Cisco Nexus 9000 Series NX-OS Release Notes, Release 7.0(3)I7(1)

This document describes the features, caveats, and limitations of Cisco NX-OS Release 7.0(3)I7(1) software for use on the following switches:

- Cisco Nexus 9000 Series
- Cisco Nexus 31128PQ
- Cisco Nexus 3164Q
- Cisco Nexus 3232C
- Cisco Nexus 3264Q

Use this document with documents listed in Related Documentation.

Table 1 shows the online change history of this document.

**Table 1 Online History Change**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2, 2019</td>
<td>Updated the <a href="#">Upgrade Instructions</a> regarding BGP EVPN to OSPF.</td>
</tr>
<tr>
<td>September 13, 2018</td>
<td>Updated the <a href="#">Upgrade Instructions</a> regarding upgrades from Release 7.0(3)I2(2b).</td>
</tr>
<tr>
<td>August 1, 2018</td>
<td>Updated Transceiver Matrix link.</td>
</tr>
<tr>
<td>July 25, 2018</td>
<td>Added CSCuy08187 to <a href="#">Open Caveats</a>.</td>
</tr>
<tr>
<td>July 23, 2018</td>
<td>Added TACACS issue to the <a href="#">Upgrade Instructions</a>.</td>
</tr>
<tr>
<td>June 15, 2017</td>
<td>CSCvg31939 added to the <a href="#">Open Caveats</a>.</td>
</tr>
<tr>
<td>May 9, 2018</td>
<td>Updated <a href="#">Limitations</a> for auto-negotiation.</td>
</tr>
<tr>
<td>April 25, 2018</td>
<td>Updated <a href="#">Limitations</a> for 9364C switches.</td>
</tr>
<tr>
<td>April 20, 2018</td>
<td>Updated FEX Unsupported Features.</td>
</tr>
<tr>
<td>March 22, 2018</td>
<td>Removed Static MPLS from Label Switching Features.</td>
</tr>
<tr>
<td>February 13, 2018</td>
<td>Updated <a href="#">Limitations</a> for Microsoft NLB.</td>
</tr>
<tr>
<td>February 5, 2018</td>
<td>Updated <a href="#">Limitations</a> for multicast heavy template.</td>
</tr>
<tr>
<td>January 31, 2018</td>
<td>Updated <a href="#">Limitations</a> for IPv6 Multicast.</td>
</tr>
</tbody>
</table>
Cisco Nexus 9000 Series NX-OS Release Notes, Release 7.0(3)I7(1)

Introduction

<table>
<thead>
<tr>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>December 18, 2017</td>
<td>Moved iCAM to its own section in the New Software Features.</td>
</tr>
<tr>
<td>December 17, 2017</td>
<td>Updated iCAM description in the New Software Features.</td>
</tr>
<tr>
<td>December 12, 2017</td>
<td>Added upgrade instruction for EVPN VXLAN to Upgrade Instructions.</td>
</tr>
<tr>
<td>November 16, 2017</td>
<td>Added Pervasive Load Balancing to the New Software Features - VXLAN Features.</td>
</tr>
<tr>
<td>October 25, 2017</td>
<td>Updated the ISSU list in the Upgrade Instructions.</td>
</tr>
<tr>
<td>October 23, 2017</td>
<td>Updated the ISSU list in the Upgrade Instructions.</td>
</tr>
<tr>
<td>October 2, 2017</td>
<td>Added upgrade issue for switches running vPC and connected to an IOS-based switch in Upgrade Instructions.</td>
</tr>
<tr>
<td>September 28, 2017</td>
<td>Added VSH terminal session issue to the Limitations section.</td>
</tr>
<tr>
<td>September 26, 2017</td>
<td>Added CSCvg05807 to Open Caveats.</td>
</tr>
<tr>
<td>September 25, 2017</td>
<td>Added REST API issue to the Limitations section.</td>
</tr>
<tr>
<td>September 18, 2017</td>
<td>Added default interface command error to Limitations.</td>
</tr>
<tr>
<td>September 7, 2017</td>
<td>Removed “50 Gb on the first 28 ports of the 93180LC-EX line card is not supported” from the Limitations section.</td>
</tr>
<tr>
<td>September 6, 2017</td>
<td>Added a link to the Cisco NX-OS ISSU Support application in the Upgrade Instructions.</td>
</tr>
<tr>
<td>September 5, 2017</td>
<td>Added iCAM feature to New Software Features in Cisco NX-OS Release 7.0(3)I7(1).</td>
</tr>
<tr>
<td>September 4, 2017</td>
<td>Updated the instructions for upgrading from Cisco NX-OS Releases 7.0(3)I1(2), 7.0(3)I1(3), or 7.0(3)I1(3a).</td>
</tr>
<tr>
<td>August 31, 2017</td>
<td>Created the release notes for Release 7.0(3)I7(1).</td>
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<td>12</td>
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</tbody>
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Introduction

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

System Requirements

This section includes the following sections:

- Supported Device Hardware
- Supported Optics
- Supported FEX Modules

Supported Device Hardware

The following tables list the Cisco Nexus 9000 Series hardware that Cisco NX-OS Release 7.0(3)I7(1) supports. For additional information about the supported hardware, see the Hardware Installation Guide for your Cisco Nexus 9000 Series device.

- Table 2 lists the Cisco Nexus 9000 Series fabric modules
- Table 3 lists the Cisco Nexus 9000 Series fans and fan trays
- Table 4 lists the Cisco Nexus 9500 Series line cards
- Table 5 lists the Cisco Nexus 9000 Series power supplies
- Table 6 lists the Cisco Nexus 9500 Series supervisor modules
- Table 7 lists the Cisco Nexus 9000 Series switches
- Table 8 lists the Cisco Nexus 9000 Series uplink modules
- Table 9 lists the Cisco Nexus 9500 Series System Controller
- Table 10 lists the 3232C and 3264Q switch hardware
- Table 11 lists the Cisco Nexus 3164Q switch hardware
- Table 12 lists the Cisco Nexus 31128PQ switch hardware

<table>
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<tr>
<th>Table 2 Cisco Nexus 9000 Series Fabric Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product ID</td>
</tr>
<tr>
<td>N9K-C9504-FM</td>
</tr>
</tbody>
</table>
### System Requirements

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-C9504-FM-E</td>
<td>100-Gigabit - E fabric module (for the Cisco Nexus 9504 chassis) that supports the 100-Gigabit (-EX) line cards. When used, there must be 4 of these fabric modules installed in fabric slots 22, 23, 24, and 26.</td>
<td>4</td>
</tr>
<tr>
<td>N9K-C9504-FM-S</td>
<td>100-Gb - S fabric module (for the Cisco Nexus 9504 chassis) that supports the 100-Gigabit (-S) line cards. When used, there must be 4 of these fabric modules installed in fabric slots 22, 23, 24, and 26.</td>
<td>4</td>
</tr>
<tr>
<td>N9K-C9508-FM</td>
<td>Cisco Nexus 9508 Series 40-Gigabit fabric module</td>
<td>3-6</td>
</tr>
<tr>
<td>N9K-C9508-FM-E</td>
<td>100-Gigabit - E fabric module (for the Cisco Nexus 9508 chassis) that supports the 100-Gigabit (-EX) line cards. When used, there must be 4 of these fabric modules installed in fabric slots 22, 23, 24, and 26.</td>
<td>4</td>
</tr>
<tr>
<td>N9K-C9508-FM-S</td>
<td>100-Gigabit - S fabric module (for the Cisco Nexus 9508 chassis) that supports the 100-Gigabit (-S) line cards. When used, there must be 4 of these fabric modules installed in fabric slots 22, 23, 24, and 26.</td>
<td>4</td>
</tr>
<tr>
<td>N9K-C9508-FM-Z</td>
<td>Fabric blank with Fan Tray Power Connector module used in place of a fabric module that has been removed from fabric slots 22, 24, or 26 during lab verification test.</td>
<td>1</td>
</tr>
<tr>
<td>N9K-C9516-FM</td>
<td>Cisco Nexus 9500 Series 40-Gigabit fabric module</td>
<td>3-6</td>
</tr>
<tr>
<td>N9K-C9516-FM-E</td>
<td>100-Gb - E fabric module (for the Cisco Nexus 9516 chassis) that supports the 100-Gb (-EX) line cards. When used, there must be four of these fabric modules installed in fabric slots 22, 23, 24, and 26.</td>
<td>4</td>
</tr>
<tr>
<td>N9K-C9516-FM-Z</td>
<td>Fabric blank with Fan Tray Power Connector module used in place of a fabric module that has been removed from fabric slots 22, 24, or 26 during lab verification test.</td>
<td>1</td>
</tr>
</tbody>
</table>
**Table 3 Cisco Nexus 9000 Series Fans and Fan Trays**

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Description</th>
<th>Quantity</th>
<th>Cisco Nexus Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-C9300-FAN1</td>
<td>Fan 1 module with port-side intake airflow (burgundy coloring)</td>
<td>3</td>
<td>9396PX (early versions)</td>
</tr>
<tr>
<td>N9K-C9300-FAN1-B</td>
<td>Fan 1 module with port-side exhaust airflow (blue coloring)</td>
<td>3</td>
<td>9396PX (early versions)</td>
</tr>
<tr>
<td>N9K-C9300-FAN2</td>
<td>Fan 2 module with port-side intake airflow (burgundy coloring)</td>
<td>3</td>
<td>93128TX 9396PX 9396TX</td>
</tr>
<tr>
<td>N9K-C9300-FAN2-B</td>
<td>Fan 2 module with port-side exhaust airflow (blue coloring)</td>
<td>3</td>
<td>93128TX 9396PX 9396TX</td>
</tr>
<tr>
<td>N9K-C9300-FAN3</td>
<td>Fan 3 module with port-side intake airflow (burgundy coloring)</td>
<td>3</td>
<td>92304QC 93120TX</td>
</tr>
<tr>
<td>N9K-C9300-FAN3-B</td>
<td>Fan 3 module with port-side exhaust airflow (blue coloring)</td>
<td>3</td>
<td>92304QC 93120TX</td>
</tr>
<tr>
<td>N9K-C9504-FAN</td>
<td>Fan tray for 4-slot modular chassis</td>
<td>3</td>
<td>9504</td>
</tr>
<tr>
<td>N9K-C9508-FAN</td>
<td>Fan tray for 8-slot modular chassis</td>
<td>3</td>
<td>9508</td>
</tr>
<tr>
<td>N9K-C9516-FAN</td>
<td>Fan tray for 16-slot modular chassis</td>
<td>3</td>
<td>9516</td>
</tr>
<tr>
<td>NXA-FAN-160CFM-PE</td>
<td>Fan module with port-side exhaust airflow (blue coloring)</td>
<td>3</td>
<td>9364C</td>
</tr>
<tr>
<td>NXA-FAN-160CFM-PI</td>
<td>Fan module with port-side intake airflow (burgundy coloring)</td>
<td>3</td>
<td>9364C</td>
</tr>
<tr>
<td>NXA-FAN-30CFM-B</td>
<td>Fan module with port-side intake airflow (burgundy coloring)</td>
<td>3</td>
<td>92160YC-X 9332PQ 9348GC-FXP 9372PX 9372TX 9372TX-E</td>
</tr>
<tr>
<td>NXA-FAN-30CFM-F</td>
<td>Fan module with port-side exhaust airflow (blue coloring)</td>
<td>3</td>
<td>92160YC-X 9332PQ 9348GC-FXP 9372PX 9372TX 9372TX-E</td>
</tr>
<tr>
<td>NXA-FAN-35CFM-PE</td>
<td>Fan module with port-side exhaust airflow (blue coloring)</td>
<td>4</td>
<td>92300YC</td>
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Table 4 Cisco Nexus 9500 Series Line Cards

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Description</th>
<th>Maximum Quantity</th>
<th>Supporting Fabric Modules</th>
</tr>
</thead>
</table>
### System Requirements

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Description</th>
<th>Quantity</th>
<th>Cisco Nexus Switches</th>
</tr>
</thead>
</table>

