack switches in vPC pair. | 13.1(1i) and later |
| CSCvh17285 | When the global enforce subnet check option is enabled, the Cisco APIC will not learn MAC addresses from ARP packets arriving on Layer 2-only bridge domains, such as bridge domains that have routing disabled. | 13.1(1i) and later |
| CSCvh18100 | If Cisco ACI Virtual Edge or AVS is operating in VxLAN non-switching mode behind a FEX, the traffic across the intra-EPG endpoints will fail when the bridge domain has ARP flooding enabled. | 13.1(1i) and later |
| CSCvh18399 | In extremely rare circumstances, the maximum number of supported endpoint nexthops might be exhausted, resulting in hardware programming failures for endpoints learned after the endpoint nexthop limit was reached. | 13.1(1i) and later |
| CSCvh25099 | Unidirectional traffic from an on-premise leaf switch to a remote leaf switch going through a Cisco Nexus 93128TX, 9396PX, or 9396TX transit TOR switch will get dropped on the remote leaf switch in the ingress direction because of the "security group deny" error. | 13.1(1i) and later |
| CSCvi57920 | A UCS 1225 vNIC goes down after changing the peer Cisco ACI leaf node name. | 13.1(1i) and later |
| CSCvj50973 | When the MTU settings for OSPF neighboring router interfaces do not match, the routers will be stuck in the Exstart/Exchange state. This behavior is expected. This bug is an enhancement to raise a fault to the APIC so that the routers' stuck state can be easily detected by the administrator. | 13.1(1i) and later |
| CSCvn69340 | The BFD session does not get instantiated under some circumstances in one of the VPC legs for static routes. | 13.1(1i) and later |
| CSCvp50075 | A leaf switch experiences an unexpected reload due to a HAP reset. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCvp92269 | Running a Qualys security scan results in the following message:<br><br>CWE - 693 Protection Mechanism Failure -<br><br>"HTTP Security Header Not Detected" | 13.1(1i) and later |
| CSCvq25729 | Traffic is dropped when it is destined to a pervasive route and when the endpoint is not learned. This issue can be also seen on a border leaf switch when "disable remote EP learning" is set. | 13.1(1i) and later |
| CSCvq43058 | A spine switch fabric module or line card is reloaded unexpectedly due to a kernel panic. The stack trace includes the following statement:<br><br>Kernel panic - not syncing: Out of memory: system-wide panic_on_oom is enabled | 13.1(1i) and later |
| CSCvr98827 | Some of the control plane packets are incorrectly classified as the user class and are reported as dropped in single chip spine switches. The statistics are incorrect because the packets are not actually dropped. | 13.1(1i) and later |
| CSCvs18150 | After a certain set of steps, it is observed that the deny-external-tag route-map used for transit routing loop prevention gets set back to the default tag 4294967295. Since routes arriving in Cisco ACI with this tag are denied from being installed in the routing table, if the VRF table that has the route-tag policy is providing transit for another VRF table in Cisco ACI (for instance and inside and outside VRF with a firewall connecting them) and the non-transit VRF table has the default route-tag policy, routes from the non-transit VRF table would not be installed in the transit VRF table.<br><br>This bug is also particularly impactful in scenarios where transit routing is being used and OSPF or EIGRP is used on a vPC border leaf switch pair. vPC border leaf switches peer with each other, so if member A gets a transit route from BGP, redistributes into OSPF, and then advertises to member B (since they are peers)...without a loop prevention mechanism, member B would install the route through OSPF since it has a better admin distance and would then advertise back into BGP. This VRF tag is set on redistribution of BGP > OSPF and then as a table map in OSPF that blocks routes with the tag from getting installed in the routing table. When hitting this bug, the route-map used for redistributing into OSPF still sets the tag to the correct value. However, the table map no longer matches the correct tag. Rather, it matches the default tag. As a result, member A (could be B) would install the route through OSPF pointing to B. It would then redistribute it back into BGP with the med set to 1. The rest of the fabric (including member B) would install the BGP route pointing to member A since its med is better than the original route's med. | 13.1(1i) and later |
| CSCvs76848 | A switch SSD fails in less than two years and needs replacement. The /mnt/pss/ssd_log_amp.log file shows daily P/E cycles increasing by 10 or more each day, and fault "F3525: High SSD usage" is observed. Check the switch activity and contact Cisco Technical Support if the "Hi<br><br>gh SSD usage" fault is raised on the switch. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCvt82388 | A switch SSD fails in less than two years and needs replacement. The /mnt/pss/ssd_log_amp.log file shows daily P/E cycles increasing by 10 or more each day, and fault "F3525: High SSD usage" is observed. ARP/ICMPv6 adjacency updates can also contribute to many SSD writes. | 13.1(1i) and later |
| CSCvu01639 | There are faults for failed contract rules and prefixes on switches prior to the -EX switches. Furthermore, traffic that is destined to an L3Out gets dropped because the compute leaf switches do not have the external prefix programmed in ns shim GST-TCAM. You might also see that leaf switches prior to the -EX switches do not have all contracts programmed correctly in the hardware. | 13.1(1i) and later |

