# Cisco Nexus 3000 Series Hardware Installation Guide

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# Preface


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## Audience

This publication is for hardware installers and network administrators who install, configure, and maintain Cisco Nexus switches.

## Related Documentation

### Release Notes

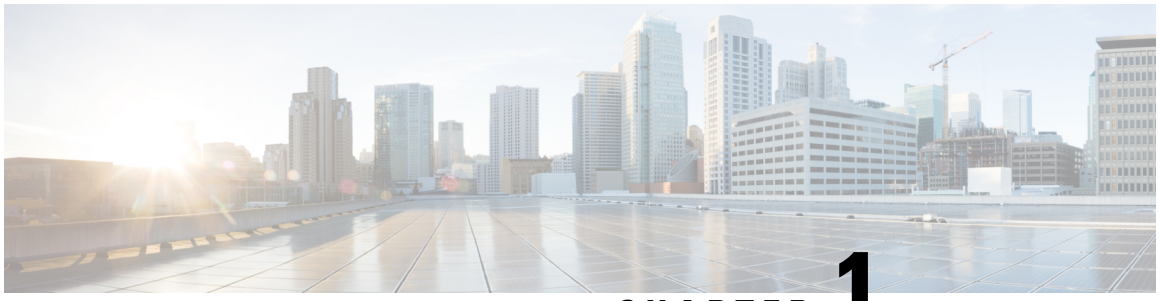
Release Notes for the Cisco Nexus 3000 Series switches.

### Transceiver Compatibility

Transceiver Modules Compatibility Information

### Regulatory Compliance Guides

Regulatory, Compliance, and Safety Information for the Cisco Nexus 3000 and 9000 Series switches.



CHAPTER 1

# Overview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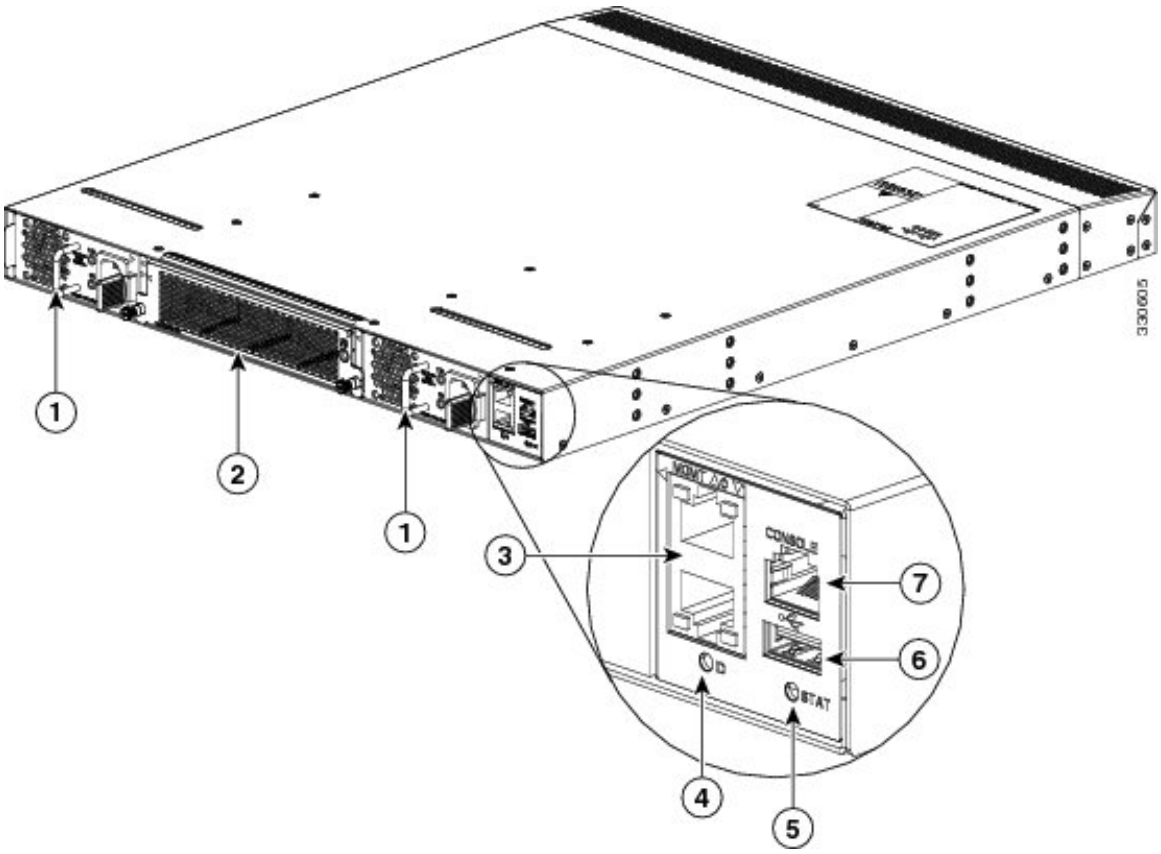
## Overview of the Cisco Nexus 3016 Switch

The Cisco Nexus 3016 (N3K-C3016-40GE) is a 1 rack unit (RU) switch with 16 fixed 40-Gigabit Ethernet downlink (host-facing) and uplink (network-facing) ports, 2 fixed 100/1000 management ports, 1 RS-232 console port, and 1 USB port. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy. The switch includes Layer 3 license.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

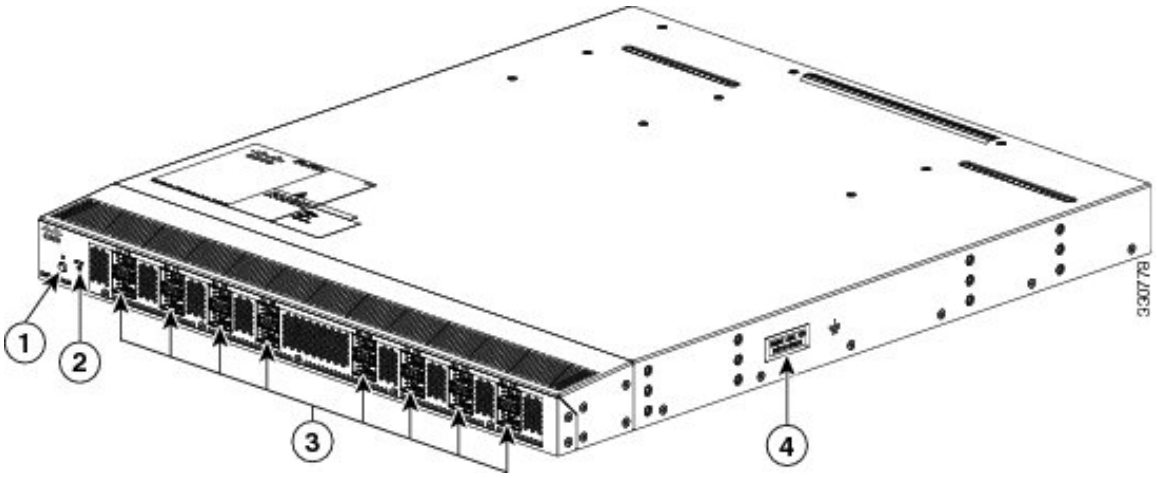
*Figure 1: Fan-Side View of the Cisco Nexus 3016 Chassis*




| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 5 | Status LED |
| 2 | Fan tray (1) | 6 | USB port (1) |
| 3 | Management ports (2) | 7 | Console port (1) |
| 4 | ID LED | | |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 2: Port-Side View of the Cisco Nexus 3016 Chassis*



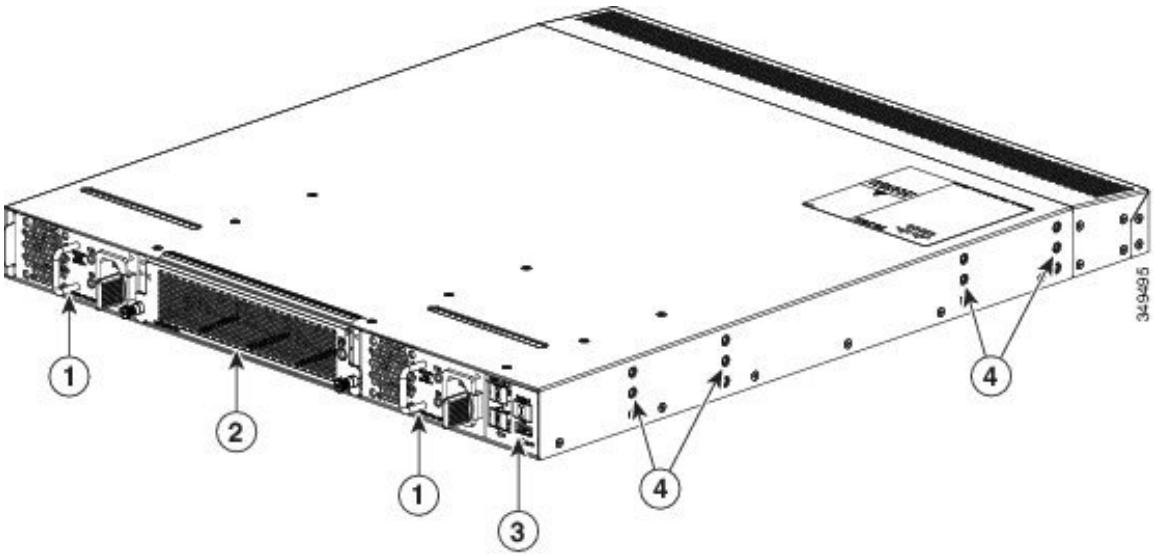

| | | | |
|---|---|---|---|
| 1 | ID LEDs | 3 | 40-Gigabit uplink or downlink ports (16) |
| 2 | Status LED | 4 | Grounding pad |

# Overview of the Cisco Nexus 3048TP Switch

The Cisco Nexus 3048TP (N3K-C3048TP-1GE) is a 1 rack unit (RU) switch with 48 fixed 10/100/1000 Ethernet downlink ports, 4 fixed 10-Gigabit Ethernet uplink ports, 1 console port, and 1 fixed 100/1000 management port. There is also 1 disabled management port, but there are no plans to enable this port at any future date. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

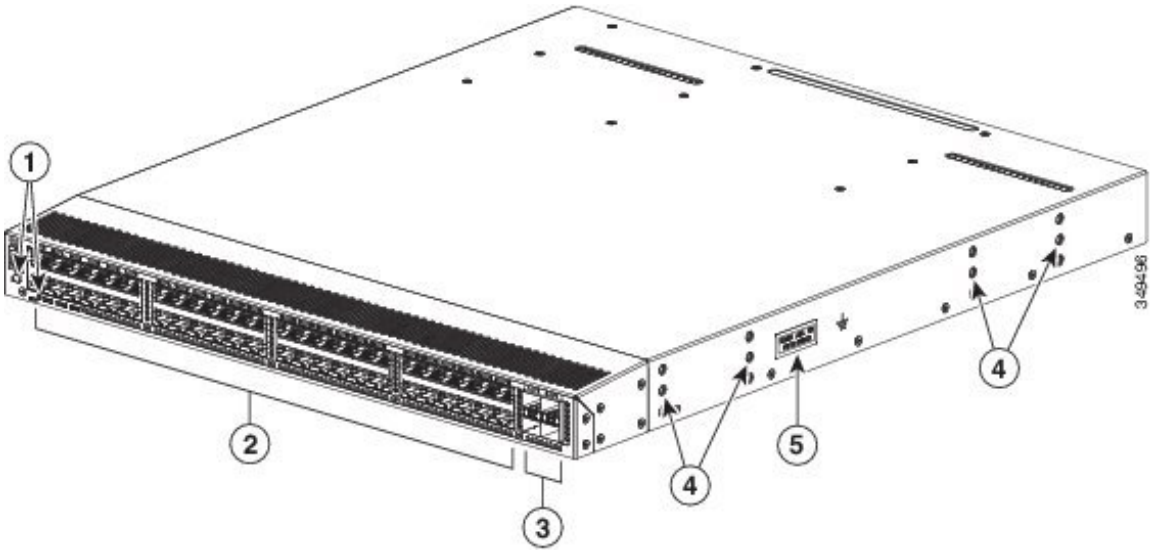
*Figure 3: Fan-Side View of the Cisco Nexus 3048TP Chassis*




| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 3 | Console, Management, and USB ports |
| 2 | Fan tray (1) | 4 | Screw holes for mounting brackets |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 4: Port-Side View of the Cisco Nexus 3048TP Chassis*




| | | | |
|---|---|---|---|
| 1 | Status LED and Beacon Button/LED (the push-button is not utilized and currently has no function) | 4 | Screw holes for mounting brackets |
| 2 | 10/100/1000-Mbps Ethernet downlink ports (48) | 5 | Grounding pad |

| | | | |
|---|---|---|---|
| 3 | 1- and 10-Gigabit Ethernet uplink ports (4) | | |