#### Table 5 Cisco Nexus 9000 Series Power Supplies

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Description</th>
<th>Quantity</th>
<th>Cisco Nexus Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-PAC-650W</td>
<td>650-W AC power supply with port-side intake (burgundy coloring)</td>
<td>2</td>
<td>9332PQ 9372PX 9372PX-E 9372TX 9396TX-E 9396TX</td>
</tr>
<tr>
<td>N9K-PAC-650W-B</td>
<td>650-W AC power supply with port-side exhaust (blue coloring)</td>
<td>2</td>
<td>9332PQ 9372PX 9372PX-E 9372TX 9396TX-E 9396TX</td>
</tr>
<tr>
<td>N9K-PAC-1200W</td>
<td>1200-W AC power supply with port-side intake airflow (burgundy coloring)</td>
<td>2</td>
<td>93120TX</td>
</tr>
<tr>
<td>N9K-PAC-1200W-B</td>
<td>1200-W AC power supply with port-side exhaust airflow (blue coloring)</td>
<td>2</td>
<td>93120TX</td>
</tr>
<tr>
<td>N9K-PAC-3000W-B</td>
<td>3000-W AC power supply</td>
<td>Up to 4 Up to 8 Up to 10</td>
<td>9504 9508 9516</td>
</tr>
<tr>
<td>N9K-PDC-3000W-B</td>
<td>3000-W DC power supply</td>
<td>Up to 4 Up to 8 Up to 10</td>
<td>9504 9508 9516</td>
</tr>
<tr>
<td>N9K-PUV-1200W</td>
<td>3000-W Universal AC/DC power supply with bidirectional airflow (white coloring)</td>
<td>2</td>
<td>92160YC-X 9236C 92300YC 92304QC 9272Q 93108TC-EX 93108TC-FX 93180YC-EX 93180YC-FX 9364C</td>
</tr>
<tr>
<td>N9K-PUV-3000W-B</td>
<td>3000-W Universal AC/DC power supply</td>
<td>Up to 4 Up to 8 Up to 10</td>
<td>9504 9508 9516</td>
</tr>
<tr>
<td>NXA-PAC-350W-PE</td>
<td>350-W AC power supply with port-side exhaust airflow (blue coloring)</td>
<td>2</td>
<td>9348GC-FXP</td>
</tr>
<tr>
<td>NXA-PAC-350W-PI</td>
<td>350-W AC power supply with port-side intake airflow (burgundy coloring)</td>
<td>2</td>
<td>9348GC-FXP</td>
</tr>
<tr>
<td>NXA-PAC-500W-PE</td>
<td>500-W AC power supply with port-side exhaust airflow (blue coloring)</td>
<td>2</td>
<td>93108TC-EX 93180YC-EX</td>
</tr>
<tr>
<td>NXA-PAC-500W-PI</td>
<td>500-W AC power supply with port-side intake airflow (burgundy coloring)</td>
<td>2</td>
<td>93108TC-EX 93180LC-EX EX</td>
</tr>
</tbody>
</table>
## System Requirements

<table>
<thead>
<tr>
<th>System</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-SUP-A</td>
<td>1.8 GHz supervisor module with 4 cores, 4 threads, and 16 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-A+</td>
<td>1.8 GHz supervisor module with 4 cores, 8 threads, and 16 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-B</td>
<td>2.2 GHz supervisor module with 6 cores, 12 threads, and 24 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-B+</td>
<td>1.9 GHz supervisor module with 6 cores, 12 threads, and 32 GB of memory</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 6 Cisco Nexus 9500 Series Supervisor Modules

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-SUP-A</td>
<td>1.8 GHz supervisor module with 4 cores, 4 threads, and 16 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-A+</td>
<td>1.8 GHz supervisor module with 4 cores, 8 threads, and 16 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-B</td>
<td>2.2 GHz supervisor module with 6 cores, 12 threads, and 24 GB of memory</td>
<td>2</td>
</tr>
<tr>
<td>N9K-SUP-B+</td>
<td>1.9 GHz supervisor module with 6 cores, 12 threads, and 32 GB of memory</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 7 Cisco Nexus 9000 Series Switches

<table>
<thead>
<tr>
<th>Cisco Nexus Switch</th>
<th>Description</th>
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Cisco Nexus 9000 Series NX-OS Release Notes, Release 7.0(3)I7(1)
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>92160YC-X</td>
<td>1-RU Top-of-Rack switch with 48 10-/25- Gigabit SFP+ ports and 6 40-</td>
</tr>
<tr>
<td></td>
<td>Gigabit QSFP+ ports (4 of these ports support 100- Gigabit QSFP28 optics).</td>
</tr>
<tr>
<td>92300YC</td>
<td>1.5-RU Top-of-Rack switch with 48 10-/25- Gigabit SFP28 ports and 18</td>
</tr>
<tr>
<td></td>
<td>fixed 40-/100- Gigabit QSFP28 ports.</td>
</tr>
<tr>
<td>92304QC</td>
<td>2-RU Top-of-Rack switch with 56 40- Gigabit Ethernet QSFP+ ports (16 of</td>
</tr>
<tr>
<td></td>
<td>these ports support 4x10 breakout cables) and 8 100- Gigabit QSFP28 ports.</td>
</tr>
<tr>
<td>9236C</td>
<td>1-RU Top-of-Rack switch with 36 40-/100- Gigabit QSFP28 ports (144 10-</td>
</tr>
<tr>
<td></td>
<td>/25- Gigabit ports when using breakout cables)</td>
</tr>
<tr>
<td>9272Q</td>
<td>2-RU Top-of-Rack switch with 72 40- Gigabit Ethernet QSFP+ ports (35 of</td>
</tr>
<tr>
<td></td>
<td>these ports also support 4x10 breakout cables for 140 10- Gigabit ports)</td>
</tr>
<tr>
<td>93108TC-EX</td>
<td>1-RU Top-of-Rack switch with 48 10GBASE-T (copper) ports and 6 40-/</td>
</tr>
<tr>
<td></td>
<td>100- Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>93108TC-FX</td>
<td>1-RU Top-of-Rack switch with 48 100M/1/10GBASE-T (copper) ports and 6</td>
</tr>
<tr>
<td></td>
<td>40-/100- Gigabit QSFP28 ports</td>
</tr>
<tr>
<td>93120TX</td>
<td>2-RU Top-of-Rack switch with 96 1/10GBASE-T (copper) ports and 6 40-</td>
</tr>
<tr>
<td></td>
<td>Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>93128TX</td>
<td>3-RU Top-of-Rack switch with 96 1/10GBASE-T (copper) ports and an uplink</td>
</tr>
<tr>
<td></td>
<td>module up to 8 40- Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>93180LC-EX</td>
<td>1-RU Top-of-Rack switch with 24 40-/50- Gigabit QSFP+ downlink ports and</td>
</tr>
<tr>
<td></td>
<td>6 40/100- Gigabit uplink ports. You can configure 18 downlink ports as 100-</td>
</tr>
<tr>
<td></td>
<td>Gigabit QSFP28 ports or as 10- Gigabit SFP+ ports (using breakout cables)</td>
</tr>
<tr>
<td>93180YC-EX</td>
<td>1-RU Top-of-Rack switch with 48 10-/25- Gigabit SFP28 fiber ports and 6</td>
</tr>
<tr>
<td></td>
<td>40-/100- Gigabit QSFP28 ports</td>
</tr>
<tr>
<td>93180YC-FX</td>
<td>1-RU Top-of-Rack switch with 48 10-/25- Gigabit SFP28 ports and 6 40-/</td>
</tr>
<tr>
<td></td>
<td>100- Gigabit QSFP28 ports. You can configure the 48 ports as 1/10/25-</td>
</tr>
<tr>
<td></td>
<td>Gigabit Ethernet ports or as FCoE ports or as 8-/16-/32- Gigabit Fibre</td>
</tr>
<tr>
<td></td>
<td>Channel ports.</td>
</tr>
<tr>
<td>9332PQ</td>
<td>1-RU switch with 32 40- Gigabit Ethernet QSFP+ ports (26 ports support 4x10</td>
</tr>
<tr>
<td></td>
<td>breakout cables and 6 ports support QSFP- to- SFP adapters)</td>
</tr>
<tr>
<td>9348GC-FXP</td>
<td>Nexus 9300 with 48p 100M/1 G, 4p 10/25 G SFP+ and 2p 100 G QSFP</td>
</tr>
<tr>
<td>9372PX</td>
<td>1-RU Top-of-Rack switch with 48 1-/10- Gigabit SFP+ ports and 6 40-</td>
</tr>
<tr>
<td></td>
<td>Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>9372PX-E</td>
<td>An enhanced version of the Cisco Nexus 9372PX-E switch.</td>
</tr>
<tr>
<td>9372TX</td>
<td>1-RU Top-of-Rack switch with 48 1-/10GBASE-T (copper) ports and 6 40-</td>
</tr>
<tr>
<td></td>
<td>Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>9372TX-E</td>
<td>An enhanced version of the Cisco Nexus 9372TX-E switch.</td>
</tr>
<tr>
<td>9396PX</td>
<td>2-RU Top-of-Rack switch with 48 1-/10- Gigabit Ethernet SFP+ ports and an</td>
</tr>
<tr>
<td></td>
<td>uplink module with up to 12 40- Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>9396TX</td>
<td>2-RU Top-of-Rack switch with 48 1/10GBASE-T (copper) ports and an uplink</td>
</tr>
<tr>
<td></td>
<td>module with up to 12 40- Gigabit QSFP+ ports</td>
</tr>
<tr>
<td>9504</td>
<td>7.1-RU modular switch with slots for up to 4 line cards in addition to two</td>
</tr>
<tr>
<td></td>
<td>supervisors, 2 system controllers, 3 to 6 fabric modules, 3 fan trays, and</td>
</tr>
<tr>
<td></td>
<td>up to 4 power supplies.</td>
</tr>
<tr>
<td>9504</td>
<td>13-RU modular switch with slots for up to 8 line cards in addition to two</td>
</tr>
<tr>
<td></td>
<td>supervisors, 2 system controllers, 3 to 6 fabric modules, 3 fan trays, and</td>
</tr>
<tr>
<td></td>
<td>up to 8 power supplies.</td>
</tr>
<tr>
<td>9516</td>
<td>21-RU modular switch with slots for up to 16 line cards in addition to two</td>
</tr>
<tr>
<td></td>
<td>supervisors, 2 system controllers, 3 to 6 fabric modules, 3 fan trays, and</td>
</tr>
<tr>
<td></td>
<td>up to 10 power supplies.</td>
</tr>
</tbody>
</table>
### Table 8 Cisco Nexus 9000 Series Uplink Modules

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-M4PC-CFP2</td>
<td>Cisco Nexus 9300 uplink module with 4 100-Gigabit Ethernet CFP2 ports. For the Cisco Nexus 93128TX switch, only two of the ports are active. For the Cisco Nexus 9396PX and 9396TX switches, all four ports are active.</td>
</tr>
<tr>
<td>N9K-M6PQ</td>
<td>Cisco Nexus 9300 uplink module with 6 40-Gigabit Ethernet QSFP+ ports for the Cisco Nexus 9396PX, 9396TX, and 93128TX switches.</td>
</tr>
<tr>
<td>N9K-M12PQ</td>
<td>Cisco Nexus 9300 uplink module with 12 40-Gigabit Ethernet QSFP+ ports.</td>
</tr>
</tbody>
</table>

### Table 9 Cisco Nexus 9500 Series System Controller

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Hardware</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9K-SC-A</td>
<td>Cisco Nexus 9500 Platform System Controller Module</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 10 Cisco Nexus 3232C and 3264Q Switch Hardware

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Hardware</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3K-C3232C</td>
<td>Cisco Nexus 3232C, 32 x 40-Gb/100-Gb 2 x 10-Gb SFP+, 1-RU switch</td>
<td>1</td>
</tr>
<tr>
<td>N3K-C3264Q</td>
<td>Cisco Nexus 3264Q, 64 x 40-Gb 2 x 10-Gb SFP+, 2-RU switch</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 11 Cisco Nexus 3164Q Switch Hardware

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Hardware</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3K-C3164Q-40GE</td>
<td>Cisco Nexus 3164Q, 64 x 40-Gb SFP+, 2-RU switch</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 12 Cisco Nexus 31128PQ Switch Hardware

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Hardware</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3K-C31128PQ-10GE</td>
<td>Nexus 31128PQ, 96 x 10 Gb-SFP+, 8 x 10-Gb QSFP+, 2-RU switch</td>
<td>1</td>
</tr>
</tbody>
</table>

### Supported Optics

To determine which transceivers and cables are supported by this switch, see [Transceiver Module (TMG) Compatibility Matrix](https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-installation-guides-list.html).


### Supported FEX Modules

Cisco NX-OS Release 7.0(3)i7(1) supports the following FEXs (Fabric Extenders) on 9332PQ, 9372PX, 9372PX-E, 9396PX, 93108TC-EX, 93180LC-EX, 93180TC-EX, 93180Y-EX, and 9500 platform switches:
Cisco Nexus 9000 Series NX-OS Release Notes, Release 7.0(3)I7(1)

New and Changed Information

- Cisco Nexus 224TP
  - Cisco Nexus 2232PP
  - Cisco Nexus 2232TM and 2232TM-E
  - Cisco Nexus 2248PQ
  - Cisco Nexus 2248TP and 2248TP-E
  - Cisco Nexus 2332TQ
  - Cisco Nexus 2348TQ
  - Cisco Nexus 2348TQ-E
  - Cisco Nexus 2348UPQ
  - Cisco Nexus B22Dell
  - Cisco Nexus B22HP
  - Cisco Nexus NB22FTS
  - Cisco Nexus NB22IBM

- For more information, see the Cisco Nexus 9000 Series Switch FEX Support page.

Note the following:

- The Cisco Nexus 2332TQ supports the Cisco Nexus 9300, 9300-EX, and 9500 platform switches as the parent switch.