## Resolved Bugs

This section lists the resolved bugs. Click the bug ID to access the Bug Search tool and see additional information about the bug. The "Fixed In" column of the table specifies whether the bug was resolved in the base release or a patch release.

Table 4 Resolved Bugs in This Release

| Bug ID | Description | Fixed In |
|---|---|---|
| CSCvf14458 | Maintenance mode is not supported on border leaf nodes with vPC. | 13.1(1i) |
| CSCvf19125 | After configuring virtual IP addresses, changing the VRF mode to EGRESS causes a fault to be raised. This is expected. If you instead delete the virtual IP addresses, all the virtual IP addresses get deleted in the Policy Manager in the Cisco APIC. However, in the leaf switch, only the last virtual IP address gets deleted. This issue is seen if there is more than one virtual IP address. | 13.1(1i) |
| CSCvf27669 | 1 gigabit Fibre Channel links might not appear on (uplink) ports 49-52 on a Cisco Nexus N9K-C9348GC-FXP switch. | 13.1(1i) |
| CSCvf29335 | On reload of all spines, for switches connected to the vPC, some of these interfaces go to vpc-no-response-from-peer state. | 13.1(1i) |
| CSCvf59533 | When static route is added over the Layer 3 Out physical interface, it might not appear in the in HAL layer on the leaf switch, although the route is present in NX-OS components, which are IPMGR and URIB. | 13.1(1i) |
| CSCvg11665 | If a /32 static route EP is configured behind a pervasive Next Hop, and the Next Hop is removed, there might be a proxy entry for the route. | 13.1(1i) |

| Bug ID | Description | Fixed In |
|---|---|---|
| CSCvg35224 | While both top and bottom ports are up, if some down event occurs on the bottom port and the bottom port has a copper SFP (admin down or otherwise), the corresponding top port will also go down with it. It will show as the "link down not-connected" behavior for the top port:<br><br>Ethernet1/15 is down (notconnect)<br>admin state is up, Dedicated Interface<br><br>This occurs even though the QSFP is still inserted and was otherwise previously up and functional. | 13.1(1i) |
| CSCvg35892 | There is a delay in internal process communication of over a minute due to a timeout (timeout period is 60 seconds). This can manifest itself in different ways. In one way, the Policy Element sent a delete/create request for a VLAN to the VLAN manager, but the VLAN manager did not process the request until the initial request timed out. This resulted in an outage that lasted a little over a minute while changing a BD from Unknown Unicast Flood to Hardware Proxy. | 13.1(1i) |

## Known Behaviors

This section lists bugs that describe known behaviors. Click the Bug ID to access the Bug Search Tool and see additional information about the bug. The "Exists In" column of the table specifies the 13.1(1) releases in which the known behavior exists. A bug might also exist in releases other than the 13.1(1) releases.