# Overview of the Cisco Nexus 3064 Switches

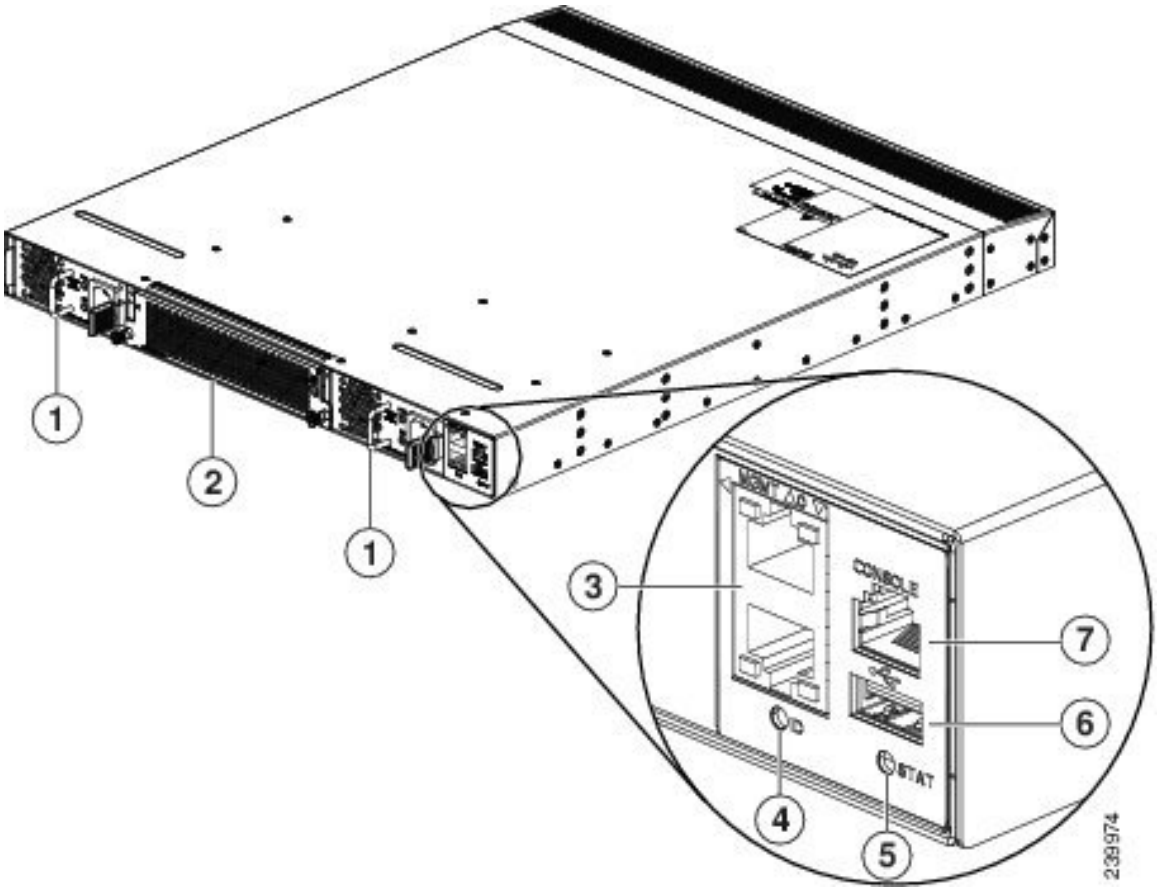
The Cisco Nexus 3064-T (N3K-C3064TQ) and 3064-32T (N3K-C3064TQ-32T) are 1 rack unit (RU) switches with 48 or 32 fixed 1- and 10-Gigabit Ethernet downlink and uplink ports, 2 fixed 100/1000 management ports, 1 console port, and 1 USB port.

The Cisco Nexus 3064-X (N3K-C3064TQ) is a 1 rack unit (RU) switch with 48 fixed 1- and 10-Gigabit Ethernet SFP+ downlink and 4 fixed 40-Gigabit Ethernet QSFP+ uplink ports (each capable of using 40-Gigabit or 4 x 10-Gigabit mode), 2 fixed 100/1000 management ports, 1 console port, and 1 USB port.

These switches support both port-side exhaust and port-side intake airflow schemes. These switches require one AC or DC power supply for operations, but can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

***Figure 5: Fan-Side View of the Cisco Nexus 3064 Chassis***

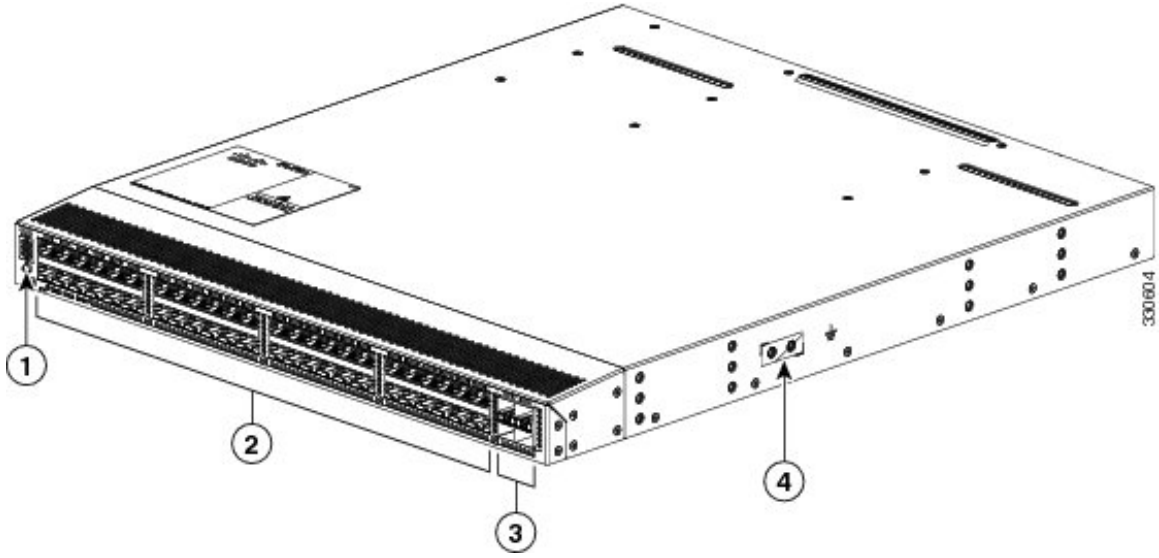



| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (2) (AC power supply shown) with slots numbered 1 (left) and 2 (right) | 5 | Status LED |

| | | | |
|---|---|---|---|
| 2 | Fan tray (1) | 6 | USB port (1) |
| 3 | Management ports (2) | 7 | Console port (1) |
| 4 | ID LED | | |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

***Figure 6: Port-Side View of the Cisco Nexus 3064 Chassis***




| | | | |
|---|---|---|---|
| 1 | ID and Status LEDs | 3 | 40-Gigabit uplink ports (4) |
| 2 | 1- and 10-Gigabit Ethernet downlink ports (48) | 4 | Grounding pad |

# Overview of the Cisco Nexus 3132Q Switches

The Cisco Nexus 3132Q (N3K-C3132Q-40GE) is a 1 rack unit (RU) switch with 32 40-Gigabit enhanced quad small form-factor pluggable (QSFP+) ports and 4 SFP+ ports that are internally multiplexed with the first QSFP+ port. Each QSFP+ port can operate in native 40-Gigabit or 4 x 10-Gigabit modes.

The Cisco Nexus 3132Q-V (N3k-C3132Q-V) is a 1 rack unit (RU) switch with 32 40-Gigabit enhanced quad small form-factor pluggable (QSFP+) ports and 4 SFP+ ports that are internally multiplexed with the first QSFP+ port. Each QSFP+ port can operate in native 40-Gigabit or 4 x 10-Gigabit modes. This switch features support of VxLAN routing, 33% more packet buffer, 2x system memory for object-model programming, and 4x ingress ACL.

The Cisco Nexus 3132Q-X (N3K-C3132Q-40GX) is a 1 rack unit (RU) switch with 32 40-Gigabit enhanced quad small form-factor pluggable (QSFP+) ports and 4 SFP+ ports that are internally multiplexed with the first QSFP+ port. Each QSFP+ port can operate in native 40-Gigabit or 4 x 10-Gigabit modes.

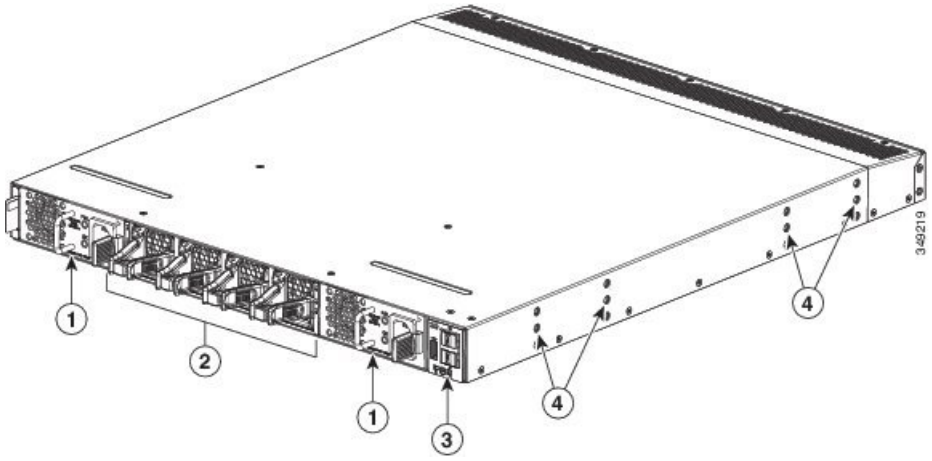
The Cisco Nexus 3132Q-XL (N3K-C3132Q-XL) is a 1 rack unit (RU) switch with 8GB of RAM and dual-core 2.5GHz x86 CPUs and 32 40-Gigabit enhanced quad small form-factor pluggable (QSFP+) ports and 4 SFP+

ports that are internally multiplexed with the first QSFP+ port. Each QSFP+ port can operate in native 40-Gigabit or 4 x 10-Gigabit modes

These switches each have 1 management port, 1 console port, and 1 USB port and support both port-side exhaust and port-side intake airflow schemes. These switches require one AC or DC power supply for operations, but can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

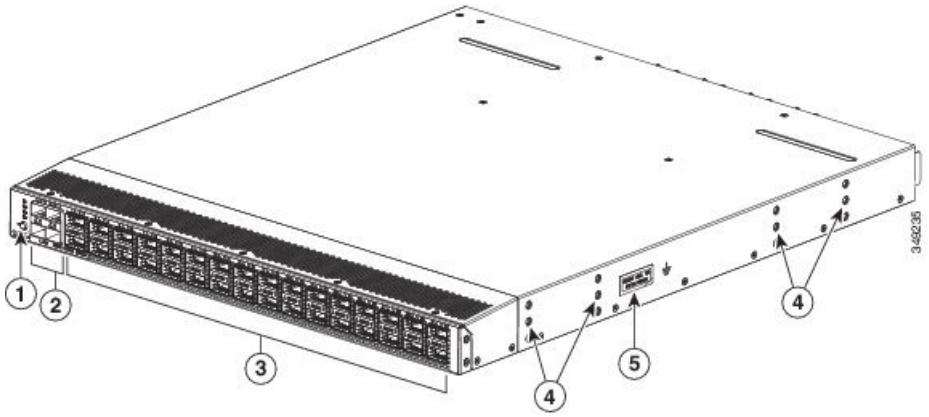
***Figure 7: Fan-Side View of the Cisco Nexus 3132 Chassis***




| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 3 | Console, Management, and USB ports |
| 2 | Fan modules (4) | 4 | Screw holes for mounting brackets |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

***Figure 8: Port-Side View of the Cisco Nexus 3132 Chassis***




| | | | |
|---|---|---|---|
| 1 | Selector switch, ID, and Status LEDs | 4 | Screw holes for mounting brackets |