- The N9K-X9408PC-CFP2 line card does not support the Cisco Nexus 2300 platform FEXs.

- Cisco Nexus 9300 platform switches do not support FEXs on uplink modules (ALE).

- For FEX HIF port channels, enable the STP port type edge using the `spanning tree port type edge [trunk]` command.

- The Cisco Nexus 2248PQ, 2348TQ, and 2348UPQ FEXs support connections to the Cisco Nexus 9300 or 9500 platform switches by using supported breakout cables to connect a QSFP+ uplink on the FEX and an SFP+ link on the parent switch (4x10 G links).

  **Note:** For Cisco Nexus 9500 platform switches, 4x10-Gb breakout for FEX connectivity is not supported.

---

New and Changed Information

This section lists the following topics:

- New Hardware Features in Cisco NX-OS Release 7.0(3)I7(1)
- New Software Features in Cisco NX-OS Release 7.0(3)I7(1)
New Hardware Features in Cisco NX-OS Release 7.0(3)I7(1)

Cisco NX-OS Release 7.0(3)I7(1) supports the following new hardware:

- The Cisco Nexus 9348GC-FXP switch (N9K-C9348GC-FXP) is a 1-RU fixed-port, L2/L3 switch, designed for deployment in data centers. 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.

- The Cisco Nexus 93108TC-FX switch (N9K-C93108TC-FX) is a 1-RU, fixed-port switch designed for deployment in data centers. This switch has 48 10/1-Gigabit RJ45 downlink ports that you can configure to support 1-, 10-Gigabit Ethernet connections, and it has six fixed 40-/100-Gigabit QSFP28 uplink ports that support 40- or 100-Gigabit ports.

- The Cisco Nexus 93180YC-FX switch (N9K-C93180YC-FX) has 48 10/25-Gigabit SFP+ downlink ports that also support 8/16/32-Gigabit Fiber Channel connections and 6 40/100-Gigabit Ethernet QSFP28 uplink ports.

- The Supervisor A+ module (N9K-SUP-A+) has 4 cores, 8 threads, 1.8 GHz, 16 GB of memory, and 64 GB of solid state drives (SSD).

- The Supervisor B+ module (N9K-SUP-B+) has 6 cores, 12 threads, 1.9 GHz, 32 GB of memory, and 256 GB of solid state drives (SSD).

New Software Features in Cisco NX-OS Release 7.0(3)I7(1)

Cisco NX-OS Release 7.0(3)I7(1) supports the following new software features:

**FCoE Features**

- FCoE NPV—Added support on the 93180YC-FX switch.

- QoS—Added support for default FCoE policies for network-qos, queuing output, and queuing input.

- Six QSFP+ ports as uplink ports or server ports—93180YC-FX switch supports using six QSFP+ ports (40 G) as uplink ports or server ports.

- Slow drain device detection and congestion avoidance—Added support on the 93180YC-FX switch.

For more information, see the Cisco Nexus 9000 Series NX-OS FCoE Configuration Guide, Release 7.x

**FEX Features**

- FEX support on breakout ports—Added support on platforms and ports that support breakout.

- Layer 3 routing—Added support on FEX interfaces and port channel interfaces on Cisco Nexus 9300-EX platform switches.

- Replay—Added support for ASCII replay and POAP replay.

- Static routes and all routing protocols—Added support on FEX Layer 3 ports.

For more information, see the Cisco Nexus 2000 Series NX-OS Fabric Extender Configuration Guide for Cisco Nexus 9000 Series Switches, Release 7.x.

**iCAM Features**

- Intelligent CAM Analytics and Machine-Learning (iCAM)—Provides the following features, natively on the router/switch:
New and Changed Information

- Current, historical, and predictive analytics for traffic, per hardware table entry. For example, TCAM-entry traffic.
- Current, historical, and predictive analytics for hardware table utilization per-feature.
- Streaming telemetry.
- Top and bottom percentage hitters. Sorting and filtering based on traffic.
- Historical analytics provide a history of traffic for a past date and time.
- Predictive traffic analytics provides traffic for a future date and time.
- iCAM provides the following for the previously listed items:
  - Provides ACL, CoPP, NAT, PACL, QoS, PBR, WCCP, and VACL for 32 features and combinations of those features.
  - Forwarding tables
  - Multicast tables

For more information, see the Cisco Nexus 9000 Series NX-OS iCAM Configuration Guide, Release 7.x

Interfaces Features
- ECMP resilient hashing—Added support for Cisco Nexus 9200 and 9300-EX platform switches.
- HiGig interfaces—Added support for HiGig interface counters and per-queue statistics in the output of CLI commands. (Add a superscripted trademark symbol to HiGig.)
- SVI unnumbered—Introduced this feature to facilitate end-to-end communication between hosts, in which hosts are configured in the same subnet and are a part of different VLANs. This feature requires primary VLAN and multiple secondary VLANs unnumbered to primary VLAN in the gateway. The host is a member of any of the primary and secondary VLAN. The feature implementation overcomes the legacy behavior with Cisco switches of disallowing multiple VLAN configuration with the same subnet in the Cisco switch.
- vPC convergence—Added fast convergence and LACP convergence support on vPCs.
- vPC role preempt—Enables you to switch vPC roles between vPC peers without impacting traffic flow. The vPC role switching is done based on the role priority value of the device under the vPC domain. A vPC peer device with lower role priority is selected as the primary vPC device during the vPC role switch.

For more information, see the Cisco Nexus 9000 Series NX-OS Interfaces Configuration Guide, Release 7.x.

Label Switching Features
- The following features are supported on the Cisco Nexus 9300-FX platform switches:
  - Egress peer engineering
  - Layer 3 EVPN over segment routing
  - MPLS label stack imposition
  - MPLS OAM
  - MPLS stripping
  - Segment routing (Node SID/Prefix SID)

For more information, see the Cisco Nexus 9000 Series NX-OS Label Switching Configuration Guide, Release 7.x.
Layer 2 Switching

- Reflective relay—A switching option that is supported on the Cisco Nexus 93180LC-EX and 93180YC-EX switches. This option forwards all traffic to an external switch that applies a policy and sends the traffic back to the destination or target VM on the server as needed. There is no local switching. For broadcast or multicast traffic, reflective relay provides packet replication to each VM locally on the server.

For more information, see the Cisco Nexus 9000 Series NX-OS Layer 2 Switching Configuration Guide, Release 7.x.

Multicast Routing

- Multicast VRF-lite route leaking—Added support for IPv4 multicast traffic across VRFs for all Cisco Nexus 9000 Series switches.

For more information, see the Cisco Nexus 9000 Series NX-OS Multicast Routing Configuration Guide, Release 7.x.

Nexus 9000v Features

- SNMP Support for the Nexus 9000v—You can use the Network Manager to manage the Cisco Nexus 9000v chassis node.

For more information, see the Cisco Nexus 9000v Guide.

NX-API Features

- New NX-API REST commands have been added. The following table describes the markdown files and the name of the corresponding section in the Cisco Nexus 3000 and 9000 Series NX-API REST SDK User Guide and API Reference that were edited to include the Data Management Engine (DME)ized commands made available for the 7.0(3)I7(1) release.

<table>
<thead>
<tr>
<th>Markdown File Name</th>
<th>Section Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>_additional.md</td>
<td>Configuring DHCP</td>
</tr>
<tr>
<td></td>
<td>Added commands for configuring DHCP guard, ND RA Guard, and snooping policies. Also added neighbor binding, static binding, and hairpin forwarding.</td>
</tr>
<tr>
<td>_bgp.md</td>
<td>Configuring BGP</td>
</tr>
<tr>
<td></td>
<td>Added commands for:</td>
</tr>
<tr>
<td></td>
<td>- Allowing re-importation of VPN imported routes</td>
</tr>
<tr>
<td></td>
<td>- Advertising a physical IP</td>
</tr>
<tr>
<td></td>
<td>- Auto-generating routes for an EBGP neighbor in an EVPN address family</td>
</tr>
<tr>
<td></td>
<td>- Configuring a neighbor-facing fabric border leaf of a neighbor</td>
</tr>
<tr>
<td></td>
<td>- Configuring a neighbor-facing fabric border leaf of a neighbor template</td>
</tr>
<tr>
<td></td>
<td>- Configuring a neighbor-facing fabric border leaf for a peer-session template</td>
</tr>
<tr>
<td></td>
<td>- Configuring the redistribution of AM routes</td>
</tr>
<tr>
<td></td>
<td>- Specifying target VPN extended communities as MVPN routes</td>
</tr>
<tr>
<td>_snmp.md</td>
<td>Configuring SNMP</td>
</tr>
<tr>
<td></td>
<td>Added transceiver, modular temperature sensor, power supply, and fan tray DME information.</td>
</tr>
</tbody>
</table>
Configuring Telemetry

- Added commands for configuring Gzip compression, data depth, and streaming ephemeral data.

**NOTE:** When downgrading to an older release, unconfigure and reconfigure the telemetry feature after the new image comes up to avoid the failure of unsupported commands or command options.

- Added commands for specifying the destination VRF for a destination profile and for specifying the UDP and HTTP protocols for a destination group.

Configuring VXLAN BGP EVPN

- Added the nvoEps MO, which changed the DNs from the previous releases.
- Added ephemeral DN queries.

For more information, see the **Cisco Nexus 3000 and 9000 Series NX-OS API REST SDK User Guide and API Reference**.

**Programmability Features**

- Authentication with self-signed SSL certificate—Added support for self-signed SSL certificate to configure SSL certificate based authentication and the encryption of streamed data.
- UDP and secure UDP (DTLS) as telemetry transport protocols—Added support for telemetry transport protocols include UDP and secure UDP (DTLS) with GPB or JSON encoding.
- Export *rootfs* of Guest Shell onto multiple devices—Support to export a specific Guest Shell *rootfs* and deploy it onto multiple devices.
- NX-OS Programmable Interface Component RPM packages (agents, model, and infra) included in NX-OS image—NX-OS Programmable Interface Component RPM packages are installed automatically when NX-OS image is loaded. No need to download and install from the Cisco Artifactory.
- Telemetry VRF feature—Telemetry VRF feature supports specification of a transport VRF.
- Telemetry Compression for gRPC Transport—Telemetry data compression is available for gRPC transport.

For more information, see the **Cisco Nexus 9000 Series NX-OS Programmability Guide, Release 7.x**.

**Programmable Fabric Features**

- CLI (Static-host) Trigger—You can add the static host configuration for a VNI at a particular interface using the `fabric database static-host vni vni-id interface` command. You can also use the static host VNI configuration with an optional overwrite-VLAN. The `fabric database auto-pull [dot1qvni]` command should no longer be used. If the `fabric database auto-pull` command was used previously, it needs to be unconfigured before you upgrade to 7.0(3)I7(1) and use the new command `fabric database static-host` to reconfigure.

For more information, see the **Cisco Programmable Fabric with VXLAN BGP EVPN Configuration Guide**.

**QoS Features**

- Priority flow control—Added PFC MIB support for HiGig interfaces.

For more information, see the **Cisco Nexus 9000 Series NX-OS Quality of Service Configuration Guide, Release 7.x**.

**Security Features**

- 802.1X Port-Based Authentication and Authorization—Defines a client-server based access control and authentication protocol that restricts unauthorized clients from connecting to a LAN through publicly accessible ports. The authentication server authenticates each client connected to a Cisco NX-OS device port.
New and Changed Information

- First-Hop Security (FHS)—A set of features that provides end node protection and optimizes link operations on IPv6 or dual stack networks. Supports the following FHS features: RA Guard, DHCPv6 Guard, IPv6 Snooping.

- Intelligent CAM Analytics and Machine-Learning (iCAM)—Provides the following features, natively on the router/switch:
  - Current, historical, and predictive analytics for traffic, per hardware table entry. For example, TCAM-entry traffic.
  - Current, historical, and predictive analytics for hardware table utilization per-feature.
  - Streaming telemetry.
  - Top and bottom percentage hitters. Sorting and filtering based on traffic.
  - Historical analytics provide a history of traffic for a past date and time.
  - Predictive traffic analytics provides traffic for a future date and time.
  - iCAM provides the following for the previously listed items:
    - Provides ACL, CoPP, NAT, PACL, QoS, PBR, WCCP, and VACL for 32 features and combinations of those features.
    - Forwarding tables
    - Multicast tables

- Login Parameter command—The login block-for and login quiet-mode configuration mode commands have been renamed to system login block-for and system login quiet-mode, respectively.

- Option 82 String Identifiers—You can enable the Option 82 to identify the subscriber device that connects to the network.

- The Traffic Storm Control CLI—Provides an option to specify bandwidth level and a percentage of port capacity or packet-per-second.

For more information, see the Cisco Nexus 9000 Series NX-OS Security Configuration Guide, Release 7.x.

Software Upgrade and Downgrade Features

- In-service software upgrade (ISSU)—Added support for the following:
  - Regular ISSU for the Cisco Nexus 93180LC-EX switch

For more information, see the Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide, Release 7.x.