Table 5 Known Behaviors in This Release

| Bug ID | Description | Exists In |
|---|---|---|
| CSCuo37016 | 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. | 13.1(1i) and later |
| CSCuo50533 | 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. | 13.1(1i) and later |
| CSCup65586 | The show interface command shows the tunnel's Rx/Tx counters as 0. | 13.1(1i) and later |
| 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. | 13.1(1i) and later |
| CSCup92534 | Continuous “threshold exceeded” messages are generated from the fabric. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCuq39829 | Switch rescue user ("admin") can log into fabric switches even when TACACS is selected as the default login realm. | 13.1(1i) and later |
| CSCuq46369 | An extra 4 bytes is added to the untagged packet with Egress local and remote SPAN. | 13.1(1i) and later |
| 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. | 13.1(1i) and later |
| CSCuq83910 | When an IP address 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. | 13.1(1i) and later |
| 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. | 13.1(1i) and later |
| CSCuq93389 | If an endpoint has multiple IPs, the endpoint will not be aged until all IPs go silent. If one of the IP addresses is reassigned to another server/host, the fabric detects it as an IP address move and forwarding will work as expected. | 13.1(1i) and later |
| CSCur01336 | The power supply will not be detected after performing a PSU online insertion and removal (OIR). | 13.1(1i) and later |
| CSCur81822 | The access-port operational status is always “trunk”. | 13.1(1i) and later |
| 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. | 13.1(1i) and later |
| CSCus29623 | The transceiver type for some Cisco AOC (active optical) cables is displayed as ACU (active copper). | 13.1(1i) and later |
| 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.<br><br>Workaround: Review the leaf switch scale and reduce the TCAM usage. Contact TAC to isolate further which TCAM is full. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| 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. | 13.1(1i) and later |
| CSCus61748 | If the TOR 1RU system is configured with the RED fan (the reverse airflow), the air will flow from front to back. 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.<br><br>If the TOR 1RU system is configured with the BLUE fan (normal airflow), the air will flow from back to front. 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.<br><br>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 and configuration, which causes the inlet temperature sensor reading to be very close, equal, or even greater than the outlet temperature reading. | 13.1(1i) and later |
| CSCut59020 | If Backbone and NSSA areas are on the same leaf, and default route leak is enabled, Type-5 LSAs cannot be redistributed to the Backbone area. | 13.1(1i) and later |
| 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. | 13.1(1i) and later |
| CSCuu11351 | Traffic from the orphan port to the vPC pair is only updated on the destination node, so the traffic count shows as excess. | 13.1(1i) and later |
| CSCuu66310 | If a bridge domain "Multi Destination Flood" mode is configured as "Drop", the ISIS PDU from the tenant space will get dropped in the fabric. | 13.1(1i) and later |
| CSCuv57302 | Atomic counters on the border leaf do not increment for traffic from an endpoint group going to the Layer 3 out interface. | 13.1(1i) and later |
| CSCuv57315 | Atomic counters on the border leaf do not increment for traffic from the Layer 3 out interface to an internal remote endpoint group. | 13.1(1i) and later |
| CSCuv57316 | TEP counters from the border leaf to remote leaf nodes do not increment. | 13.1(1i) and later |
| CSCuw09389 | For direct server return operations, if the client is behind the Layer 3 out, the server-to-client response will not be forwarded through the fabric. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCux97329 | With the common pervasive gateway, only the packet destination to the virtual MAC is being properly Layer 3 forwarded. The packet destination to the bridge domain custom MAC fails to be forwarded. This is causing issues with certain appliances that rely on the incoming packets' source MAC to set the return packet destination MAC. | 13.1(1i) and later |
| CSCuy00084 | BCM does not have a stats option for yellow packets/bytes, and so BCM does not show in the switch or APIC GUI stats/observer. | 13.1(1i) and later |
| CSCuy02543 | Bidirectional Forwarding Detection (BFD) echo mode is not supported on IPv6 BFD sessions carrying link-local as the source and destination IP address. BFD echo mode also is not supported on IPv4 BFD sessions over multihop or VPC peer links. | 13.1(1i) and later |
| CSCuy06749 | Traffic is dropped between two isolated EPGs. | 13.1(1i) and later |
| CSCuy22288 | The iping command's replies get dropped by the QOS ingress policer. | 13.1(1i) and later |
| CSCuy25780 | An overlapping or duplicate prefix/subnet could cause the valid prefixes not to be installed because of batching behavior on a switch. This can happen during an upgrade to the 1.2(2) release. | 13.1(1i) and later |
| CSCuy47634 | EPG statistics only count total bytes and packets. The breakdown of statistics into multicast/unicast/broadcast is not available on new hardware. | 13.1(1i) and later |
| CSCuy56975 | You must configure different router MACs for SVI on each border leaf if L3out is deployed over port-channels/ports with STP and OSPF/OSPFv3/eBGP protocols are used. There is no need to configure different router MACs if you use VPC. | 13.1(1i) and later |
| CSCuy61018 | The default minimum bandwidth is used if the BW parameter is set to "0", and so traffic will still flow. | 13.1(1i) and later |
| CSCuy96912 | The debounce timer is not supported on 25G links. | 13.1(1i) and later |
| CSCuz12913 | An ACI leaf switch sends ARP to a device (such as a router or host) that belongs to directly connected subnets for an L3Out. After ARP is resolved, devices in directly connected subnets on two different L3Outs can talk each other without any contracts. | 13.1(1i) and later |
| CSCuz13529 | With the N9K-C93180YC-EX switch, drop packets, such as MTU or storm control drops, are not accounted for in the input rate calculation. | 13.1(1i) and later |