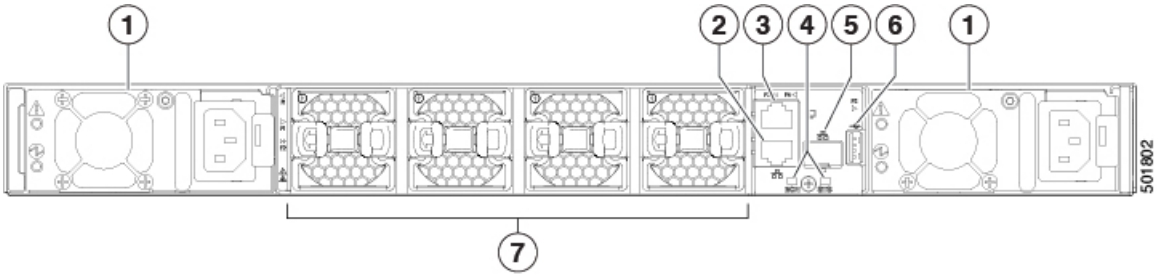
| | | | |
|---|---|---|---|
| 2 | 4 SFP+ ports (multiplexed internally to the first QSFP+ port) | 5 | Grounding pad |
| 3 | 32 QSFP+ ports | | |

# Overview of the Cisco Nexus 3132C-Z Switch

The Cisco Nexus 3132C-Z (N3K-C3132C-Z) is a 1 rack unit (RU) switch with 32 fixed 100-Gigabit QSFP28 ports, 2 SFP+ ports, 2 management ports, 1 console port, and 1 USB port. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC, DC, or HVAC/HVDC power supply for operations, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

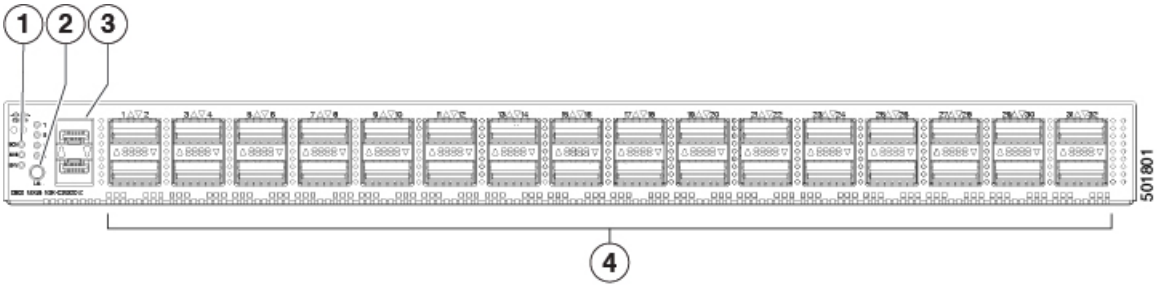
***Figure 9: Fan-Side View of the Cisco Nexus 3132C-Z Chassis***




| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 5 | Management port (SFP) |
| 2 | Management port (RJ-45) | 6 | USB port (1) |
| 3 | Console port (RS-232) | 7 | Fan modules (4) |
| 4 | Beacon (BCN) and Status (STS) LEDs | | |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

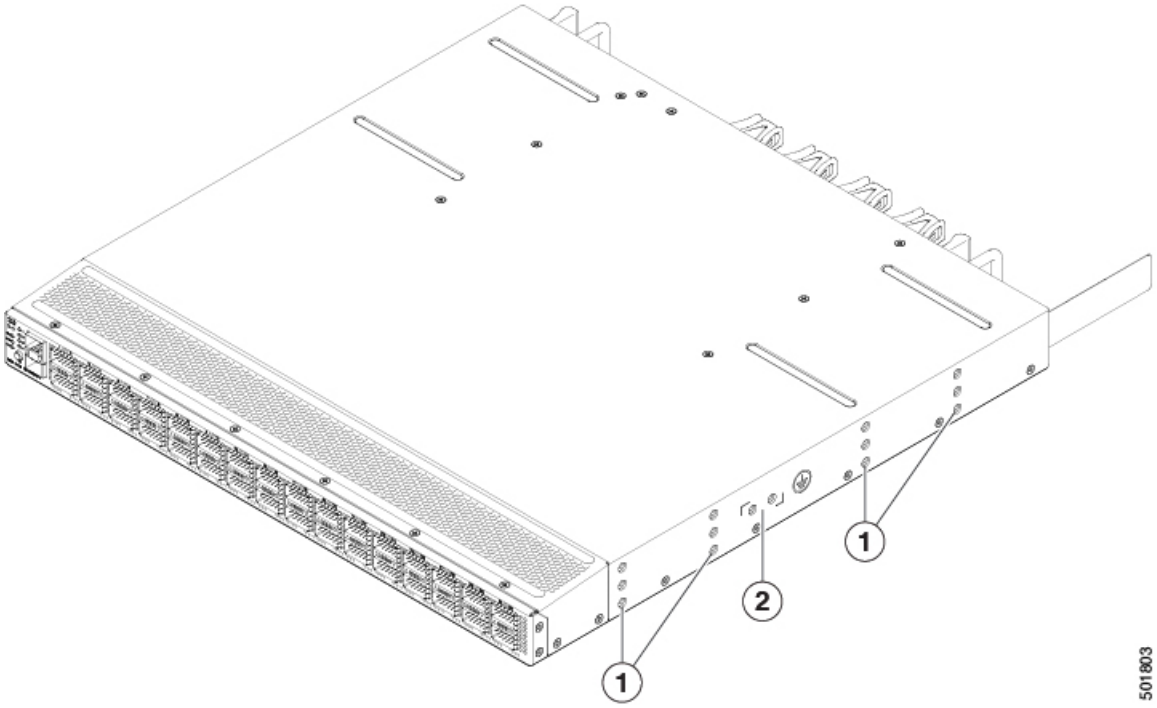
***Figure 10: Port-Side View of the Cisco Nexus 3132C-Z Chassis***



| | | | |
|---|---|---|---|
| 1 | Beacon (BCN), Status (STS), Environment (ENV), and Lane select LEDs | 3 | SFP+ ports (2) |
| 2 | Lane select button | 4 | 100-Gigabit QSFP28 ports (32) |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

***Figure 11: Side View of the Cisco Nexus 3132C-Z Chassis***



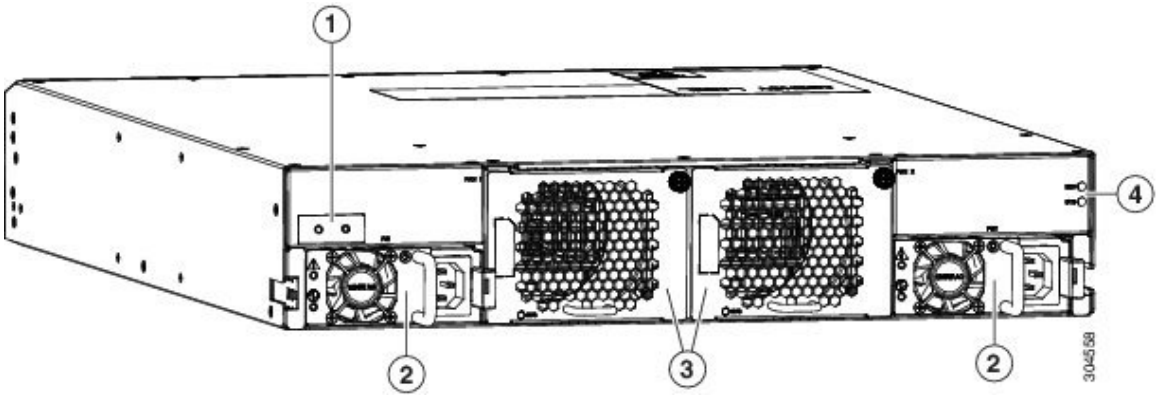

| | | | |
|---|---|---|---|
| 1 | Screw holes for mounting brackets | 2 | Grounding pad |

# Overview of the Cisco Nexus 3164Q Switch

The Cisco Nexus 3164Q (N3K-C3164Q-40GE) is a 2 rack unit (RU) switch with 64 fixed 40-Gigabit enhanced quad small form-factor pluggable (QSFP+) ports that can run in either 40-Gigabit native mode or 4 x 10-Gigabit mode, 1 RJ-45 management port, 1 RS-232 console port, and 1 USB port. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

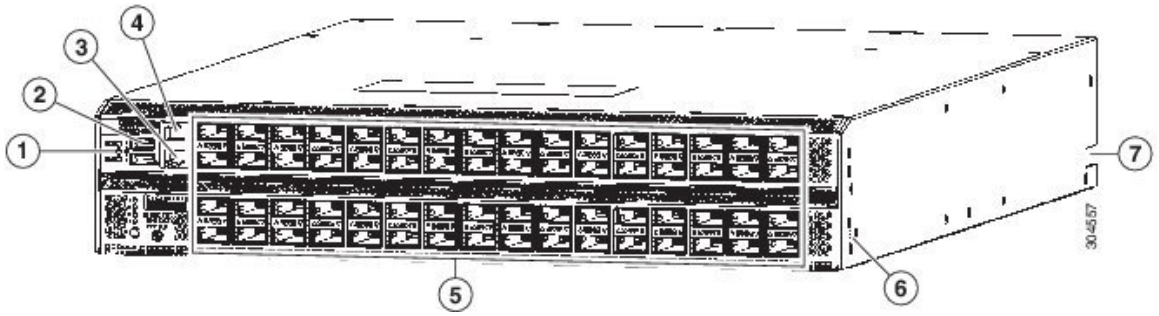
*Figure 12: Fan-Side View of the Cisco Nexus 3164Q Chassis*




| | | | |
|---|---|---|---|
| 1 | Grounding pad | 3 | Fan modules (2) |
| 2 | Power supply modules (2) with slots numbered 1 (left) and 2 (right) | 4 | Beacon (BCN) and Status (STS) LEDs |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 13: Port-Side View of the Cisco Nexus 3164Q Chassis*




| | | | |
|---|---|---|---|
| 1 | Beacon (BCN), Status (STS), and Environment (ENV) LEDs | 5 | 64 40-Gigabit QSFP+ ports |
| 2 | USB ports (2) | 6 | Screw holes for mounting brackets |
| 3 | Management port (1) | 7 | Notch in the chassis (2) (one each side) for locking into the bottom-support rails |
| 4 | Console port (1) | | |

# Overview of the Cisco Nexus 3172 Switches

The Cisco Nexus 3172PQ (N3K-C3172PQ-10GE) is a 1 rack unit (RU), 10-Gigabit enhanced small form-factor pluggable (SFP+)-based switch with 48 SFP+ ports and 6 Quad SFP+ (QSFP+) ports. Each SFP+ port can

operate in 100-Mbps, 1-Gbps, or 10-Gbps mode, and each QSFP+ port can operate in native 40-Gbps or 4 x 10-Gbps mode.

The Cisco Nexus 3172PQ-XL (N3K-C3172PQ-XL) is a 1 rack unit (RU) switch with 8GB of RAM and dual-core 2.5GHz x86 CPUs and 10-Gigabit enhanced small form-factor pluggable (SFP+) ports with 48 SFP+ ports and 6 Quad SFP+ (QSFP+) ports. Each SFP+ port can operate in 100-Mbps, 1-Gbps, or 10-Gbps mode, and each QSFP+ port can operate in native 40-Gbps or 4 x 10-Gbps mode.

The Cisco Nexus 3172TQ (N3K-C3172TQ-10GT) is a 1 rack unit (RU), 10GBASE-T switch with 48 10GBASE-T RJ-45 ports (each port can operate at 100-Mbps and 1-Gbps speeds) and 6 Quad SFP+ (QSFP+) ports (each QSFP+ port can support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet).