System Management Features

- ERSPAN—Added the rfc-compliant option to the header-type 3 command to make the ERSPANv3 header RFC compliant for Application Leaf Engine (ALE) 40G uplink ports on Cisco Nexus 9300 and 9500 platform switches.

- NetFlow—Introduced this feature for Cisco Nexus 9300-FX platform switches. NetFlow identifies packet flows for ingress IP packets and uses these flows to provide statistics for accounting, network monitoring, and network planning. You can export the data that NetFlow gathers to a remote NetFlow Collector, such as Cisco Stealthwatch.

- PTP—Added PTP mixed mode support for the Cisco Nexus 9396 switch.
Resource management—Added the ability to monitor global resource utilization on the device and trigger an RMON alarm as soon as the user-configured threshold is crossed. The output of the show resource command displays the resource limits. All of the Cisco Nexus 9000 Series switches support this feature.

SNMP engine ID—Changed the requirements after configuring the SNMP local engine ID. You must reconfigure only the SNMP users and the community strings. You no longer need to reconfigure any host configured with V3 users.

SPAN—Added support for multicast Tx SPAN traffic across different leaf spine engine (LSE) slices on Cisco Nexus 9300-EX platform switches.

SPAN and ERSPAN—Added the ability to truncate SPAN and ERSPAN packets for Cisco Nexus 9300-EX and 9300-FX platform switches.

For more information, see the Cisco Nexus 9000 Series NX-OS System Management Configuration Guide, Release 7.x.

Unicast Routing Features

Local proxy ARP—Added the ip local-proxy-arp no-hw-flooding command to suppress ARP broadcasts on SVIs. All Cisco Nexus 9000 Series switches support this command.

For more information, see the Cisco Nexus 9000 Series NX-OS Unicast Routing Configuration Guide, Release 7.x.

VXLAN Features

FHRP/HSRP over VXLAN (flood and learn only)—Added platform support for the Cisco Nexus modular 9732C-EX line card, Cisco Nexus 3132Q-V, 31108PC-V, and 31108TC-V switches.

Pervasive Load Balancing—Pervasive Load Balancing (PLB) provides Layer-3 and Layer-4 load balancing at Petabits/s speed without the need for any virtual or physical external load balancer equipment. Servers, L4-L7 appliances, Firewalls, VMs and containers attached to different ToR/leaf switches might be distributed across the fabric and this feature enables the switching fabric to load balance client-specific service requests to these servers/appliances.

In this feature, the same virtual IP (VIP) is assigned to the group of servers that might be distributed across the fabric. When different clients (local to the fabric or from a remote location) send requests for a given service, these requests are destined to the VIP of these servers. PLB enables fabric to act as a massive load-balancer and makes it capable of providing massive telemetry and analytics.

Policy Based Routing—Support has been added for Policy Based Routing (PBR) using VXLAN 2/5 routes as PBR next hop This feature is supported on the Cisco Nexus 9300-EX and 9300-FX top-of-rack platform switches and Cisco Nexus 9500-EX based line cards for IPv4 and IPv6.

Route- Leak for External IP Routing—Added support for centralizing VRF route leaks using default-routes. This feature facilitates the installation and configuration of new hardware or software that must coexist with legacy systems without any additional configuration overhead on the legacy nodes.

Tenant Routing Multicast—Enables multicast forwarding on the VXLAN fabric using BGP-based EVPN control pane. Tenant Routing Multicast (TRM) supports Layer 2 and Layer 3 multicast for sender and receivers on the same or different VTEPs in a tenant VRF.

VIP/PIP—Advertises type-5 routes using the primary IP address of the VTEP interfaces as the next hop address in the VXLAN EVPN fabric.
VXLAN EVPN Multisite—A solution to interconnect two or more BGP-based Ethernet VPN (EVPN) site’s fabrics in a scalable fashion over an IP-only network. This feature is supported on the Cisco Nexus 9300-EX and 9300-FX platform switches.

For more information, see the Cisco Nexus 9000 Series NX-OS VXLAN Configuration Guide, Release 7.x.

Caveats

This section includes the following topics:

- Resolved Caveats—Cisco NX-OS Release 7.0(3)I7(1)
- Open Caveats—Cisco NX-OS Release 7.0(3)I7(1)
- Known Behaviors—Cisco NX-OS Release 7.0(3)I7(1)

Resolved Caveats—Cisco NX-OS Release 7.0(3)I7(1)

The following table lists the Resolved Caveats in Cisco NX-OS Release 7.0(3)I7(1). Click the bug ID to access the Bug Search tool and see additional information about the bug.

Table 13 Resolved Caveats in Cisco NX-OS Release 7.0(3)I7(1)

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCvb78782</td>
<td>N9K: Control plane protocol packet observed at ethanalyzer and not delivered to process</td>
</tr>
<tr>
<td>CSCvb93995</td>
<td>Nessus Scan removes ACL from VTY interface.</td>
</tr>
<tr>
<td>CSCvb99448</td>
<td>Provide string description in 'Reason' field in ethanalyzer with decode-internal option</td>
</tr>
<tr>
<td>CSCvd26811</td>
<td>Log &quot;lcnd: size 49 is less than expected - kernel&quot; in syslog</td>
</tr>
<tr>
<td>CSCvd33546</td>
<td>Install All Does Not Check For Image Name Being Changed</td>
</tr>
<tr>
<td>CSCvd62161</td>
<td>Need option to use kstack for file transfers</td>
</tr>
<tr>
<td>CSCvd67701</td>
<td>Need support for N9k No Service Password-Recovery</td>
</tr>
<tr>
<td>CSCvd70599</td>
<td>QSFP-40G-SR4-S / QSFP-100G-SR4-S: show int eth x/y trans not showing correct PID</td>
</tr>
<tr>
<td>CSCvd90825</td>
<td>Static NAT stops working after reload or reconfiguring NAT statement if SVI is NAT inside interface.</td>
</tr>
<tr>
<td>CSCve04754</td>
<td>9200/9300/9700-EX: Need fix to avoid mcast flood on NDR &amp; allow FXE receivers to receive mcast traffic on NDR</td>
</tr>
<tr>
<td>CSCve06744</td>
<td>N9K: vPC peer-keepalive fails after initial mis-config and cannot save config</td>
</tr>
<tr>
<td>CSCve11958</td>
<td>N9000 drops transit BFD packets when acting as L2 switch with SVI</td>
</tr>
<tr>
<td>CSCve31661</td>
<td>&quot;no lacp suspend-individual&quot; configured on NIF results in HIF ports don't work</td>
</tr>
<tr>
<td>CSCve34475</td>
<td>config sync buffer does not clear after commit</td>
</tr>
<tr>
<td>CSCve34568</td>
<td>N9k OSPF process restart due to heartbeat failure</td>
</tr>
<tr>
<td>CSCve35836</td>
<td>BGP update not sent out when advertisement-interval is configured</td>
</tr>
<tr>
<td>CSCve35836</td>
<td>wget under bash-shell cannot find root CA certificate</td>
</tr>
<tr>
<td>CSCve57798</td>
<td>N9200/N9300-EX ERSPAN TS is inaccurate</td>
</tr>
</tbody>
</table>

Caveats
## Caveats

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCve58719</td>
<td>Module Serial number instead of Switch serial number in OF statistics</td>
</tr>
<tr>
<td>CSCve65062</td>
<td>N3232C unexpected sporadic high PTP corrections</td>
</tr>
<tr>
<td>CSCve65107</td>
<td>N9200/N9300-EX ERSPAN marker packet carries incorrect UTC offset</td>
</tr>
<tr>
<td>CSCve66635</td>
<td>marker-packet interval is not working proper</td>
</tr>
<tr>
<td>CSCve67821</td>
<td>Session manager does not work for egress ACL</td>
</tr>
<tr>
<td>CSCve67933</td>
<td>BFD casued control QoS group drop on N93180YC-EX</td>
</tr>
<tr>
<td>CSCve72947</td>
<td>N9396 ERSPAN market packet indicates incorrect clock granularity</td>
</tr>
<tr>
<td>CSCve74596</td>
<td>NVT: %ACLQOS- SLOT1-2-ACLQOS_OOTR: TCAM resource exhausted: DHCP Snoop on C93108TC-FX</td>
</tr>
<tr>
<td>CSCve75813</td>
<td>SB-Getting an error &quot; Interface not present in ObjectStore&quot; after changing fex id</td>
</tr>
<tr>
<td>CSCve76686</td>
<td>N9500/9432PQ- Need syslog reporting uncorrectable parity error on BCM followed by reload of LC.</td>
</tr>
<tr>
<td>CSCve78733</td>
<td>CLI yields strange output - &quot; Message reported by command :: config terminal &quot;</td>
</tr>
<tr>
<td>CSCve80495</td>
<td>Add &quot;show interface hardware-mapping&quot; to show tech detail output</td>
</tr>
<tr>
<td>CSCve80596</td>
<td>PACL with TCP port no. creates an entry which matches all TCP packets with redirect</td>
</tr>
<tr>
<td>CSCve82514</td>
<td>Link not connected after OIR QSA+1G SX on N9K-C9236C re-timer ports</td>
</tr>
<tr>
<td>CSCve82663</td>
<td>default interface command may modify startup-config without user awareness</td>
</tr>
<tr>
<td>CSCve84191</td>
<td>Trap extended- linkDown/extended- linkUp not sent when interfaces goes down/up.</td>
</tr>
<tr>
<td>CSCve85825</td>
<td>Static mac insert failed for custom router mac</td>
</tr>
<tr>
<td>CSCve86603</td>
<td>n9k as-override no work after reload with maintenance mode</td>
</tr>
<tr>
<td>CSCve91311</td>
<td>OSPF Area Range Command Truncated</td>
</tr>
<tr>
<td>CSCve93699</td>
<td>Syslog of constantly corrected parity errors</td>
</tr>
<tr>
<td>CSCve95676</td>
<td>N9k/ &quot; ntp access- group&quot; missing from config after upgrade to 7.0(3)i6(1)</td>
</tr>
<tr>
<td>CSCvf02206</td>
<td>FEX 23xx on Nexus 9K Parent Switch &quot; System minor alarm due to fan failure in fan tray&quot;</td>
</tr>
<tr>
<td>CSCvf03126</td>
<td>FHRP VMAC is not learned dynamically over overlay(F&amp;L VXLAN) in software</td>
</tr>
<tr>
<td>CSCvf03227</td>
<td>N9k - Auto negotiation status not reflected correctly in show interface output</td>
</tr>
<tr>
<td>CSCvf05256</td>
<td>switchport is stuck into &quot; trunk&quot; (inherited) mode after port-profile de-inheritance</td>
</tr>
<tr>
<td>CSCvf08218</td>
<td>HIF bring up slow after FEX online</td>
</tr>
<tr>
<td>CSCvf11082</td>
<td>Nexus 9508 management port LEDs do not work properly</td>
</tr>
<tr>
<td>CSCvf13949</td>
<td>libfcoe.log file getting populated causing Python crashes</td>
</tr>
<tr>
<td>CSCvf21964</td>
<td>N9k - packets hitting inband and not going through span rate-limiter when span acl is used</td>
</tr>
<tr>
<td>CSCvf23136</td>
<td>LC ipfib memory leak on 93180YC-EX</td>
</tr>
<tr>
<td>CSCvf29539</td>
<td>Flood &amp; Learn VXLAN: Traffic looped between Non-VPC VTEP and SPINE on SVI uplink</td>
</tr>
<tr>
<td>CSCvf31571</td>
<td>Snmpbulkwalk slowness observed in iee8025ecyMIBs.</td>
</tr>
<tr>
<td>CSCvf36182</td>
<td>After adding new VLAN to VLAN DB, native VLAN connectivity fails on trunk</td>
</tr>
<tr>
<td>CSCvf36441</td>
<td>Traceroute - ICMP TTL exceed message sourced from wrong interface</td>
</tr>
<tr>
<td>CSCvf40773</td>
<td>Configuration Won't Apply To FEX Ports After Upgrade</td>
</tr>
<tr>
<td>CSCvf46708</td>
<td>N9K - json output permissions failing on user with custom role</td>
</tr>
<tr>
<td>CSCvf48065</td>
<td>No input error counter when CRC packet comes in</td>
</tr>
<tr>
<td>CSCvf50425</td>
<td>PIM Unicast packets (Register &amp; Register-Stop) dropped when 40Gig uplink ports on the Nexus9K used</td>
</tr>
<tr>
<td>CSCvf56928</td>
<td>N9K/openflow: redirect port bitmap is not updated when port-channel member comes up</td>
</tr>
<tr>
<td>CSCvf57890</td>
<td>RACL doesn't get programmed in the hardware for VXLAN VLAN without a member port</td>
</tr>
<tr>
<td>CSCvf59161</td>
<td>N9K vPC ERSPAN down // destination reachable via peer-link</td>
</tr>
<tr>
<td>CSCvf59686</td>
<td>Clicking ejector handle causes OS print &quot; Ejector pulled (left/right) for LC&quot; messages continuously</td>
</tr>
<tr>
<td>CSCvf71809</td>
<td>Link flap observed on port on X97xx line card if it matches the same src port/slice for bad port</td>
</tr>
</tbody>
</table>
Open Caveats—Cisco NX-OS Release 7.0(3)I7(1)

The following table lists the open caveats in the Cisco NX-OS Release 7.0(3)I7(1). Click the bug ID to access the Bug Search tool and see additional information about the bug.