| Bug ID | Description | Exists In |
|---|---|---|
| CSCuz13614 | For traffic coming out of an L3out to an internal EPG, stats for the actrlRule will not increment. | 13.1(1i) and later |
| CSCuz13810 | When subnet check is enabled, a ToR does not learn IP addresses locally that are outside of the bridge domain subnets. However, the packet itself is not dropped and will be forwarded to the fabric. This will result in such IP addresses getting learned as remote endpoints on other ToRs. | 13.1(1i) and later |
| CSCuz47058 | SAN boot over a virtual Port Channel or traditional Port Channel does not work. | 13.1(1i) and later |
| CSCuz65221 | A policy-based redirect (PBR) policy to redirect IP traffic also redirects IPv6 neighbor solicitation and neighbor advertisement packets. | 13.1(1i) and later |
| CSCva98767 | The front port of the QSA and GLC-T 1G module has a 10 to 15-second delay as it comes up from the insertion process. | 13.1(1i) and later |
| CSCvb36823 | If you have only one spine switch that is part of the infra WAN and you reload that switch, there can be drops in traffic. You should deploy the infra WAN on more than one spine switch to avoid this issue. | 13.1(1i) and later |
| CSCvb39965 | Slow drain is not supported on FEX Host Interface (HIF) ports. | 13.1(1i) and later |
| CSCvb49451 | In the case of endpoints in two different TOR pairs across a spine switch that are trying to communicate, an endpoint does not get relearned after being deleted on the local TOR pair. However, the endpoint still has its entries on the remote TOR pair. | 13.1(1i) and later |
| CSCvd11146 | Bridge domain subnet routes advertised out of the Cisco ACI fabric through an OSPF L3Out can be relearned in another node belonging to another OSPF L3Out on a different area. | 13.1(1i) and later |
| CSCvd63567 | After upgrading a switch, Layer 2 multicast traffic flowing across PODs gets affected for some of the bridge domain Global IP Outsides. | 13.1(1i) and later |
| CSCvo22890 | There is intermittent packet loss for some flows through FX2 leaf switches when the no-drop class is enabled. | 13.1(1i) and later |

- IPN should preserve the CoS and DSCP values of a packet that enters IPN from the ACI spine switches. If there is a default policy on these nodes that change the CoS value based on the DSCP value or by any other mechanism, you must apply a policy to prevent the CoS value from being changed. At the minimum, the remarked CoS value should not be 4, 5, 6 or 7. If CoS is changed in the IPN, you must configure a multipod QoS

policy in the ACI for the multipod that translates queuing class information of the packet into the DSCP value in the outer header of the iVXLAN packet.

- 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.
- 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 outsides (External Bridged Network) in a given bridge domain is not supported. Only one EPG or Layer 2 outside for a given bridge domain 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 bridge domain. This knob can be set to "Optimized Flood" only for a maximum of 50 bridge domains per leaf.

  If "Optimized Flood" is enabled for more than the supported number of bridge domains on a leaf, follow these configuration steps to recover:
  - Set "unknown multicast flooding" to "Flood" for all bridge domains mapped to a leaf.
  - Set "unknown multicast flooding" to "Optimized Flood" on needed bridge domains.
- Traffic destined to Static Route EP VIPs sourced from N9000 switches (switches with names that end in -EX) might not function properly because proxy route is not programmed.

- An iVXLAN header of 50 bytes is added for traffic ingressing into the fabric. A bandwidth allowance of (50/50 + ingress_packet_size) needs to be made to prevent oversubscription from happening. If the allowance is not made, oversubscription might happen resulting in buffer drops.

# 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