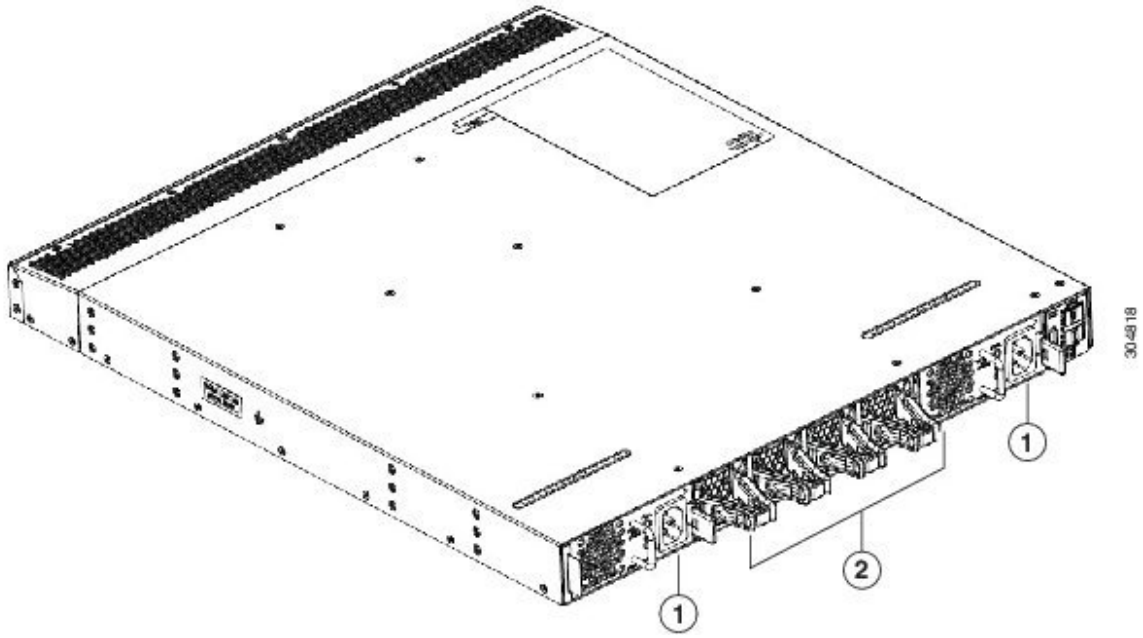
The Cisco Nexus 3172TQ-32T is the Cisco Nexus 3172TQ with 32 10GBASE-T ports (each port can operate at 100-Mbps and 1-Gbps speeds) and 6 QSFP+ ports (each QSFP+ port can support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet) enabled. The ports are enabled through software licensing. This switch comes with a 32-10GBASE-T port license preinstalled. To enable the remaining 16 10GBASE-T ports, the customer installs the 16-port upgrade license.

The Cisco Nexus 3172TQ-XL (N3K-C3172TQ-XL) is a 1 rack unit (RU) switch with 8GB of RAM and dual-core 2.5GHz x86 CPUs and 10GBASE-T with 48 10GBASE-T RJ-45 ports (each port can operate at 100-Mbps and 1-Gbps speeds) and 6 Quad SFP+ (QSFP+) ports (each QSFP+ port can support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet).

These switches each have 1 management port, 1 console port, and 1 USB port and support both port-side exhaust and port-side intake airflow schemes. These switches require one AC or DC power supply for operations, but can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

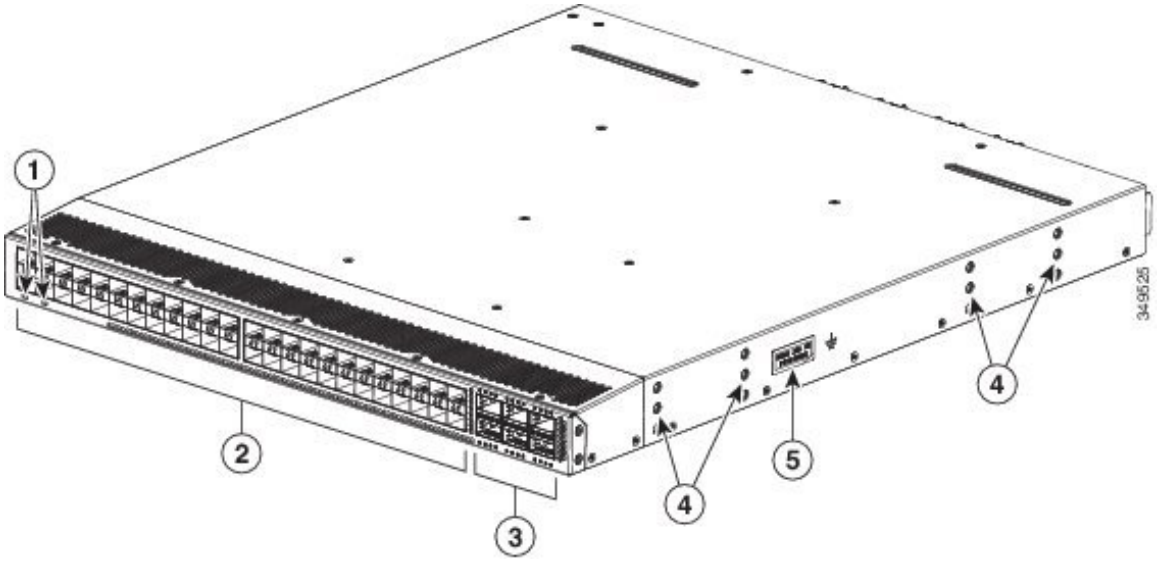
***Figure 14: Fan-Side View of the Cisco Nexus 3172 Chassis***




| | | | |
|---|---|---|---|
| 1 | Power Supply modules (2) with slots numbered 1 (left) and 2 (right) | 2 | Fan modules (4) |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

***Figure 15: Port-Side View of the Cisco Nexus 3172 Chassis***




| | | | |
|---|---|---|---|
| 1 | ID and Status LEDs | 4 | Screw holes for mounting brackets |
| 2 | SFP+ ports (48) | 5 | Grounding pad |
| 3 | QSFP+ ports (6) | | |

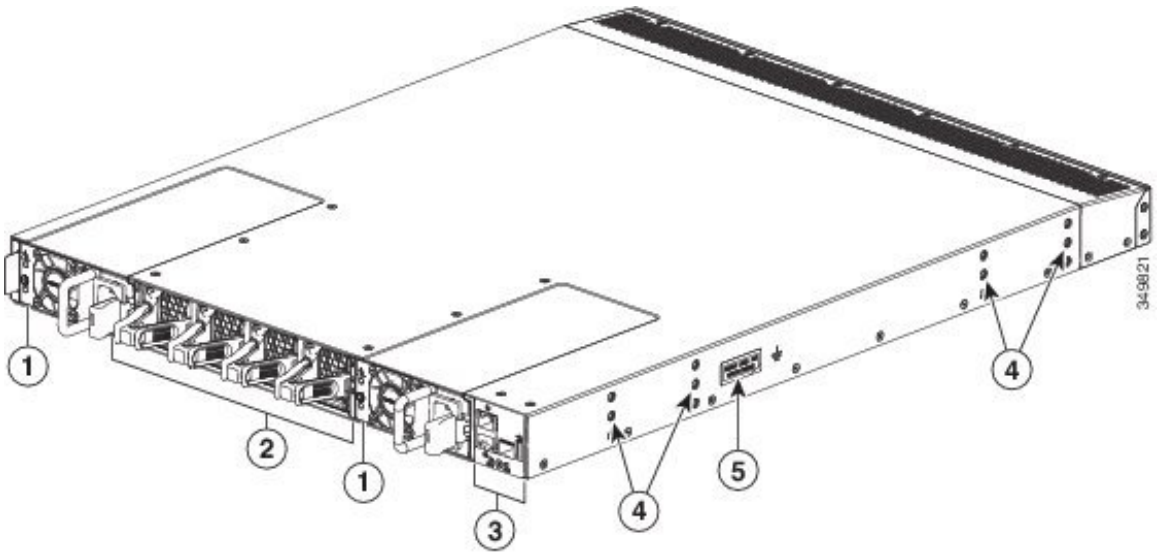
# Overview of the Cisco Nexus 3232C Switch

The Cisco Nexus 3232C (N3K-C3232C) is a 1 rack unit (RU) switch with 32 10- or 100-Gigabit QSFP28-100 and 2 10G SPF+ ports. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy.

**Note** Each vertical pair of QSFP28 ports supports a QSFP-to-SFP adapter (such as CVR-2QSFP28-8SFP) that provides eight breakout SFP/SFP+/SFP28 ports. The top four ports connect to the upper QSFP28 port, and the bottom four ports connect to the lower QSFP28 port.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

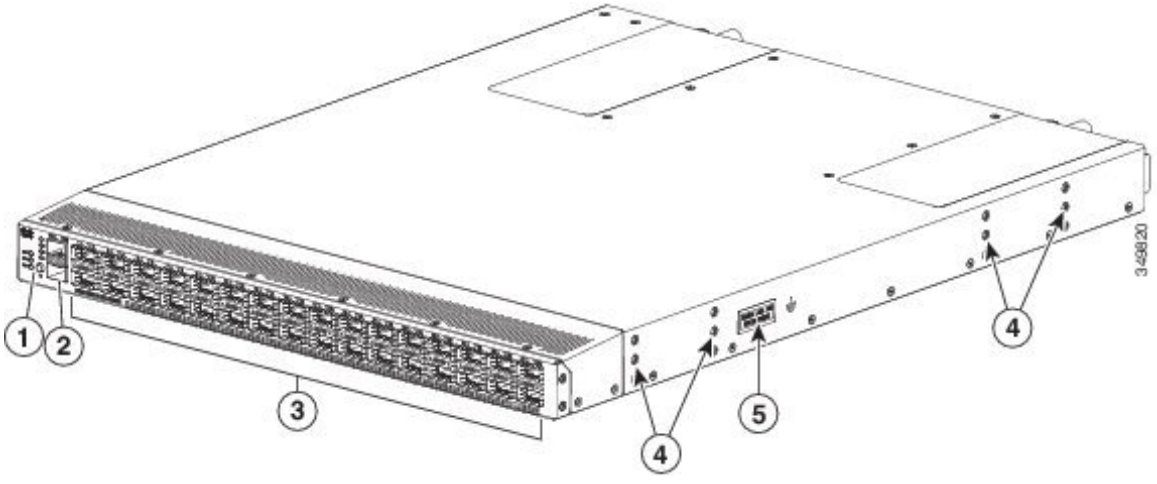
*Figure 16: Fan-Side View of the Cisco Nexus 3232C Chassis*




| | | | |
|---|---|---|---|
| 1 | AC or DC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 4 | Screw holes for mounting brackets |
| 2 | Fan modules (4) | 5 | Grounding pad |
| 3 | Console, Management, and USB ports | | |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 17: Port-Side View of the Cisco Nexus 3232C Chassis*




| | | | |
|---|---|---|---|
| 1 | Selector switch, ID, and Status LEDs | 4 | Screw holes for mounting brackets |
| 2 | 10G SPF+ ports (2) | 5 | Grounding pad |
| 3 | 10- or 100-Gigabit QSFP28-100 ports (32) [1] | | |

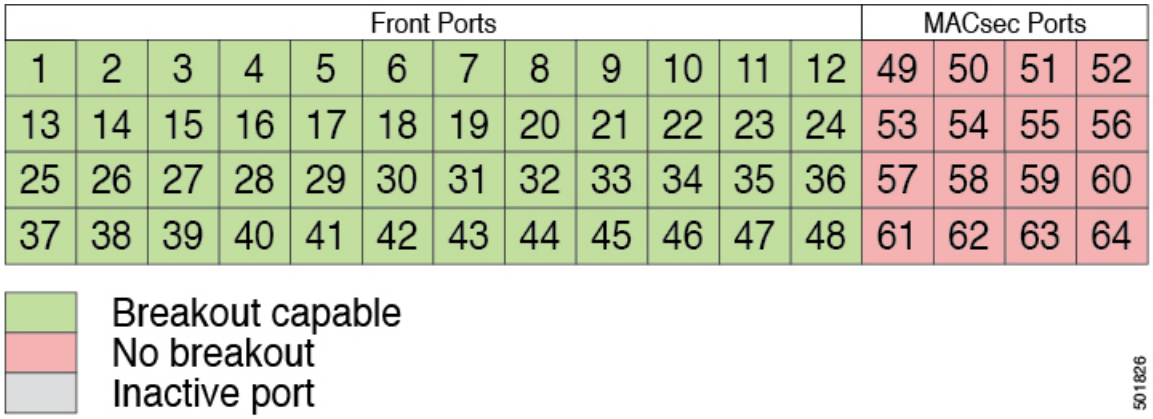
[1] 10 Gigabits require a QSFP-to-SFP adapter [CVR-QSFP-SFP10G] and an SFP+ transceiver.