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCuy08187</td>
<td>If EPLD is not latest, abort non-disruptive ISSU</td>
</tr>
<tr>
<td>CSCvb57299</td>
<td>Hardcoding the Cisco Nexus 9500 Series line card module speed to 100 causes the duplex full port to go down.</td>
</tr>
<tr>
<td>CSCvb82259</td>
<td>Cisco Nexus 3000 Series switches take more than 10 secs to populate the S,G entry.</td>
</tr>
<tr>
<td>CSCvd06973</td>
<td>PVLAN: Secondary VLAN traffic will not hit ACL on primary VLAN's SVI.</td>
</tr>
<tr>
<td>CSCvf76134</td>
<td>Multicast-heavy-traffic for /64 IPv6 LPM do not work in N9300-EX post ISSU(7.0(3)I6(1) -&gt;7.0(3)I7(1))</td>
</tr>
<tr>
<td>CSCvg05807</td>
<td>N9K: IOS attached VPCs err-disabled during upgrade to 7.0.3.I6.1 or newer</td>
</tr>
<tr>
<td>CSCvg31939</td>
<td>ISSU ND or disruptive upgrade from 7.0(3)I7(1) any I7(2),I7(3),I7(4) rel conf appended with no-alias</td>
</tr>
</tbody>
</table>

Known Behaviors—Cisco NX-OS Release 7.0(3)I7(1)

There are no known behavior changes for this release.

Upgrade Instructions

To perform a software upgrade, follow the installation instructions in the Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide, Release 7.x.

Note:

- You can perform an In-Service Software Upgrade (ISSU) from the following release to Cisco NX-OS Release 7.0(3)I7(1):
  - 7.0(3)I6(2)
  - 7.0(3)I6(1)
  - 7.0(3)I5(2)
  - 7.0(3)I5(1)

- When upgrading from Cisco NX-OS Release 7.0(3)I5(2) to 7.0(3)I7(1) disable local TACACS or avoid remote SSH sessions through TACACS. For more information, refer to CSCvj08576.

- If you are upgrading from Cisco NX-OS Release 7.0(3)I5(2) to Cisco NX-OS Release 7.0(3)I7(1) using the install all command, BIOS will not be upgraded due to CSCve24965. When the upgrade to Cisco NX-OS Release 7.0(3)I7(1) is complete, use the install all command again to complete the BIOS upgrade, if applicable.
An upgrade performed via the install all command for Cisco NX-OS Release 7.0(3)I2(2b) to Release 7.0(3)I7(1) might result in the VLANs being unable to be added to the existing FEX HIF trunk ports. To recover from this, the following steps should be performed after all FEXs have come online and the HIFs are operationally up:

1. Enter the copy run bootflash:fex_config_restore.cfg command at the prompt.
2. Enter the copy bootflash:fex_config_restore.cfg running-config echo-commands command at the prompt.

When upgrading to Cisco NX-OS Release 7.0(3)I7(1) from 7.0(3)I2(x) or before and running EVPN VXLAN configuration, an intermediate upgrade to 7.0(3)I4(x) or 7.0(3)I5(x) or 7.0(3)I6(x) is required. For further details, please refer to CSCvh02777.

When upgrading from a release prior to Cisco NX-OS Release 7.0(3)I1(2), Release 7.0(3)I1(3), or Release 7.0(3)I1(3a) requires installing a patch for Cisco Nexus 9500 platform switches only. For more information on the upgrade patch, see Patch Upgrade Instructions.
When upgrading to Cisco NX-OS Release 7.0(3)I7(1), Guest Shell automatically upgrades from 1.0 to 2.0. In the process, the contents of the guest shell 1.0 root filesystem are lost. To keep from losing important content, copy any needed files to /bootflash or an off-box location before upgrading to Cisco NX-OS Release 7.0(3)I7(1).

An ISSU can be performed only from a Cisco NX-OS Release 7.0(3)I4(1) to a later image.

While performing an ISSU, VRRP and VRRPv3 displays the following messages:

- If VRRPv3 is enabled:
  
  2015 Dec 29 20:41:44 MDP-N9K-6 %$ VDC-1 %$ %USER-O-SYSTEM_MSG: ISSU ERROR: Service "vrppv3" has sent the following message: Feature vrrpv3 is configured. User can change vrrpv3 timers to 120 seconds or fine tune these timers based on upgrade time on all Vrp Peers to avoid Vrp State transitions. - sysmgr

- If VRRP is enabled:
  
  2015 Dec 29 20:45:10 MDP-N9K-6 %$ VDC-1 %$ %USER-O-SYSTEM_MSG: ISSU ERROR: Service "vrrp-eng" has sent the following message: Feature vrrp is configured. User can change vrrp timers to 120 seconds or fine tune these timers based on upgrade time on all Vrp Peers to avoid Vrp State transitions. - sysmgr

Guest Shell is disabled during an ISSU and reactivated after the upgrade. Any application running in the Guest Shell will be affected.

If you have ITD probes configured, you need to disable the ITD service (using the `shutdown` command) before upgrading to Cisco NX-OS Release 7.0(3)I7(1). After the upgrade, enter the `feature sla sender` command to enable IP SLA for ITD probes and then the `no shutdown` command to re-enable the ITD service. (If you upgrade without shutting down the service, you can enter the `feature sla sender` command after the upgrade.)

For additional information, see the Cisco NX-OS ISSU Support application.

---

**Patch Upgrade Instructions**

- Upgrading from Cisco NX-OS Release 7.0(3)I1(2), 7.0(3)I1(3), or 7.0(3)I1(3a) requires installing a patch and then upgrading using the `install all` command. Failing to follow this requirement requires console access to recover.

- Upgrading from Cisco NX-OS Release 7.0(3)I1(2), 7.0(3)I1(3), or 7.0(3)I1(3a) to 7.0(3)I7(1) requires a patch for modular switches. A patch is available for each respective release. Please see the respective links below.

- When upgrading from Cisco NX-OS Release 7.0(3)I1(1) or earlier, including all variants of 6.1(2) based releases, a patch is not required. You can upgrade directly using the `install all` command.

  **Note:** The patch is only for upgrading. After the upgrade, the patch is automatically removed. If you decide not to upgrade after installing the patch, do not deactivate it. Deactivating the patch may cause a bios_daemon crash.

**Cisco NX-OS Release 7.0(3)I1(2) Upgrade Patch**

[https://software.cisco.com/download/special/release.html?config=ea82d4567eeb829ad4f32ae29c627cfc](https://software.cisco.com/download/special/release.html?config=ea82d4567eeb829ad4f32ae29c627cfc)

**Cisco NX-OS Release 7.0(3)I1(3) Upgrade Patch**

[https://software.cisco.com/download/special/release.html?config=e3e68dd1e8db9633978e080b9b715df8](https://software.cisco.com/download/special/release.html?config=e3e68dd1e8db9633978e080b9b715df8)

**Cisco NX-OS Release 7.0(3)I1(3a) Upgrade Patch**

[https://software.cisco.com/download/special/release.html?config=e3e68dd1e8db9633978e080b9b715df8](https://software.cisco.com/download/special/release.html?config=e3e68dd1e8db9633978e080b9b715df8)
Upgrade Instructions

To upgrade with the patch:

1. Add the patch.
2. Install the patch.
3. Commit the patch.
4. Upgrade using the `install all` command.
The following table is an example of a patch upgrade:

```
switch(config)# install add bootflash:n9000- dk9.7.0.3.I1.2.CSCuy16604.bin
Install operation 16 completed successfully at Thu Mar 3 04:24:13 2016
switch(config)# install add bootflash:n9000- dk9.7.0.3.I1.2.CSCuy16606.bin
Install operation 17 completed successfully at Thu Mar 3 04:24:43 2016

switch(config)# install activate n9000- dk9.7.0.3.I1.2.CSCuy16604.bin
Install operation 18 completed successfully at Thu Mar 3 04:28:38 2016
switch(config)# install activate n9000- dk9.7.0.3.I1.2.CSCuy16606.bin
Install operation 19 completed successfully at Thu Mar 3 04:29:08 2016

switch(config)# install commit n9000- dk9.7.0.3.I1.2.CSCuy16604.bin
Install operation 20 completed successfully at Thu Mar 3 04:30:38 2016
switch(config)# install commit n9000- dk9.7.0.3.I1.2.CSCuy16606.bin
Install operation 21 completed successfully at Thu Mar 3 04:31:16 2016

switch (config)# install all nxos bootflash:Nxos.7.0.3.I7.1.bin
Installer will perform compatibility check first. Please wait.
uri is: /Nxos.7.0.3.I7.1.bin
Installer is forced disruptive
Verifying image bootflash:/Nxos.7.0.3.I7.1.bin for boot variable "nxos".
[########################] 100% -- SUCCESS

Verifying image type.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[########################] 100% -- SUCCESS
```
Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Preparing "lcn9k" version info using image bootflash:/Nxos.7.0.3.I7.1.bin.
[############################] 100% -- SUCCESS

Performing module support checks.
[############################] 100% -- SUCCESS

Notifying services about system upgrade.
[############################] 100% -- SUCCESS

Compatibility check is done:

<table>
<thead>
<tr>
<th>Module</th>
<th>bootable</th>
<th>Impact</th>
<th>Install-type</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>6</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>8</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>9</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>10</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>11</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>14</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
</tr>
<tr>
<td>15</td>
<td>yes</td>
<td>disruptive</td>
<td>reset</td>
<td>Incompatible image</td>
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<td>Module</td>
<td>Image</td>
<td>Running-Version (pri:alt)</td>
<td>New-Version</td>
<td>Upg Required</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------</td>
<td>---------------------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1</td>
<td>lcn9k</td>
<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
<td>yes</td>
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<tr>
<td>1</td>
<td>bios</td>
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<td>v01.48(00</td>
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<tr>
<td>6</td>
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<tr>
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<td>7.0(3)I7(1)</td>
<td>yes</td>
</tr>
<tr>
<td>8</td>
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<td>v01.48(00:v01.29(00</td>
<td>v01.48(00</td>
<td>no</td>
</tr>
<tr>
<td>9</td>
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<td>yes</td>
</tr>
<tr>
<td>9</td>
<td>bios</td>
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<td>v01.48(00</td>
<td>no</td>
</tr>
<tr>
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<td>lcn9k</td>
<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
<td>yes</td>
</tr>
<tr>
<td>10</td>
<td>bios</td>
<td>v01.48(00:v01.42(00</td>
<td>v01.48(00</td>
<td>no</td>
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<tr>
<td>11</td>
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<td>yes</td>
</tr>
<tr>
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<td>v01.48(00</td>
<td>no</td>
</tr>
<tr>
<td>14</td>
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<td>7.0(3)I7(1)</td>
<td>yes</td>
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<tr>
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<td>no</td>
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<tr>
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<td>v01.48(00</td>
<td>no</td>
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<tr>
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<td>v01.48(00</td>
<td>no</td>
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<td>yes</td>
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<tr>
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<td>v01.48(00</td>
<td>no</td>
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</tr>
<tr>
<td>22</td>
<td>bios</td>
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<td>v01.48(00</td>
<td>no</td>
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<tr>
<td>23</td>
<td>lcn9k</td>
<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
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<tr>
<td>23</td>
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<td>v01.48(00:v01.40(00</td>
<td>v01.48(00</td>
<td>no</td>
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<td>24</td>
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<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
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<td>24</td>
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<tr>
<td>25</td>
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<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
<td>yes</td>
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<tr>
<td>25</td>
<td>bios</td>
<td>v01.48(00:v01.40(00</td>
<td>v01.48(00</td>
<td>no</td>
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<tr>
<td>26</td>
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<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
<td>yes</td>
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<tr>
<td>26</td>
<td>bios</td>
<td>v01.48(00:v01.40(00</td>
<td>v01.48(00</td>
<td>no</td>
</tr>
<tr>
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<td>v08.06(09/10/2014):v08.18(08/11/2015)</td>
<td>v08.26(01/12/2016)</td>
<td>yes</td>
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<td>v08.06(09/10/2014):v08.26(01/12/2016)</td>
<td>v08.26(01/12/2016)</td>
<td>yes</td>
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<tr>
<td>29</td>
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<td>7.0(3)I7(1)</td>
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<tr>
<td>29</td>
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<td>v01.48(00:v01.35(00</td>
<td>v01.48(00</td>
<td>no</td>
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<tr>
<td>30</td>
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<td>7.0(3)I1(2)</td>
<td>7.0(3)I7(1)</td>
<td>yes</td>
</tr>
</tbody>
</table>
Switch will be reloaded for disruptive upgrade.
Do you want to continue with the installation (y/n)? [n] y

Install is in progress, please wait.