# Overview of the Cisco Nexus 3264C-E Switch

The Cisco Nexus 3264C-E (N3K-C3264C-E) is a 2 rack unit (RU) switch with 64 100-Gigabit QSFP28 and 2 10-Gigabit SPF+ ports. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one power supply for operations, but it can have a second power supply for redundancy. This switch supports the following port template configurations:

Template 1: 96-ports X 50-Gigabit + 16-ports X 100-Gigabit

- All Ports are operational.
- The first 48 ports support 2X50G dynamic breakout with these combinations, 64X100-Gigabit, 64X50-Gigabit + 32X100-Gigabit, 96X50-Gigabit + 16X100-Gigabit.
- Ports 49-64 MACsec ports support 100-Gigabit and 40-Gigabit modes.




Template 2: 96-ports X 25-Gigabit + 32-ports X 100-Gigabit

- Front ports 1-24, 29-32, 37-64 will be operational
- Ports 1-24 support 4X10-Gigabit and 4X25-Gigabit dynamic breakout.
- Ports 29-32 and 37-48 support 40-Gigabit and 100-Gigabit modes.
- 49-64 MACsec ports support 40-Gigabit and 100-Gigabit modes.
- SLIC adapter is supported on 1-24 ports.

| Front Ports | | | | | | | | | | | | MACsec Ports | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 49 | 50 | 51 | 52 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 53 | 54 | 55 | 56 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 57 | 58 | 59 | 60 |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 61 | 62 | 63 | 64 |

Breakout capable
No breakout
Inactive port

501827

Template 3: 128-ports X 25-Gigabit or 128-ports X 10-Gigabit

- Ports 1-28 and 33-36 are operational.
- Ports 1-28 and 33-36 support 2X50-Gigabit, 4X25-Gigabit, and 4X100-Gigabit dynamic breakout.
- SLIC adapter is supported on 1-24 ports.

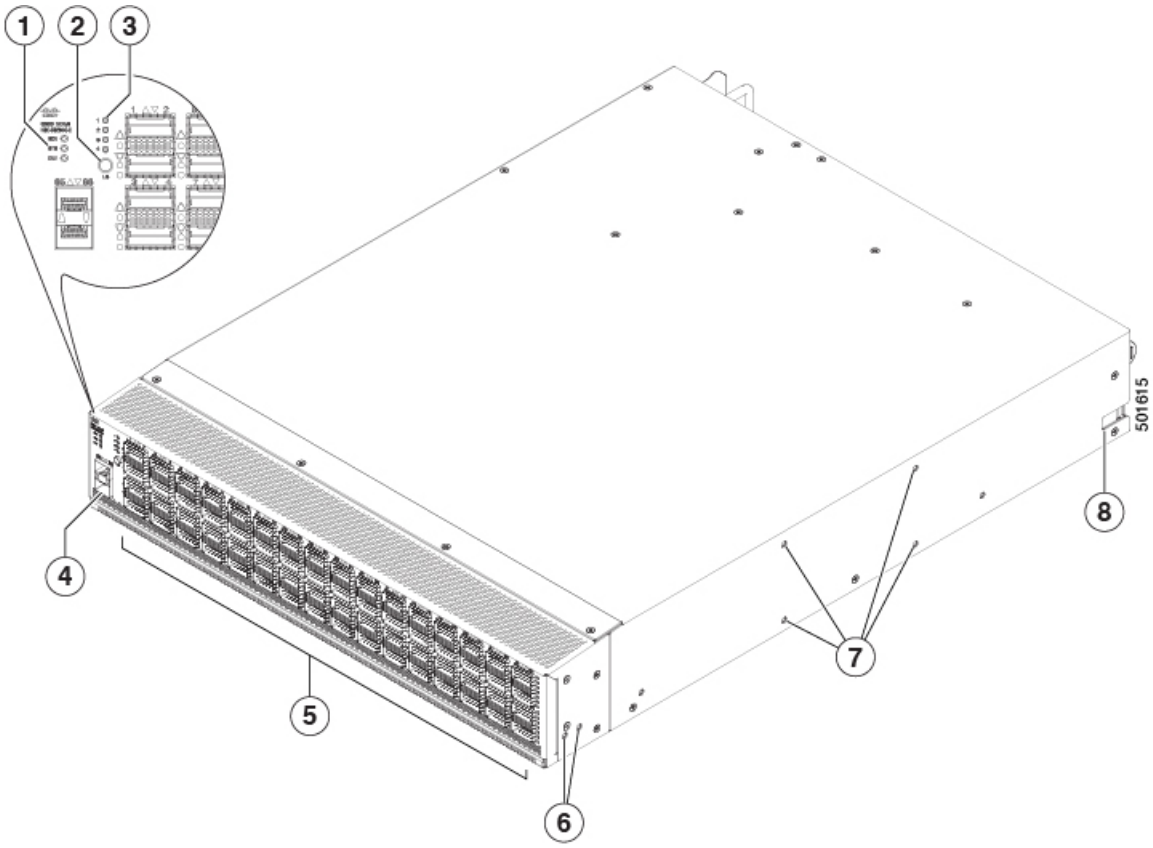
| Front Ports | | | | | | | | | | | | MACsec Ports | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 49 | 50 | 51 | 52 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 53 | 54 | 55 | 56 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 57 | 58 | 59 | 60 |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 61 | 62 | 63 | 64 |

Breakout capable
No breakout
Inactive port

501828

**Note** 930W-DC PSU is supported in redundancy mode if 3.5W QSFP+ modules or Passive QSFP cables are used & the system is used in 40C ambient temp or less; for other optics or higher ambient temps, 930W-DC is supported with 2 PSUs in non-redundancy mode only.

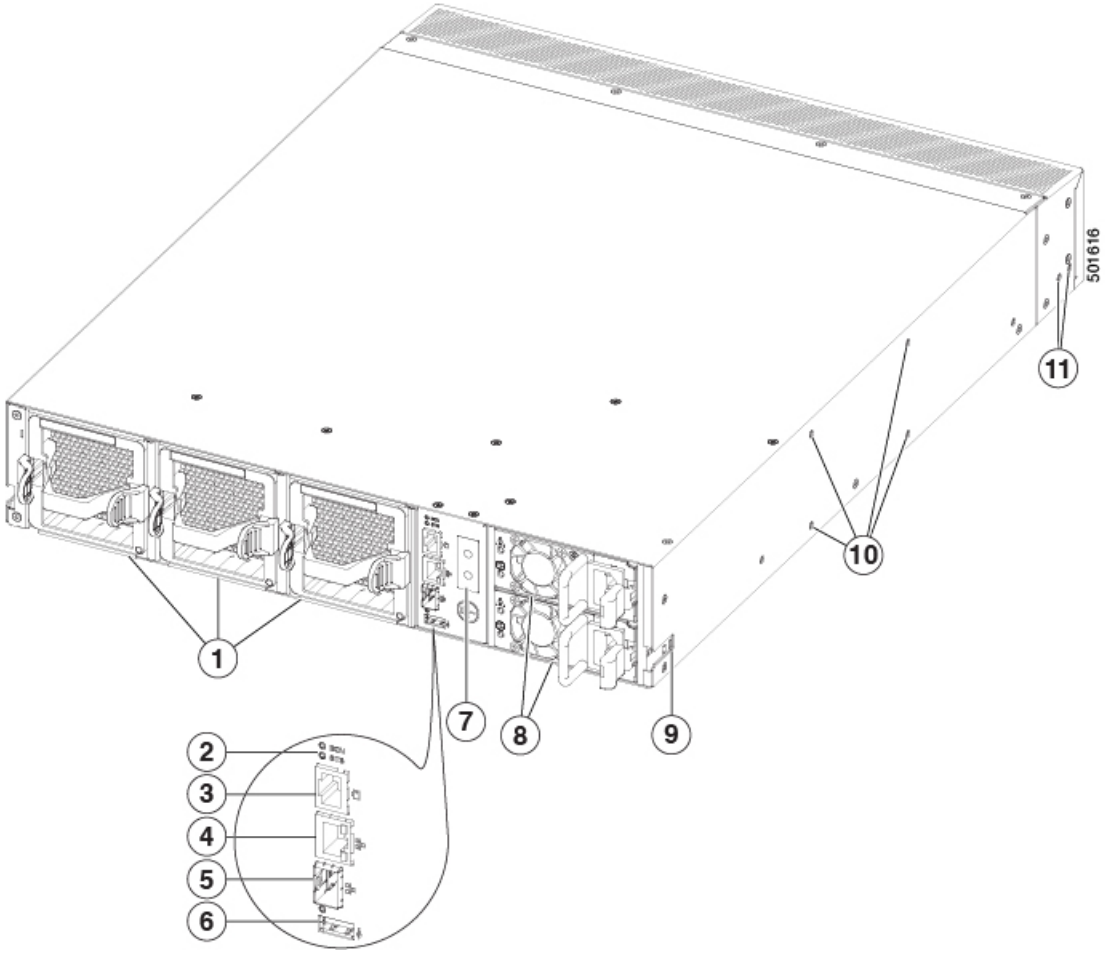
The following figure shows the switch features on the port side of the chassis.




| | | | |
|---|---|---|---|
| 1 | Beacon (BCN), Status (STS), and Environment (ENV) LEDs | 5 | 40-/100-Gigabit QSFP28 ports (64) |
| 2 | Lane select button | 6 | Screw holes for front mounting brackets (four-post rack installations) |
| 3 | Lane LEDs | 7 | Screw holes for center-mount bracket (two-post rack installations) |
| 4 | 1-/10-Gigabit SFP+ ports (2) | 8 | Notch on both sides of the chassis for locking the power supply end of the chassis to the bottom support rails (four-post rack installations). |

To determine which transceivers, adapters, and cables are supported by this switch, see the Cisco Transceiver Modules Compatibility Information document.

The following figure shows the switch features on the power supply side of the chassis.



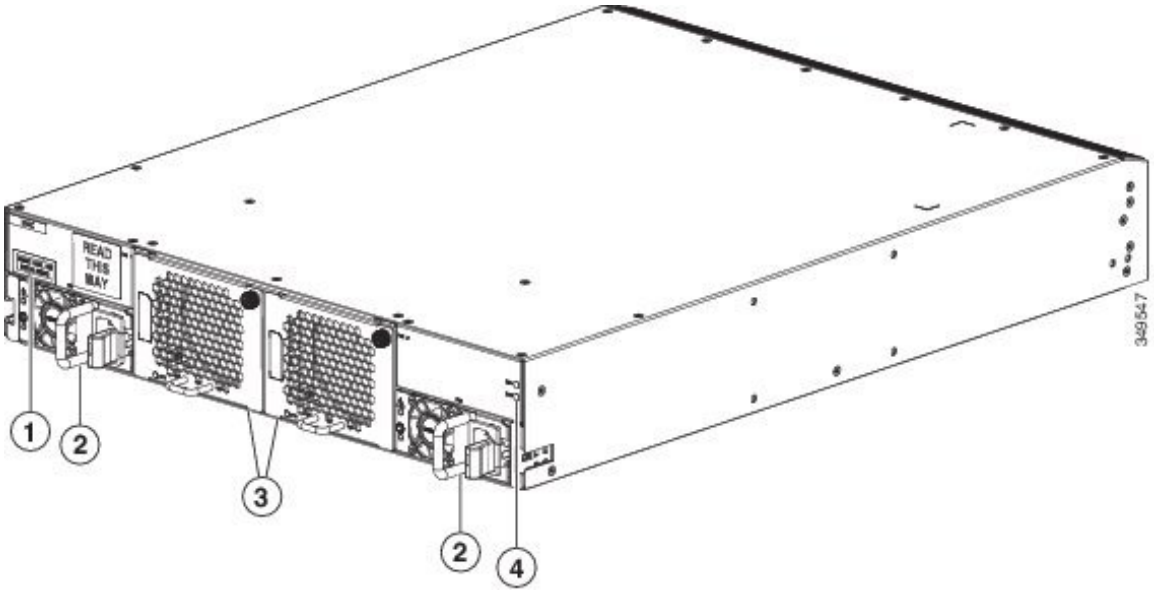

| | | | |
|---|---|---|---|
| 1 | Fan modules (3) with slots numbered from 1 (left) to 3 (right) | 7 | Grounding pad |
| 2 | Beacon (BCN) and Status (STS) LEDs | 8 | Power supply modules (1 or 2) (AC power supplies shown) with slots numbered 1 (top) and 2 (bottom) |
| 3 | Console port (1) | 9 | Notch on both sides of the chassis for locking the power supply end of the chassis to the bottom support rails (four-post rack installations). |
| 4 | Management port (1—RJ-45 copper port) | 10 | Screw holes for center-mount bracket (two-post rack installations) |
| 5 | Management port (1—SFP optical port) | 11 | Screw holes for front mounting brackets (four-post rack installations) |
| 6 | USB port (1) | | |

# Overview of the Cisco Nexus 3264Q Switch

The Cisco Nexus 3264Q (N3K-C3264Q) is a 2 rack unit (RU) switch with 64 fixed 10- or 40-Gigabit quad small form-factor pluggable (QSFP) ports, 2 SFP+ ports, 1 RJ-45 management port, 1 RS-232 console port, and 2 USB ports. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

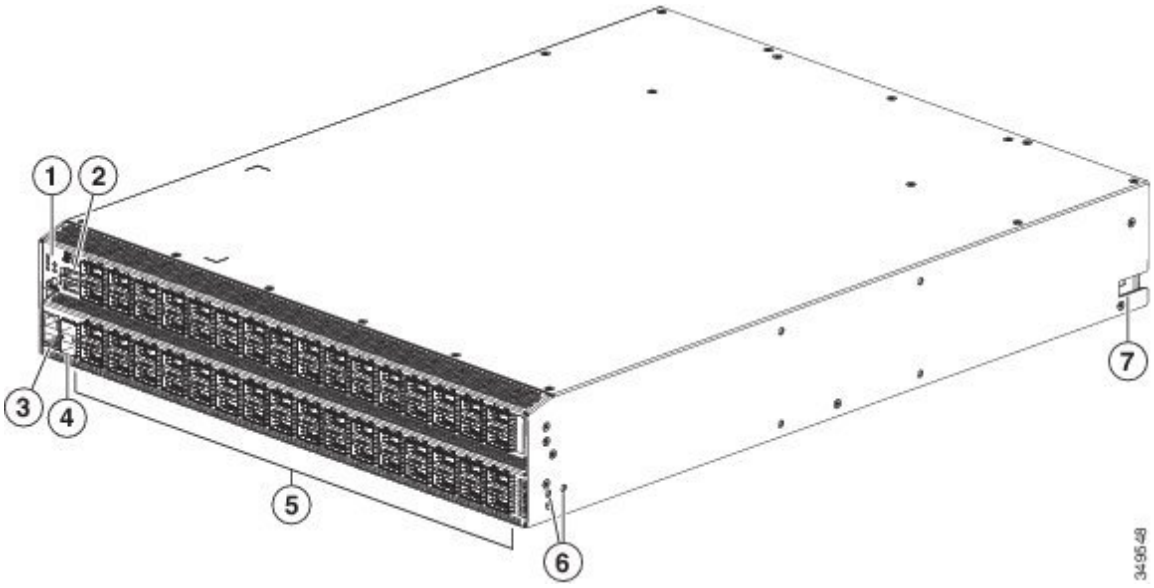
***Figure 18: Fan-Side View of the Cisco Nexus 3264Q Chassis***




| | | | |
|---|---|---|---|
| 1 | Grounding pad | 3 | Fan modules (2) |
| 2 | Power supply modules (2) with slots numbered 1 (left) and 2 (right) | 4 | Beacon (BCN) and Status (STS) LEDs |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 19: Port-Side View of the Cisco Nexus 3264Q Chassis*




| | | | |
|---|---|---|---|
| 1 | LEDs | 5 | 10- or 40-Gigabit QSFP ports (64) [2] |
| 2 | USB ports (2) | 6 | Screw holes for mounting brackets |
| 3 | Console port (1) and Management port (1) | 7 | Notch in the chassis (2) (1 each side) for locking int the bottom-support rails |
| 4 | SFP+ ports (2) | | |

[2] 10 Gigabits require a QSFP-to-SFP adapter [CVR-QSFP-SFP10G] and an SFP+ transceiver.

# Overview of the Cisco Nexus 31108 Switch

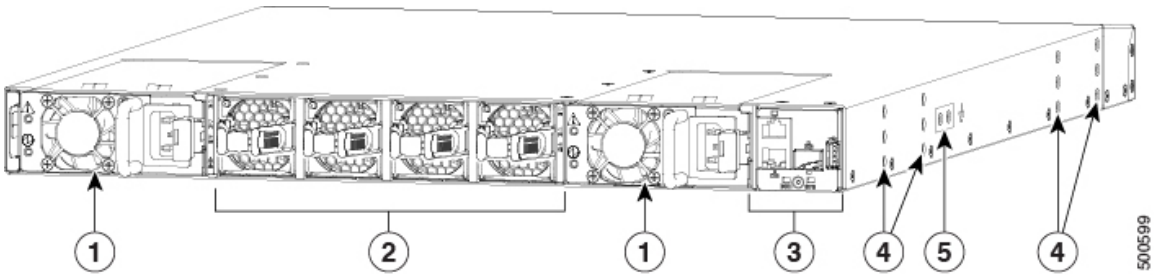
The Cisco Nexus 31108PC-V (N3K-C31108PC-V) is a 1 rack unit (RU) top of rack (ToR) L2/L3 switch with 16-GB of RAM and dual-core 2.5-GHz x86. The switch comes with 48 10G SFP+ and 6 QSFP28 ports, 1 management port (RJ-45 or SFP), 1 console port, and 1 USB port.

The Cisco Nexus 31108TC-V (N3K-C31108TC-V) is a 1 rack unit (RU) top of rack (ToR) L2/L3 switch with 16-GB of RAM and dual-core 2.5-GHz x86. The switch comes with 48 10G Base-T and 6 QSFP28 ports, 1 management port (RJ-45 or SFP), 1 console port, and 1 USB port.

These switches support both port-side exhaust and port-side intake airflow schemes. These switches require one AC power supply for operations, but can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

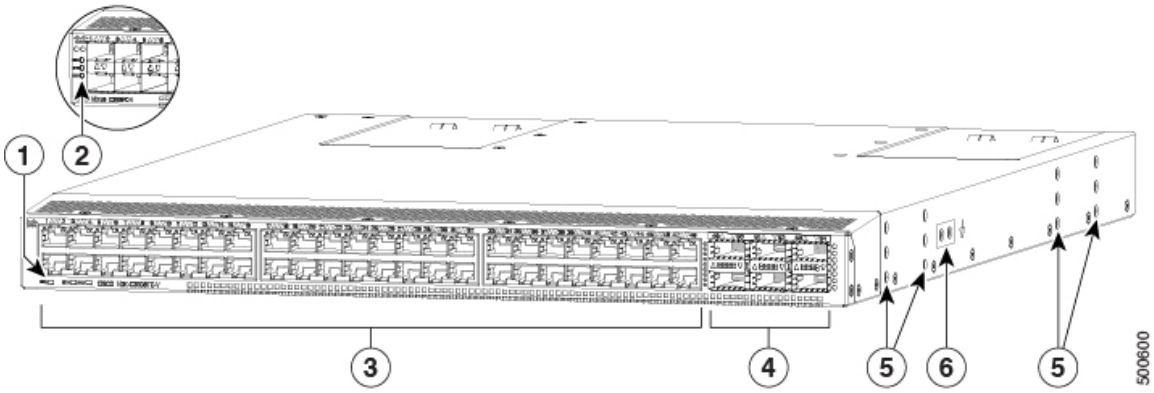
*Figure 20: Fan-Side View of the Cisco Nexus 31108 Chassis*




| | | | |
|---|---|---|---|
| 1 | AC power supply (1 or 2) with slots numbered 1 (left) and 2 (right) | 4 | Screw holes for mounting brackets |
| 2 | Fan modules (4) | 5 | Grounding pad |
| 3 | Console, Management, and USB ports | | |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 21: Port-Side View of the Cisco Nexus 31108 Chassis*



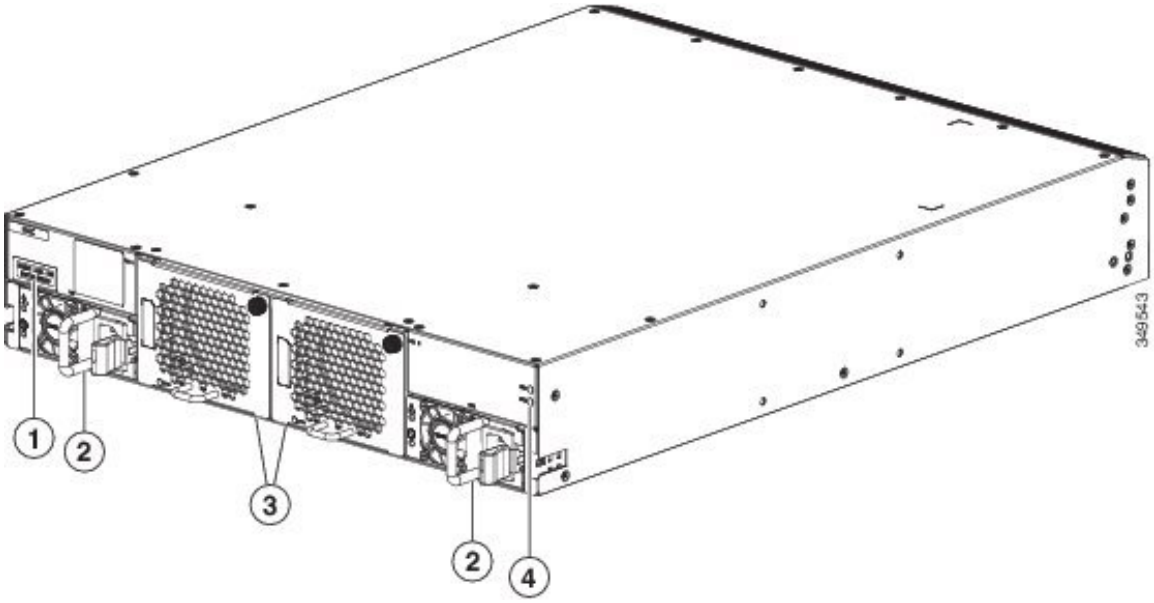

| | | | |
|---|---|---|---|
| 1 | Beacon, Status, and Environment LEDs (N3K-C31108TC-V) | 4 | 6 100-Gigabit QSFP28 ports |
| 2 | Beacon, Status, and Environment LEDs (N3K-C31108PC-V) | 5 | Screw holes for mounting brackets |
| 3 | 48 10-Gigabit SFP+ ports (N3K-C31108PC-V)<br>48 10-Gigabit Base-T ports (N3K-C31108TC-V) | | Grounding pad |

# Overview of the Cisco Nexus 31128PQ Switch

The Cisco Nexus 31128PQ (N3K-C31128PQ-10GE) is a 2 rack unit (RU) switch with 96 fixed 10-Gbps enhanced small form-factor pluggable (SFP+) ports and 8 fixed 40-Gbps quad small form-factor pluggable (QSFP+) ports, 1 management port, 1 console port, and 2 USB ports. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC or DC power supply for operations, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

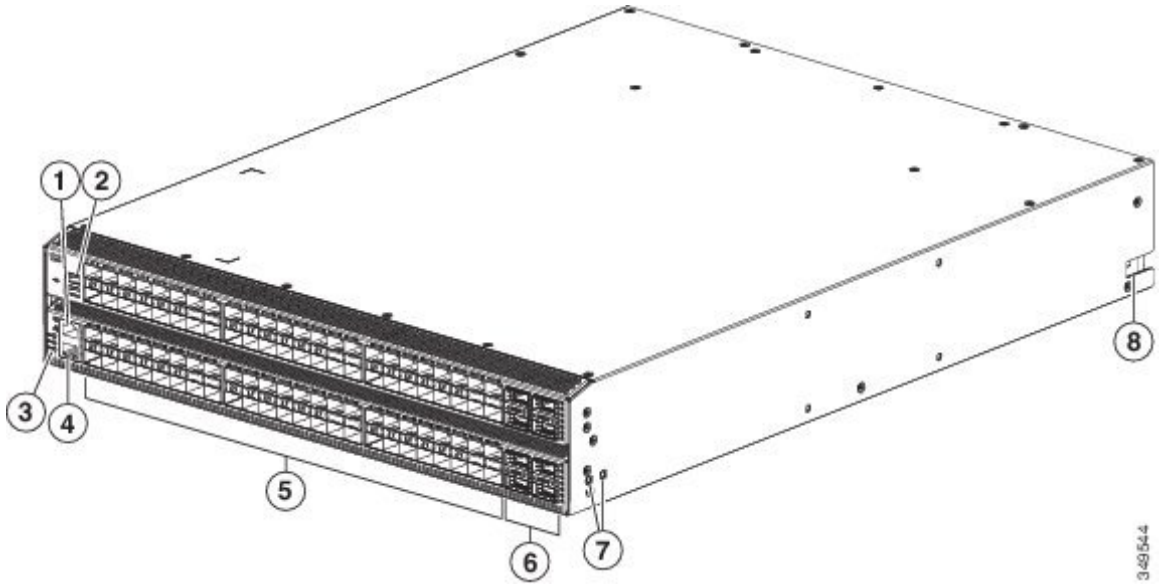
***Figure 22: Fan-Side View of the Cisco Nexus 31128PQ Chassis***