Performing runtime checks.
[####################] 100% -- SUCCESS

Syncing image bootflash:/Nxos.7.0.3.I7.1.bin to standby.
[####################] 100% -- SUCCESS

Setting boot variables.
[####################] 100% -- SUCCESS

Performing configuration copy.
[####################] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 6: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 8: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 9: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 10: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 11: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 14: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS

Module 15: Refreshing compact flash and upgrading bios/loader/bootrom.
Warning: please do not remove or power off the module at this time.
[####################] 100% -- SUCCESS
Module 16: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 21: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 22: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 23: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 24: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 25: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 26: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 27: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 28: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 29: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Module 30: Refreshing compact flash and upgrading bios/loader/bootrom. 
Warning: please do not remove or power off the module at this time.
[############################] 100% -- SUCCESS

Finishing the upgrade, switch will reboot in 10 seconds.
switch(config)#
User Access Verification 
switch login: [ 2644.917727] [1456980048] writing reset reason 88,

CISCO SWITCH Ver 8.26

CISCO SWITCH Ver 8.26
Memory Size (Bytes): 0x0000000080000000 + 0x0000000038000000
Relocated to memory
Detected CISCO IOFPGA
Booting from Primary Bios
Code Signing Results: 0x0
Using Upgrade FPGA
FPGA Revision : 0x27
FPGA ID : 0x1168153
FPGA Date : 0x20160111
Reset Cause Register: 0x22
Boot Ctrl Register : 0x60ff
EventLog Register1 : 0x2000000
EventLog Register2 : 0xfb077fff
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
Board type 1
IOFPGA @ 0xe8000000
SLOT_ID @ 0x1b
Standalone chassis
check_bootmode: grub: Continue grub
Trying to read config file /boot/grub/menu.lst.local from (hd0,4)
Filesystem type is ext2fs, partition type 0x83

Booting bootflash:/Nvos.7.0.3.I7.1.bin ...
Booting bootflash:/Nvos.7.0.3.I7.1.bin
Trying diskboot
Filesystem type is ext2fs, partition type 0x83
IOFPGA ID: 1168153
Image valid

Image Signature verification was Successful.

INIT: version 2.88 booting
Unsquashing rootfs ...

Loading IGB driver ...
Installing SSE module ... done
Creating the sse device node ... done
Loading I2C driver ...
Installing CCTRL driver for card_type 3 ...
CCTRL driver for card_index 21000 ...
old data: 4000004 new data: 1
Not Micron SSD...

Checking all filesystems.......
Installing default sprom values ...
done.Configuring network ...
Installing LC netdev ...
Installing psdev ...
Installing veobc ...
Installing OBFL driver ...
mounting plog for N9k!
tune2fs 1.42.1 (17-Feb-2012)
Setting reserved blocks percentage to 0% (0 blocks)
Starting portmap daemon...
creating NFS state directory: done
starting 8 nfsd kernel threads: done
starting mountd: done
starting statd: done
Saving image for img-sync ...
Loading system software
Installing local RPMS
Patch Repository Setup completed successfully
dealing with default shell..
file /proc/cmdline found, look for shell
unset shelltype, nothing to do..
user add file found..edit it
blogger: nothing to do.
..done Thu Mar 3 04:42:11 UTC 2016
Creating /dev/mcelog
Starting mcelog daemon
Overwriting dme stub lib
Replaced dme stub lib
INIT: Entering runlevel: 3
Running S93thirdparty-script...

2016 Mar 3 04:42:37 switch%$ VDC-1 %$ %USER-2-SYSTEM_MSG: <<%USBHSD-2-MOUNT>> logflash: online - usbhsd
2016 Mar 3 04:42:40 switch%$ VDC-1 %$ %VMAN-2-INSTALL_STATE: Installing virtual service ‘guestshell+‘
2016 Mar 3 04:42:40 switch%$ VDC-1 %$ %DAEMON-2-SYSTEM_MSG: <<%ASCII-CFG-2-CONF_CONTROL>> Binary restore - ascii-cfg[13904]
2016 Mar 3 04:42:40 switch%$ VDC-1 %$ %DAEMON-2-SYSTEM_MSG: <<%ASCII-CFG-2-CONF_CONTROL>> Restore DME database - ascii-cfg[13904]
2016 Mar 3 04:42:42 switch%$ VDC-1 %$ netstack: Registration with cli server complete
2016 Mar 3 04:43:00 switch%$ VDC-1 %$ %USER-2-SYSTEM_MSG: ssnmgr_app_init called on ssnmgr up - aclmgr
2016 Mar 3 04:43:09 switch%$ VDC-1 %$ %USER-0-SYSTEM_MSG: end of default policer - copp
2016 Mar 3 04:43:10 switch%$ VDC-1 %$ %VMAN-2-INSTALL_STATE: Install success virtual service ‘guestshell+‘; Activating
2016 Mar 3 04:43:10 switch%$ VDC-1 %$ %VMAN-2-ACTIVATION_STATE: Activating virtual service ‘guestshell+‘
2016 Mar 3 04:43:13 switch%$ VDC-1 %$ %CARDCLIENT-2-FPGA_BOOT_PRIMARY: IOFPGA booted from Primary
2016 Mar 3 04:43:18 switch%$ VDC-1 %$ %USER-2-SYSTEM_MSG: IPv6 Netlink thread init successful - icmpv6
2016 Mar 3 04:43:19 switch%$ VDC-1 %$ %VDC_MGR-2-VDC_ONLINE: vdc 1 has come online

User Access Verification
switchlogin: 2016 Mar 3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 1
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 6
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 8
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 9
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 10
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 11
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 14
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 15
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 16
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 21
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 22
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 23
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 24
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 25
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 26
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 28
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 29
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PRESENT: Detected the presence of Module 30
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_OK: Power supply 1 ok (Serial number DTM173903QQ)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_FANOK: Fan in Power supply 1 ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_OK: Power supply 2 ok (Serial number DTM174000SB)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_FANOK: Fan in Power supply 2 ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_OK: Power supply 3 ok (Serial number DTM174000RR)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_FANOK: Fan in Power supply 3 ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_OK: Power supply 4 ok (Serial number DTM173903SH)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_FANOK: Fan in Power supply 4 ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_OK: Power supply 5 ok (Serial number DTM173903SR)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-PS_FANOK: Fan in Power supply 5 ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-FANMOD_FAN_OK: Fan module 1 (Fan1(sys_fan1) fan) ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-FANMOD_FAN_OK: Fan module 2 (Fan2(sys_fan2) fan) ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-FANMOD_FAN_OK: Fan module 3 (Fan3(sys_fan3) fan) ok
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 30 detected (Serial number SAL1803KQ78) Module- Type System Controller Model N9K-SC-A
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 30 powered up (Serial number SAL1803KQ78)
2016 Mar  3 04:43:52 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 28 detected (Serial number :unavailable) Module- Type Supervisor Module Model :unavailable
2016 Mar  3 04:43:58 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 29 detected (Serial number SAL1803KQAS) Module- Type System Controller Model N9K-SC-A
2016 Mar  3 04:43:58 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 29 powered up (Serial number SAL1803KQAS)
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 21 detected (Serial number SAL1813NZMB) Module- Type Fabric Module Model N9K- C9516-FM
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 22 detected (Serial number SAL1811NE36) Module- Type Fabric Module Model N9K- C9516-FM
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 21 powered up (Serial number SAL1813NZMB)
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 22 powered up (Serial number SAL1811NE36)
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 23 detected (Serial number SAL1813P9VN) Module- Type Fabric Module Model N9K- C9516-FM
2016 Mar  3 04:44:01 switch%$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 23 powered up (Serial number
SAL1813P9VN)
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 24 detected (Serial number
SAL1811NE3U) Module-Type Fabric Module Model N9K- C9516-FM
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 24 powered up (Serial number
SAL1811NE3U)
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 25 detected (Serial number
SAL1813NZNB) Module-Type Fabric Module Model N9K- C9516-FM
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 25 powered up (Serial number
SAL1813NZNB)
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 26 detected (Serial number
SAL1811NE46) Module-Type Fabric Module Model N9K- C9516-FM
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 26 powered up (Serial number
SAL1811NE46)
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MODULE_EJECTOR_POLICY_ENABLED: All Ejectors closed
to module 9. Ejector based shutdown enabled
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 9 detected (Serial number
SAL1746G7Y3) Module-Type 48x1/10G T 4x40G Ethernet Module Model N9K- X9564TX
2016 Mar 3 04:44:01 switch%VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 9 powered up (Serial number
SAL1746G7Y3)
SAL1910AP3B) Module- Type 8p 100G Ethernet Module Model N9K-X9408PC-CFP2
2016 Mar  3 04:44:08 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_PWRUP: Module 14 powered up (Serial number SAL1910AP3B)
2016 Mar  3 04:44:09 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_POWERUP: Module 14 powered up (Serial number SAL1910AP3B)
2016 Mar  3 04:44:09 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_DETECT: Module 6 detected (Serial number SAL1910AP4E) Module- Type 8p 100G Ethernet Module Model N9K-X9408PC-CFP2
2016 Mar  3 04:44:09 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_PWRUP: Module 6 powered up (Serial number SAL1910AP4E)
2016 Mar  3 04:44:10 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_DETECT: Module 6 detected (Serial number SAL1910AP4E)
2016 Mar  3 04:44:10 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_PWRUP: Module 6 powered up (Serial number SAL1910AP4E)
2016 Mar  3 04:44:10 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_DETECT: Module 8 detected (Serial number SAL1746G7Y8) Module- Type 48x1/10G- T 4x40G Ethernet Module Model N9K-X9564TX
2016 Mar  3 04:44:10 switch$ VDC- 1 %$ %PLATFORM- 2- MOD_PWRUP: Module 8 powered up (Serial number SAL1746G7Y8)
2016 Mar  3 04:44:56 switch$ VDC- 1 %$ %USBHSD-STANDBY-2- MOUNT: logflash: online
2016 Mar  3 04:47:31 switch$ VDC- 1 %$ %ASCII-CFG-2-CONF_CONTROL: System ready
2016 Mar  3 04:47:51 switch$ VDC- 1 %$ %VMAN-2-ACTIVATION_STATE: Successfully activated virtual service 'guestshell'
2016 Mar  3 04:47:51 switch$ VDC- 1 %$ %VMAN-2-GUESTSHELL_ENABLED: The guest shell has been enabled. The command 'guestshell' may be used to access it, 'guestshell destroy' to remove it.

User Access Verification

switch# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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Software
BIOS: version 08.26
NXOS: version 7.0(3)I7(1)
BIOS compile time: 06/12/2016
NXOS image file is: bootflash:///Nxos.7.0.3.I7.1.bin
NXOS compile time: 2/8/2016 20:00:00 [02/09/2016 05:18:17]
Downgrade Instructions

Disable the Guest Shell if you need to downgrade from Cisco NX-OS Release 7.0(3)I7(1) to an earlier release.

- Performing an ISSU downgrade from Cisco NX-OS Release 7.0(3)I7(1) to Release 7.0(3)I4(1) with an FCoE (Fiber Channel over Ethernet) NPV (N-port Virtualization) configuration causes the port channel to crash with a core file:

```
[################ ] 38%2016 Apr 18 20:52:35 n93-ns1 %$ VDC-1 %$ %SYSMGR-2-
SERVICE_CRASHED: Service "port-channel" (PID 14976) hasn't caught signal 11 (core will
be saved)
```

- ISSU (non-disruptive) downgrade is not supported.

- Downgrading with PVLANs (Private VLANs) configured is only supported with Cisco NX-OS 6.1(2)I3(4x) releases.

- For a boot-variable change and reload to Cisco NX-OS Release 7.0(3)I1(1x), the PVLAN process is not brought up, and the PVLAN ports are kept down. For a boot-variable change to the Cisco NX-OS Release 6.1(2)I3(3) and earlier, an ASCII replay will be tried, but feature PVLANs and other PVLAN configurations will fail.

Software Maintenance Upgrades

For information about software maintenance upgrades, see the “Performing Software Maintenance Upgrades” section in the Cisco Nexus 9000 Series NX-OS System Management Configuration Guide.
Note: If you perform a software maintenance upgrade (SMU) and later upgrade your device to a new Cisco NX-OS software release, the new image will overwrite both the previous Cisco NX-OS release and the SMU package file.

Limitations

This section lists limitations related to Cisco NX-OS Release 7.0(3)I7(1).

- Auto-negotiation is not supported on 25-G Ethernet transceiver modules on Cisco Nexus 9200 and 9300-FX platform switches, and Cisco Nexus 9500 platform switches that use N9K-X9700-EX line cards.

- On the Cisco Nexus 9364C switches, auto-negotiation might not work on ports 49-64 when bringing up 100G links using the QSFP-100G-CR4 cable. The workaround for this issue is that you must hard code the speed on ports 49-64 and disable auto-negotiation.

- We recommend using multicast heavy template for optimal bandwidth utilization when using multicast traffic flows.

- IPv6 multicast is not supported on Cisco Nexus 9500 platform switches.

- If you enable and disable a feature using a script in one VSH terminal session and execute those feature related commands in another terminal session, the behavior is unpredictable. Configuring and deleting the same parser chain in multiple VSH sessions is not supported. You must refrain from entering feature specific show CLI commands from a different VSH session when the same feature is being disabled in another terminal session.

  Doing so might even result in a VSH crash. There is no functional impact or SSO or reload due to this crash.

- A delay of 10 to 15 seconds occurs when applying certain configurations to interfaces through the REST API. If you try to configure a port as a switch port and make it either an access or trunk port, a delay occurs in applying either the access or trunk VLANs to the port. This delay is only seen when trying to apply all of the configuration at once. If the port is already a switch port, the issue is not seen. This behavior is due to how NXAPI REST is programmed which concurrently sends requested changes to different processes.

- VXLAN/EVPN integration is not supported on the Cisco Nexus 9348GC-FXP switch.

- If the speed group is configured, the default interface command displays the following error:

  Error: default interface is not supported as speed-group is configured

- Line rate cannot be sustained across all 36 ports on the 9736C-EX line card.

- You must use either the CLI or SNMP to configure a feature on your switch. Do not configure a feature using both interfaces to the switch.

- Ingress DROP_ACL_DROP is seen with Cisco Nexus 9272Q, 9236C, and 92160YC-X switches on an ASIC during congestion. However, these drops do not impact the performance of the switch.

- Ingress queuing policy is supported only at the system level (and not at the interface level) for Cisco Nexus 9508 switches with the X9732C-EX line card and Cisco Nexus 93108TC-EX and 93180YC-EX switches.

- Q-in-VNI has the following limitations:

  - Single tag is supported on Cisco Nexus 9300 platform switches. It can be enabled by unconfiguring the overlay-encapsulation vxlan-with-tag command from interface nve:

    switch(config)# int nve 1
Cisco Nexus 9000 Series NX-OS Release Notes, Release 7.0(3)I7(1)

Limitations

```
switch (config-if-nve)# no overlay-encapsulation vxlan-with-tag
switch # sh run int nve 1

!Command: show running-config interface nve1

version 7.0(3u)I4(2u)

interface nve1
  no shutdown
  source-interface loopback0
  host-reachability protocol bgp
  member vni 900001 associate-vrf
  member vni 2000980
  suppress-arp
  mcast-group 225.4.0.1

```  

- Single tag is not supported on Cisco Nexus 9500 platform switches; only double tag is supported.
- Double tag is not supported on Cisco Nexus 9300-EX platform switches, only single tag is supported.
- When upgrading from Cisco NX-OS Release 7.0(3)I3(1) or 7.0(3)I4(1) to Cisco NX-OS Release 7.0(3)I7(1) with Cisco Nexus 9300 platform switches without the `overlay-encapsulation vxlan-with-tag` command under interface nve, you should add `overlay-encapsulation vxlan-with-tag` under the nve interface in the older release before starting the ISSU upgrade. We were only supporting double tag in Cisco NX-OS Release 7.0(3)I3(1) and 7.0(3)I4(1). We now support single tag also in Cisco NX-OS Release 7.0(3)I7(1).
- We do not support traffic between ports configured for Q-in-VNI and ports configured for trunk on Cisco Nexus 9300-EX platform switches.

- Resilient hashing (port-channel load-balancing resiliency) and VXLAN configurations are not compatible with VTEPs using ALE uplink ports. Please note that resilient hashing is disabled by default.
- Fast reload is supported only on the Cisco Nexus 9232C, and 92304QC switches starting with Cisco NX-OS Release 7.0(3)I6(1).
- CoPP (Control Plane Policing) cannot be disabled. If you attempt to disable it in Cisco NX-OS Release 7.0(3)I7(1), an error message appears. In previous releases, attempting to disable CoPP causes packets to be rate limited at 50 packets per seconds.
- Skip CoPP policy option has been removed from the Cisco NX-OS initial setup utility because using it can impact the control plane of the network.
- `hardware profile front portmode` command is not supported on the Cisco Nexus 9000 Series switches.
- PV (Port VLAN) configuration through an interface range is not supported.
- Layer 3 routed traffic for missing Layer 2 adjacency information is not flooded back onto VLAN members of ingress units when the source MAC address of routed traffic is a non-VDC (Virtual Device Context) MAC address. This limitation is for hardware flood traffic and can occur when the SVI (Switched Virtual Interface) has a user-configured MAC address.
- `neighbor-down fib-accelerate` command is supported in a BGP-only environment.
- Uplink modules should not be removed from a Cisco Nexus 9300 platform switch that is running Cisco NX-OS Release 7.0(3)I7(1). The ports on uplink modules should be used only for uplinks.
Limitations

- PortLoopback and BootupPortLoopback tests are not supported.

- PFC (Priority Flow Control) and LLFC (Link- Level Flow Control) are supported for all Cisco Nexus 9300 and 9500 platform switches except for the 100 Gb 9408PC line card and the 100 Gb M4PC generic expansion module (GEM).

- FEXs configured with 100/full- duplex speed, without explicitly configuring the neighboring device with 100/full- duplex speed, will not pass data packet traffic properly. This occurs with or without the link appearing to be “up.”
  - `no speed`—Auto negotiates and advertises all speeds (only full duplex).
  - `speed 100`—Does not auto negotiate; pause cannot be advertised. The peer must be set to not auto negotiate (only 100 Mbps full duplex is supported).
  - `speed 1000`—Auto negotiates and advertises pause (advertises only for 1000 Mbps full duplex).

- Eight QoS groups are supported only on modular platforms with the Cisco Nexus 9300 N9K- M4PC- CFP2 uplink module, and the following Cisco Nexus 9500 platform line cards:
  - N9K- X9432PQ
  - N9K- X9464PX
  - N9K- X9464TX
  - N9K- X9636PQ

- Flooding for Microsoft Network Load Balancing (NLB) unicast mode is supported only on Cisco Nexus 9200, 9300- EX, 9300- FX and 9500 platform switches. However, if the NLB servers are connected on FEX HIFs, flooding does not work. NLB is not supported in max-host system routing mode, and NLB multicast mode is not supported.

  **Note:** To work around the situation of Unicast NLB limitation, Cisco can statically hard code the address resolution protocol (ARP) and MAC address pointing to the correct interface. Please refer to bug ID CSCuq03168.

- TCAM resources are not shared when:
  - Applying VACL (VLAN ACL) to multiple VLANs
  - Routed ACL (Access Control List) is applied to multiple SVIs in the egress direction

- Cisco Nexus 9000 Series switch hardware does not support range checks (layer 4 operators) in egress TCAM. Because of this, ACL/QoS policies with layer 4 operations- based classification need to be expanded to multiple entries in the egress TCAM. Egress TCAM space planning should take this limitation into account.

- Applying the same QoS policy and ACL on multiple interfaces requires applying the `qos-policy` with the `nostats` option to share the label.

- Multiple port VLAN mappings configured on an interface during a rollback operation causes the rollback feature to fail.

- The following switches support QSFP+ with the QSFP to SFP/SFP+ adapter (40 Gb to 10 Gb):
  - N9K- C93120TX
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Limitations

- N9K-C93128TX
- N9K-C9332PQ
- N9K-C9372PX
- N9K-C9372PX-E
- N9K-C9372TX
- N9K-C9396PX
- N9K-C93108TC-EX
- N9K-C93180YC-EX
Note: The Cisco Nexus 9300 platforms support for the QSFP+ breakout has the following limitations:

- Only 10 Gb can be supported using the QSFP-to-SFP Adapter on 40-Gb uplink ports on Cisco Nexus 9300 platform switches in NX-OS.
- 1 Gb with QSFP-to-SFP Adapter is not supported.
- For the Cisco Nexus 9332PQ switch, all ports except 13-14 and 27-32 can support breakout.
- All ports in the QSFP-to-SFP Adapter speed group must operate at the same speed (see the configuration guide). This applies to the following switches:
  - Cisco Nexus 9372PX
  - Cisco Nexus 9372PX-E
  - Cisco Nexus 9372TX
  - Cisco Nexus 9372TX-E
  - Cisco Nexus 9396PX
  - Cisco Nexus 9396TX
  - Cisco Nexus 93120TX
  - Cisco Nexus 93128TX

- The following switches support the breakout cable (40 Gb ports to 4x10-Gb ports):
  - N9K-C9332PQ
  - N9K-X9436PQ
  - N9K-X9536PQ
  - N9K-C93180LC-EX—last four ports are breakout capable (10x4, 24x4, 50x2)
  - N9K-C93180YC-EX
  - N9K-C93108TC-EX
  - N9K-X9732C-EX line card
  - N9K-X97160YC-EX

- Weighted ECMP (Equal-Cost Multi-Path) is not supported on the Cisco Nexus 9000 Series switches.
- Limitations for ALE (Application Link Engine) uplink ports are listed at the following URL:

Guidelines and Limitations for Private VLANs

This section provides guidelines and limitations for configuring private VLANs.

- Configuring Private VLANs
- Secondary and Primary VLAN Configuration
- Private VLAN Port Configuration
- Limitations with Other Features

**Configuring Private VLANs**

For more information, see the Cisco Nexus 9000 Series NX-OS Layer 2 Switching Configuration Guide.

Private VLANs have the following configuration guidelines and limitations:

- Private VLANs must be enabled before the device can apply the private VLAN functionality.
- VLAN interface feature must be enabled before the device can apply this functionality.
- VLAN network interfaces for all VLANs that you plan to configure as secondary VLANs should be shut down before being configured.
- When a static MAC is created on a regular VLAN, and then that VLAN is converted to a secondary VLAN, the Cisco NX-OS maintains the MAC that was configured on the secondary VLAN as the static MAC.
- PVLANs support port modes as follows:
  - Community host
  - Isolated host
  - Isolated host trunk
  - Promiscuous
  - Promiscuous trunk
- When configuring PVLAN promiscuous or PVLAN isolated trunks, it is recommended to allow non-private VLANs in the list specified by the `switchport private-vlan trunk allowed vlan` command.
- PVLANs are mapped or associated depending on the PVLAN trunk mode.
- PVLANs support the following:
  - Layer 2 forwarding
  - PACLs (Port Access Control Lists)
  - Promiscuous trunk
  - PVLAN across switches through a regular trunk port
  - RACLs (Router Access Control Lists)
- PVLANs support SVIs as follows:
- HSRP (Hot Standby Router Protocol) on the primary SVI
- Primary and secondary IPs on the SVI
- SVI allowed only on primary VLANs

- **PVLANs support STP as follows:**
  - MST (Multiple Spanning Tree)
  - RSTP (Rapid Spanning Tree Protocol)

- **PVLANs port mode is not supported on the following:**
  - 40-Gb interfaces of the Cisco Nexus ALE ports on Cisco Nexus 9300 platform switches.
  - Cisco Nexus 3164Q

- **PVLANs are supported on breakout ports for the Cisco Nexus 9200 and 9300-EX platform switches.**

- **PVLANs do not provide support for the following:**
  - DHCP (Dynamic Host Channel Protocol) snooping
  - IP multicast or IGMP snooping
  - PVLAN QoS
  - SPAN (Switch Port Analyzer) when the source is a PVLAN VLAN
  - Tunnels
  - VACLs
  - VTP (VLAN Trunk Protocol)
  - VXLANs

- **Breakout ports cannot be configured to be part of a private VLAN on Cisco Nexus 9500 platform switches’ 40 G ports with the following line cards:**
  - N9K-X9636PQ
  - N9K-X9564PX
  - N9K-X9564TX
  - N9K-X9536PQ
  - N9K-X9432PQ
  - N9K-X9464PX
  - N9K-X9464TX

- For more details, see the Cisco Nexus 9000 Series NX-OS Layer 2 Switching Configuration Guide.

- Configuring multiple isolated VLAN configurations per PVLAN group is allowed by the Cisco NX-OS CLI. However, such a configuration is not supported. A PVLAN group can have at most one isolated VLAN.
Secondary and Primary VLAN Configuration

Follow these guidelines when configuring secondary or primary VLANs in private VLANs:

- Default VLANs (VLAN1), or any of the internally allocated VLANs, cannot be configured as primary or secondary VLANs.

- VLAN configuration (config-vlan) mode must be used to configure PVLANs.

- Primary VLANs can have multiple isolated and community VLANs associated with it. An isolated or community VLAN can be associated with only one primary VLAN.

- Private VLANs provide host isolation at Layer 2. However, hosts can communicate with each other at Layer 3.

- PVLAN groups can have one isolated VLAN at most. Multiple isolated VLAN configurations per primary VLAN configurations are not supported.

- When a secondary VLAN is associated with the primary VLAN, the STP parameters of the primary VLAN, such as bridge priorities, are propagated to the secondary VLAN. However, STP parameters do not necessarily propagate to other devices. You should manually check the STP configuration to ensure that the spanning tree topologies for the primary, isolated, and community VLANs match exactly so that the VLANs can properly share the same forwarding database.