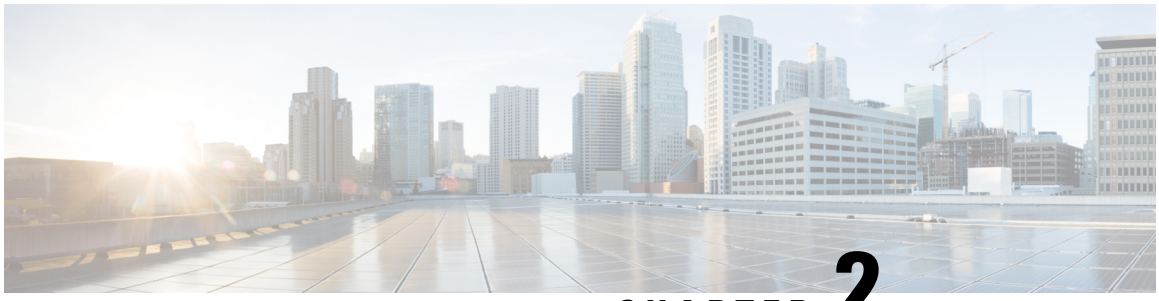

| | | | |
|---|---|---|---|
| 1 | Grounding pad | 3 | Fan modules (2) |
| 2 | Power supply modules (2) with slots numbered 1 (left) and 2 (right) | 4 | Beacon (BCN) and Status (STS) LEDs |

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

*Figure 23: Port-Side View of the Cisco Nexus 31128PQ Chassis*




| | | | |
|---|---|---|---|
| 1 | Console port (1) | 5 | 10-Gigabit SFP+ ports that can operate at 1 or 10 Gigabits (96) |
| 2 | USB ports (2) | 6 | 40-Gigabit uplink ports (8) |
| 3 | Beacon (BCN), Status (STS), and Environment (ENV) LEDs | 7 | Screw holes for mounting brackets |
| 4 | Management port (1) | 8 | Notch in the chassis (2) (one each side) for locking into the bottom-support rails |



CHAPTER 2

# Preparing the Site


- Temperature Requirement, on page 23
- Humidity Requirement, on page 23
- Altitude Requirements, on page 23
- Dust and Contaminants, on page 23


## Temperature Requirement

This switch is rated to operate at 32 to 104°F (0 to 40°C). It can be stored at -40 to 158°F (-40 to 70°C).

## Humidity Requirement

High humidity can cause moisture to enter the switch. Moisture can cause corrosion of internal components and degradation of properties such as electrical resistance, thermal conductivity, physical strength, and size. The switch is rated to withstand from 5- to 95-percent (nonoperating) and 5- to 90-percent (operating) relative humidity.

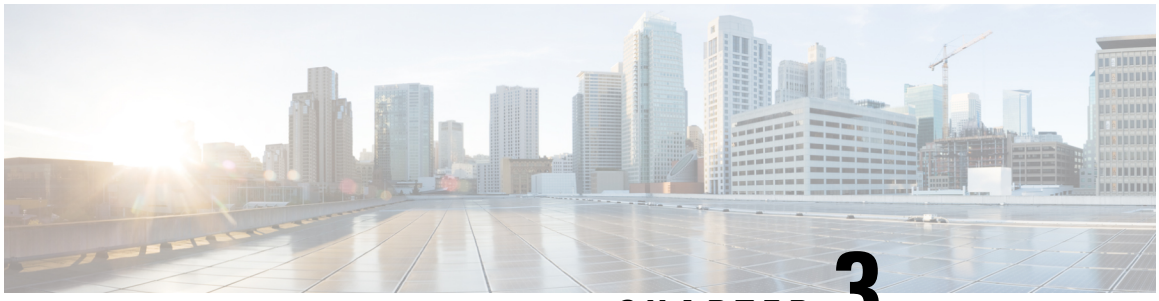
Buildings cooled with air conditioning during warm months and warmed during cold months usually maintain an acceptable level of humidity. However, if the site is unusually humid, use a dehumidifier to maintain the required humidity level.

## Altitude Requirements

High-altitude (low-pressure) conditions outside of 0 to 5,000 feet (0 to 1524 m) can reduce the cooling efficiency and cause electrical problems.

## Dust and Contaminants

To prevent contaminant buildup and increased internal chassis temperatures, make sure that the operating environment is as clean as possible and free of dust and other contaminants. Do not permit smoking, food, or drinks near the switch.



CHAPTER 3

# Installing the Chassis


- Safety, on page 25
- Installation Options with Rack-Mount Kits, Racks, and Cabinets, on page 28
- Preparing to Install the Chassis, on page 29
- Unpacking and Inspecting the Chassis, on page 32
- Installing a 1 (RU) Chassis in a Four-Post Rack, on page 32
- Installing a 1 (RU) Chassis in a Two-Post Rack, on page 40
- Installing a 2 (RU) Chassis in a Four-Post Rack, on page 43
- Installing a 2 (RU) Chassis in a Two-Post Rack, on page 47
- Grounding the Chassis, on page 49
- Starting the Switch, on page 51


## Safety

Before you install, operate, or service the switch, see the *Regulatory, Compliance, and Safety Information for the Cisco Nexus 3000 and 9000 Series* for important Safety Information.

**Warning**

**Statement 1071—**Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number provided at the end of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS

**Warning**

**Statement 1089—**Instructed and Skilled Person Definitions

An instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment.

A skilled person or qualified personnel is someone who has training or experience in the equipment technology and understands potential hazards when working with equipment.

**Warning** **Statement 1004—**Installation Instructions

Read the installation instructions before using, installing, or connecting the system to the power source.

**Warning** **Statement 1040—**Product Disposal

Ultimate disposal of this product should be handled according to all national laws and regulations.

**Warning** **Statement 1074—**Comply with Local and National Electrical Codes

To reduce risk of electric shock or fire, installation of the equipment must comply with local and national electrical codes.

**Warning** **Statement 371—**Power Cable and AC Adapter

When installing the product, use the provided or designated connection cables, power cables, AC adapters, and batteries. Using any other cables or adapters could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" or "CSA" shown on the cord), not regulated with the subject law by showing "PSE" on the cord, for any other electrical devices than products designated by Cisco.

**Note** **Statement 407—**Japanese Safety Instruction

You are strongly advised to read the safety instruction before using the product.

https://www.cisco.com/web/JP/techdoc/pldoc/pldoc.html

When installing the product, use the provided or designated connection cables/power cables/AC adapters.

〈製品仕様における安全上の注意〉
www.cisco.com/web/JP/techdoc/index.html

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**Warning** **Statement 1017—**Restricted Area

This unit is intended for installation in restricted access areas. Only skilled, instructed, or qualified personnel can access a restricted access area.

**Warning** **Statement 1030—**Equipment Installation

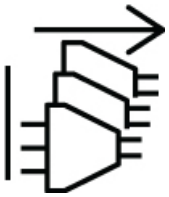
Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning** **Statement 1091—**Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.

**Warning** **Statement 1028—**More Than One Power Supply

This unit might have more than one power supply connection. To reduce risk of electric shock, remove all connections to de-energize the unit.



**Warning** **Statement 1003—**DC Power Disconnection

Before performing any of the following procedures, ensure that power is removed from the DC circuit.

**Warning** **Statement 1046—**Installing or Replacing the Unit

To reduce risk of electric shock, when installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Warning** **Statement 1022—**Disconnect Device

To reduce risk of electric shock and fire, a readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

**Warning** **Statement 1033—**Safety Extra-Low Voltage (SELV)—IEC 60950/ES1–IEC 62368 DC Power Supply

To reduce risk of electric shock, connect the unit only to a DC power source that complies with the SELV requirements in IEC 60950-based safety standards or ES1 requirements in IEC 62368-based safety standards.

**Warning** **Statement 1024—**Ground Conductor

This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

**Warning** **Statement 1252—**Equipment Grounding

This equipment must be grounded. To reduce the risk of electric shock, the power cord, plug, or combination must be connected to a properly grounded electrode, outlet, or terminal.

**Warning** **Statement 1032—**Lifting the Chassis

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules, such as power supplies, fans, or cards. These types of handles are not designed to support the weight of the unit.

**Warning** **Statement 1006—**Chassis Warning for Rack-Mounting and Servicing

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

# Installation Options with Rack-Mount Kits, Racks, and Cabinets

The rack-mount kit enables you to install the switch into racks of varying depths. You can position the switch with easy access to either the port connections or the fan and power supply modules.

You can install the switch using the following 1 (RU) rack-mount options:

- Rack-mount kit (NXK-ACC-KIT-1RU) which you can order from Cisco. This option offers you easy installation, greater stability, increased weight capacity, added accessibility, and improved removability with front and rear removal.
- Rack-mount kit (N3K-C3064-ACC-KIT) which you can order from Cisco.

You can install the switch using the following 2 (RU) rack-mount options:

- Rack-mount kit (NXK-ACC-RMK-2RU) which you can order from Cisco. This option offers you easy installation, greater stability, increased weight capacity, added accessibility, and improved removability with front and rear removal.
- Rack-mount kit (N9K-C9300-RMK) which you can order from Cisco.

You can install the switch in the following types of racks:

- Open EIA rack
- Perforated EIA cabinet

The rack or cabinet that you use must meet the requirements listed the in General Requirements and Guidelines for Cabinets and Racks, on page 65 section.

**Note** You are responsible for verifying that your rack and rack-mount hardware comply with the guidelines that are described in this doc.

# Preparing to Install the Chassis

Before you can install the switch, you must verify the following:

- The installation site meets the following requirements as stated in Chapter 2:
  - Environmental requirements for temperature, humidity, altitude, and air particulates.
  - Cabinet or rack is installed and meets the requirements for the switch.

**Note** Jumper power cords are available for use in a cabinet.

- The rack is positioned so that you can install the switch with its cold air intakes positioned in a cold aisle.

  If the fan and power supply modules are burgundy or red colored, you must install the chassis with its port side in a cold aisle. If the modules are blue colored, you must be able install the chassis with the fan modules in a cold aisle.
- Earth ground connection is close to the switch. You must be able to easily connect the switch directly to an earth ground or indirectly through a grounded rack.

**Caution** High leakage current. Earth connection essential before connecting to power supply.

- Site power meets the switch requirements. If you are using n+n redundancy, you must have two power sources within reach of the switch when it is installed in the cabinet or rack.

  If available, you can use an uninterruptible power supply (UPS) to protect against power failures.

**Caution** Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco Nexus switches. These switches can have substantial current draw fluctuations because of fluctuating data traffic patterns.

Ensure that circuits are sized according to local and national codes. For North America, the power supply requires a 15-A or 20-A circuit.

**Caution** To prevent loss of input power, ensure the total maximum loads on the circuits supplying power to the switch are within the current ratings for the wiring and breakers.

**Note** For AC input application, please refer to the statement below:

**Note** For DC input application, please refer to the statement below:

**Warning** **Statement 1005—**Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective devices is rated not greater than (see the table below).