- For normal trunk ports, note the following:
  - Separate instances of STP exist for each VLAN in the private VLAN.
  - STP parameters for the primary and all secondary VLANs must match.
  - Primary and all associated secondary VLANs should be in the same MST instance.

- For non-trunking ports, STP is aware only of the primary VLAN for any private VLAN host port; STP runs only on the primary VLAN for all private VLAN ports.

**Note:** We recommend that you enable BPDU Guard on all ports that you configure as a host port; do not enable this feature on promiscuous ports.

- PVLAN promiscuous trunk ports allow you to configure a maximum of 16 private VLAN primary and secondary VLAN pairs on each promiscuous trunk port.

- For PVLAN isolated trunk ports, note the following:
  - You can configure a maximum of 16 private VLAN primary and secondary VLAN pairs on each isolated trunk port.
  - The native VLAN must be either a normal VLAN or a private VLAN secondary VLAN. You cannot configure a private VLAN primary port as the native VLAN for a private VLAN isolated trunk port.

- Downgrading a system that has PVLAN ports configured to a release that does not support PVLAN requires unconfiguring the ports.

- Before configuring a VLAN as a secondary VLAN, you must shut down the VLAN network interface for the secondary VLAN.

Private VLAN Port Configuration

Follow these guidelines when configuring private VLAN ports:
Deleting a VLAN used in the PVLAN configuration causes PVLAN ports (promiscuous ports or host ports, not trunk ports) that are associated with the VLAN to become inactive.

Layer 2 access ports that are assigned to the VLANs that you configure as primary, isolated, or community VLANs are inactive while the VLAN is part of the PVLAN configuration. Layer 2 trunk interfaces, which may carry PVLANs, are active and remain part of the STP database.

Use only the PVLAN configuration commands to assign ports to primary, isolated, or community VLANs.

**Limitations with Other Features**

Consider these configuration limitations with other features when configuring PVLAN:

**Note:** In some cases, the configuration is accepted with no error messages, but the commands have no effect.

- After configuring the association between the primary and secondary VLANs and deleting the association, all static MAC addresses that were created on the primary VLANs remain on the primary VLAN only.

- After configuring the association between the primary and secondary VLANs:
  - Static MAC addresses for the secondary VLANs cannot be created.
  - Dynamic MAC addresses that learned the secondary VLANs are aged out.

- Destination SPAN ports cannot be isolated ports. However, a source SPAN port can be an isolated port.

- Ensure consistent PVLAN type, states, and configuration across vPC peers. There is currently no PVLAN consistency check for vPC. Inconsistent PVLAN configs across vPV peers may end up in incorrect forwarding and impacts.

- In PVLANs, STP controls only the primary VLAN.

- PVLAN host or promiscuous ports cannot be SPAN destination ports.

- PVLAN ports can be configured as SPAN source ports.

- vPC pairing between T2 and TH platforms is not recommended.

**Note:** See the Cisco Nexus 9000 Series NX-OS Security Configuration Guide for information on configuring static MAC addresses.

**Guidelines and Limitations for Fabric Extenders**

This section lists configuration guidelines and limitations for the Cisco Nexus 2000 Series Fabric Extenders:

- Post-routed flood is not supported.

- The configuration is purged when:
  - Straight-through FEXs are converted to dual-homed
  - Dual-homed FEXs are converted to Straight-through.

- Conversion from dual-homed FEX to straight-through or straight-through to dual-homed FEX requires a reload of the parent switch.
Unsupported Features

There are two cases for dual-home to straight-through conversion:

- While the FEX is online: the FEX goes down as a dual-homed FEX on conversion and comes back up a straight-through FEX. The configuration is purged on bringup.

- While the FEX is offline: the FEX goes down as a dual-homed FEX, then the `no vpc id` command is entered on the fabric port channel. No configuration purge takes place. In this scenario, default the configuration on FEX interfaces while toggling the mode from active-active to straight-through.

For more information, see the Cisco Nexus 2000 Series NX-OS Fabric Extender Configuration Guide for Cisco Nexus 9000 Series Switches, Release 7.x.

Unsupported Features

Notes regarding unsupported features:

- **Cisco Nexus 3232C and 3264Q Switches**
- **Cisco Nexus 9200 and 9300-EX Series Switches**
- **Cisco Nexus 9408 Line Card and 9300 Series Switches**
- **Cisco Nexus 9732C-EX Line Card**
- **DHCP**
- **FEX**
- **Other Unsupported Features**
- **PVLAN**
- **VXLAN**

Cisco Nexus 3232C and 3264Q Switches

The following features are not supported for the Cisco Nexus 3232C and 3264Q switches:

- 3264Q and 3232C platforms do not support the PXE boot of the NX-OS image from the loader.
- Automatic negotiation support for 25-Gb and 50-Gb ports on the Cisco Nexus 3232C switch
- Cisco Nexus 2000 Series Fabric Extenders (FEX)
- Cisco NX-OS to ACI conversion (The Cisco Nexus 3232C and 3264Q switches operate only in Cisco NX-OS mode.)
- DCBXp
- Designated router delay
- DHCP subnet broadcast is not supported
- Due to a Poodle vulnerability, SSLv3 is no longer supported
- FCoE NPV
Unsupported Features

- Intelligent Traffic Director (ITD)
- Enhanced ISSU. **NOTE:** Check the appropriate guide to determine which platforms support Enhanced ISSU.
- MLD
- NetFlow
- PIM6
- Policy-based routing (PBR)
- Port loopback tests
- Resilient hashing
- SPAN on CPU as destination
- Virtual port channel (vPC) peering between Cisco Nexus 3232C or 3264Q switches and Cisco Nexus 9300 platform switches or between Cisco Nexus 3232C or 3264Q switches and Cisco Nexus 3100 Series switches
- VXLAN IGMP snooping

**Cisco Nexus 9200 and 9300-EX Platform Switches**

The following features are not supported for the Cisco Nexus 9200 platform switches and the Cisco Nexus 93108TC-EX and 93180YC-EX switches:

- 64-bit ALPM routing mode
- Cisco Nexus 9272PQ and Cisco Nexus 92160YC platforms do not support the PXE boot of the NXOS image from the loader.
- ACL filters to span subinterface traffic on the parent interface
- Egress port ACLs
- Egress QoS policer or marking
- FEX (supported for Cisco Nexus 9300-EX platform switches but not for Cisco Nexus 9200 platform switches.)
- GRE v4 payload over v6 tunnels
- Host to LPM spillover
- IP length-based matches
- IP-in-IP on Cisco Nexus 92160 switch
- ISSU enhanced
- Layer 2 Q-in-Q is supported only on Cisco Nexus 9300-EX platform switches (93108TC-EX and 93180YC-EX) and Cisco Nexus 9500 platform switches with the X9732C-EX line card.
- MTU (Multi Transmission Unit) checks for packets received with an MPLS header
- NetFlow
Unsupported Features

- Packet-based statistics for traffic storm control (only byte-based statistics are supported)
- PV routing for VXLAN
- PVLANs (supported on Cisco Nexus 9300 and 9300-EX platform switches but not on Cisco Nexus 9200 platform switches)
- Q-in-VNI is not supported on Cisco Nexus 9200 platform switches. Beginning with Cisco NX-OS Release 7.0(3)I5(1), Q-in-VNI is supported on Cisco Nexus 9300-EX platform switches.
- Q-in-Q for VXLAN is not supported on Cisco Nexus 9200 and 9300-EX platform switches
- Q-in-VNI is not supported on Cisco Nexus 9200 platform switches (supported on Cisco Nexus 9300-EX platform switches)
- Resilient hashing for ECMP
- Resilient hashing for port-channel
- Rx SPAN for multicast if the SPAN source and destination are on the same slice and no forwarding interface is on the slice
- SVI uplinks with Q-in-VNI are not supported with Cisco Nexus 9300-EX platform switches
- Traffic storm control for copy-to-CPU packets
- Traffic storm control with unknown multicast traffic
- Tx SPAN for multicast, unknown multicast, and broadcast traffic
- VACL redirects for TAP aggregation

Cisco Nexus 9500 Platform N9K-X9408PC-CFP2 Line Card and 9300 Platform Switches

The following features are not supported for the Cisco Nexus 9500 platform N9K-X9408PC-CFP2 line card and Cisco Nexus 9300 platform switches with generic expansion modules (N9K-M4PC-CFP2):

- 802.3x
- Breakout ports
- FEX (this applies to the N9K-X9408PC-CFP2 and -EX switches, not all Cisco Nexus 9300 platform switches)
- MCT (Multichassis EtherChannel Trunk)
- NetFlow
- Only support 40G flows
- Port-channel (No LACP)
- PFC/LLFC
- PTP (Precision Time Protocol)
- PVLAN (supported on Cisco Nexus 9300 platform switches)
Unsupported Features

- Shaping support on 100g port is limited
- SPAN destination/ERSPAN destination IP
- Storm Control
- vPC
- VXLAN access port.

N9K-X9732C-EX Line Card

The following features are not supported for Cisco Nexus 9508 switches with an N9K-X9732C-EX line card:

- FEX
- IPv6 support for policy-based routing
- LPM dual-host mode
- SPAN port-channel destinations
- TAP aggregation

DHCP

DHCP subnet broadcast is not supported.

FEX

- Cisco Nexus 9300 platform switches do not support FEX on uplink modules (ALE).
- FEX is supported only on the Cisco Nexus 9332PQ, 9372PX, 9372PX-E, 9396PX, 93180YC-EX, and 9500 platform switches (FEX is not supported on the N9K-X9732C-EX line card, and Cisco Nexus 9200 platforms).
- FEX vPC is not supported between any model of FEX and the Cisco Nexus 9500 platform switches as the parent switches.
- IPSG (IP Source Guard) is not supported on FEX ports.
- VTEP connected to FEX host interface ports is not supported.
- FEX Layer 3 is not supported on the Cisco Nexus 2348TQ-E fabric.

Other Unsupported Features

The following lists other features not supported in the current release:

- Cisco Nexus 9300 platform switches do not support the 64-bit ALPM routing mode.
- Due to a Poodle vulnerability, SSLv3 is no longer supported.
- IPSG is not supported on the following:
  - The last six 40-Gb physical ports on the Cisco Nexus 9372PX, 9372TX, and 9332PQ switches
All 40G physical ports on the Cisco Nexus 9396PX, 9396TX, and 93128TX switches

PVLAN
This section lists PVLAN features that are not supported.

- PVLAN PO/VPC PO is not supported on Cisco Nexus N9K-X9632PC-QSFP100, N9K-X9432C-S.

VXLAN
This section lists VXLAN features that are not supported.

- Consistency checkers are not supported for VXLAN tables.
- DHCP snooping and DAI features are not supported on VXLAN VLANs.
- IPv6 for VXLAN EVPN ESI MH is not supported.
- Native VLANs for VXLAN are not supported. All traffic on VXLAN Layer 2 trunks needs to be tagged.
- QoS buffer-boost is not applicable for VXLAN traffic.
- QoS classification is not supported for VXLAN traffic in the network-to-host direction as ingress policy on uplink interface.
- Static MAC pointing to remote VTEP (VXLAN Tunnel End Point) is not supported with BGP EVPN (Ethernet VPN).
- TX SPAN (Switched Port Analyzer) for VXLAN traffic is not supported for the access-to-network direction.
- VXLAN routing and VXLAN Bud Nodes features on the 3164Q platform are not supported.

VXLAN ACL Limitations
- The following ACL related features are not supported:
  - Egress RACL that is applied on an uplink Layer 3 interface that matches on the inner or outer payload in the access-to-network direction (encapsulated path).
  - Ingress RACL that is applied on an uplink Layer 3 interface that matches on the inner or outer payload in the network-to-access direction (decapsulated path).

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


The Cisco Nexus 3164Q Switch - Read Me First is available at the following URL:


The Cisco Nexus 31128PQ Switch - Read Me First is available at the following URL:
The Cisco Nexus 3232C/3264Q Switch - Read Me First is available at the following URL:


The Cisco Nexus 3000 and 9000 Series NX- API REST SDK User Guide and API Reference is available at the following URL:

https://developer.cisco.com/site/nx-os/docs/n3k-n9k-api-ref/

New Documentation

The Cisco Nexus 9000 Series and Cisco Nexus 3000 Series FPGA/EPLD Upgrade Release Notes, Release 7.0(3)I7(1) is available at the following URL.


The Cisco Nexus 9000 Series NX- OS Verified Scalability Guide, Release 7.0(3)I7(1) is available at the following URL:


The Cisco Nexus 9348GC- FXP NX-OS Mode Switch Hardware Installation Guide is available at the following URL:


The Cisco Nexus 93108TC- FX NX-OS Mode Switch Hardware Installation Guide is available at the following URL:


The Cisco Nexus 93108YC- FX NX-OS Mode Switch Hardware Installation Guide is available at the following URL:


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

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