**Warning** **Statement 1076—**Clearance Around the Ventilation Openings

To prevent airflow restriction, allow clearance around the ventilation openings to be at least

***Table 1:***

| DC Power Supply PID | N3000 Chassis PID | Power Supply Current | Circuit Breaker Current |
|---|---|---|---|
| N2200-PDC-400W | N3K-C3016XX-XXXX | 15-8A | 20A |
| NXA-PDC-500W | N3K-C3048XX-XXXX | | |
| NXA-PDC-500W-B | N3K-C3064XX-XXXX | | |
| | N3K-C3132XX-XXXX | | |
| | N3K-C172XX-XXXX | | |

| DC Power Supply PID | N3000 Chassis PID | Power Supply Current | Circuit Breaker Current |
|---|---|---|---|
| NXA-PHV-500W | N3K-C3016XX-XXXX<br>N3K-C3048XX-XXXX<br>N3K-C3064XX-XXXX<br>N3K-C3132XX-XXXX<br>N3K-C172XX-XXXX | 3A | 5A |
| UCSC-PSU-930WDC<br>NXA-PDC-930WDC-PI<br>NXA-PDC-930WDC-PE<br>UCSC-PSU-6332-DC | N3K-C132C-Z<br>N3K-C3232CXX-XXXX<br>N3K-C3164XX-XXXX<br>N3K-C31108PCXX-XXXX<br>N3K-C31128XX-XXXX<br>N3K | 23-16A or 23-18A | 30A |
| N9K-PUV-1200W | N3K-C3132C-Z<br>N3K-C3164XX-XXXX<br>N3K-C3264QX-XXXX<br>N3K-C34180YC-XXXX | 6A or 7A | 10A |

- There is adequate clearance around the rack to install the switch and to allow for unimpeded airflow.

- You have the following equipment in addition to the switch and the kits shipped with the switch:
  - Eight customer-supplied 12-24 or 10-32 screws (required for attaching slider rails and mounting bracket to the mounting rails)
  - Number 1 and number 2 Phillips screwdrivers with torque capability
  - 3/16-inch flat-blade screwdriver
  - Tape measure and level
  - ESD wrist strap or other grounding device (wrist strap can be found in the accessory kit)
  - Antistatic surface large enough to place the switch
  - Grounding cable (6 AWG recommended), sized according to local and national installation requirements; the required length depends on the proximity of the switch to proper grounding facilities
  - Crimping tool large enough to accommodate the girth of the grounding lug
  - Wire stripping tool

# Unpacking and Inspecting the Chassis

**Caution** When handling switch components, such as fan or power supply modules, wear a grounded ESD strap and handle the modules by their carrier edges only. To ground the ESD strap, make sure that it is attached to an earth ground, a grounded chassis, or a grounded rack.

**Tip** Keep the shipping container in case the chassis requires shipping in the future.

**Note** The switch is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

To inspect the switch, follow these steps:

**Step 1** Compare the shipment to the equipment list provided by your customer service representative and verify that you have received all items.

**Step 2** Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see the packing slip)
- Model and serial number of the damaged unit
- Description of damage
- Effect of damage on the installation
- Photos of the damaged shipping containers and damaged product

**Step 3** For dual direction airflow switches, check to be sure that all of the fan and power supply modules have the same airflow direction.

- Port-side intake airflow direction indicated with burgundy coloring
- Port-side exhaust airflow direction indicated with blue coloring

# Installing a 1 (RU) Chassis in a Four-Post Rack

This section describes the rack installation for the Cisco Nexus 3000 series switch into a four-post rack.

# Installing the Switch Using the NXK-ACC-KIT-1RU Rack-Mount Kit

To install the switch, you must attach front and rear mounting brackets to the switch, install slider rails on the rear of the rack, slide the switch onto the slider rails, and secure the switch to the front of the rack. Typically, the front of the rack is the side easiest to access for maintenance.

**Note** You must supply the eight 10-32 or 12-24 screws required to mount the slider rails and switch to the rack.

### Before you begin

- You have inspected the switch shipment to ensure that you have everything ordered.
- Make sure that the switch rack-mount kit includes the following parts:
  - Front rack-mount brackets (2)
  - Rear rack-mount brackets (2)
  - Slider rails (2)
  - M4 x 0.7 x 8-mm Phillips pan-head screws (10)
- The rack is installed and secured to its location.

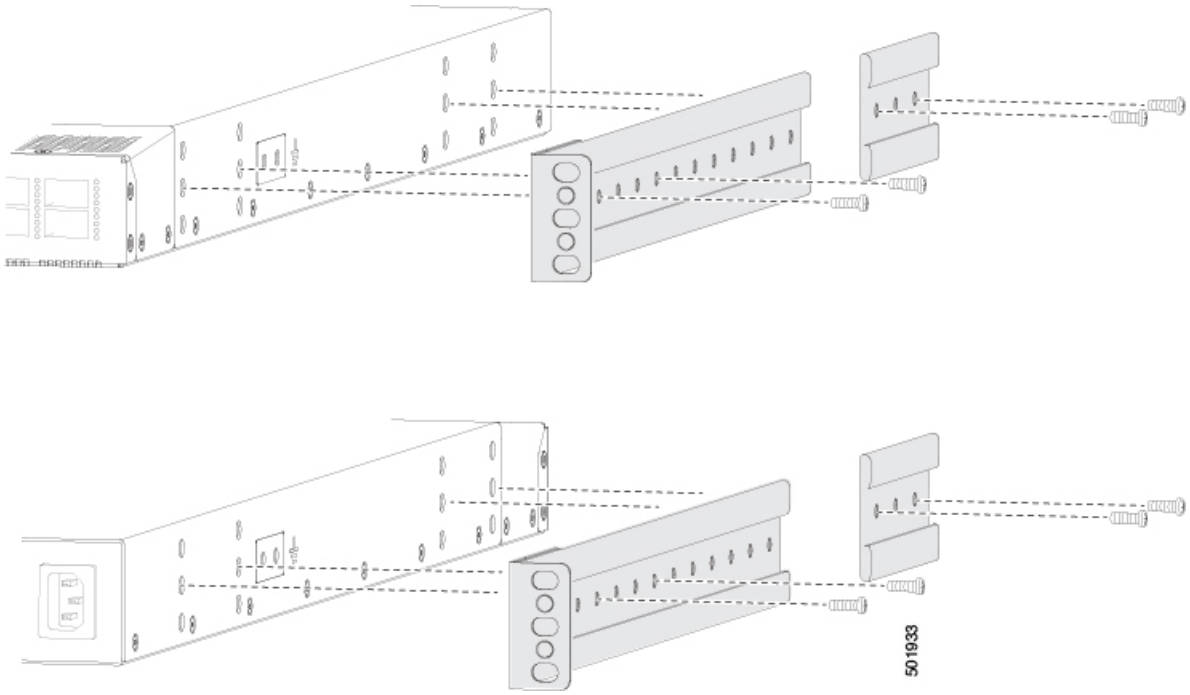
**Step 1** Install two front rack-mount brackets and the two rear rack-mount brackets to the switch as follows:

a) Determine which end of the chassis is to be located in the cold aisle as follows:

- If the switch has port-side intake modules (fan modules with burgundy coloring), position the switch so that its ports will be in the cold aisle.
- If the switch has port-side exhaust modules (fan modules with blue coloring), position the switch so that its fan and power supply modules will be in the cold aisle.

b) Position the front rack-mount bracket and the rear rack-mount bracket so that its screw holes are aligned to the screw holes on the side of the chassis.

**Note** You can align the holes in the rack-mount bracket to the holes on the side of the chassis (see the two ways to mount these brackets on a typical chassis, in following figure). The holes that you use depend on the requirements of your rack and the amount of clearance required for interface cables (3 inches [7.6 mm] minimum) and module handles (1 inch [2.5 mm] minimum).




c) Secure the front-mount bracket and the back-mount bracket to the chassis using four M4 screws and tighten each screw to 12 in-lb (1.36 N·m) of torque.

d) Repeat Step 1 for the other front rack-mount bracket and the other back-mount bracket on the other side of the switch and be sure to position that bracket the same distance from the front of the switch.

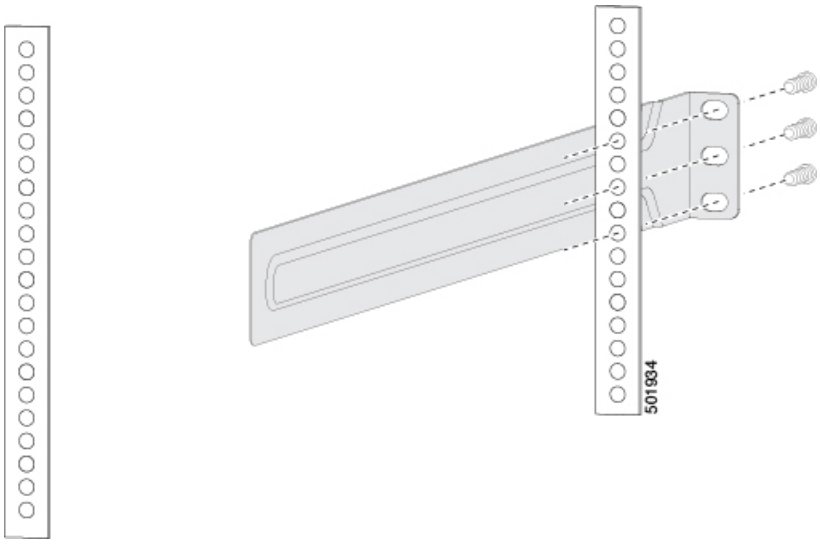
**Note** Depending on the chassis depth, the back rack-mount bracket may not fit. In that case the back rack-mount bracket is not needed.

**Step 2** If you are not installing the chassis into a grounded rack, you must attach a customer-supplied grounding wire to the chassis as explained in the Grounding the Chassis, on page 49 section. If you are installing the chassis into a grounded rack, you can skip this step.

**Step 3** Install the slider rails on the rack or cabinet as follows:

a) Determine which two posts of the rack or cabinet you should use for the slider rails. Of the four vertical posts in the rack or cabinet, two will be used for the front mount brackets attached to the easiest accessed end of the chassis, and the other two posts will have the slider rails.

b) Position a slider rail at the desired level on the back side of the rack and use 12-24 screws or 10-32 screws, depending on the rack thread type, to attach the rails to the rack (see the following figure). Tighten 12-24 screws to 30 in-lb (3.39 N·m) of torque and tighten 10-32 screws to 20 in-lb (2.26 N·m) of torque.

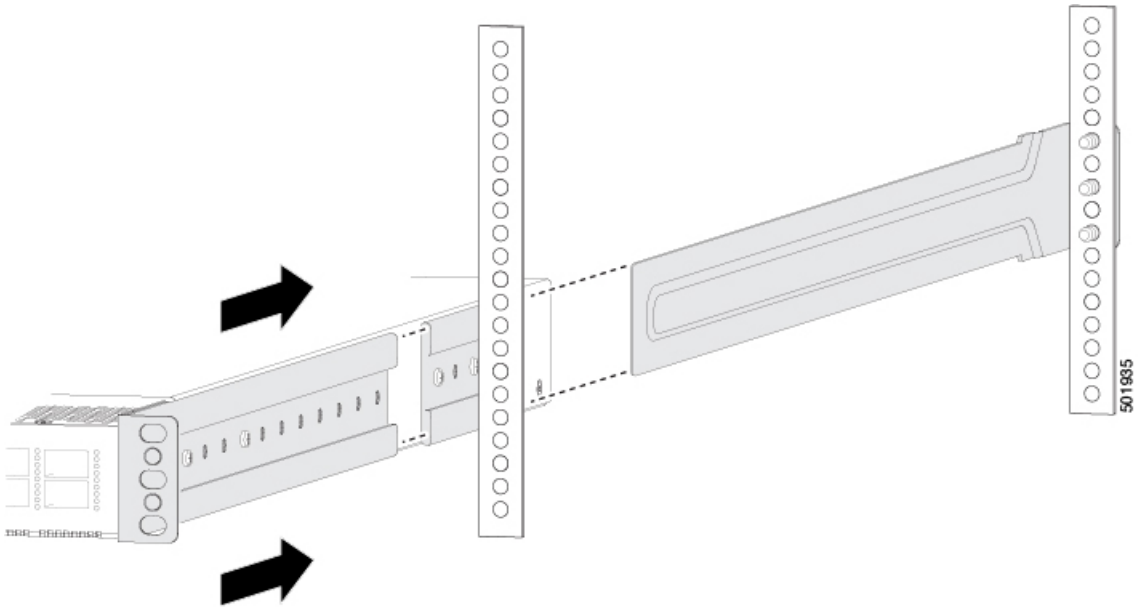



c) Repeat Step 3 to attach the other slider rail to the other side of the rack.

To make sure that the slider rails are at the same level, you should use a level tool, tape measure, or carefully count the screw holes in the vertical mounting rails.

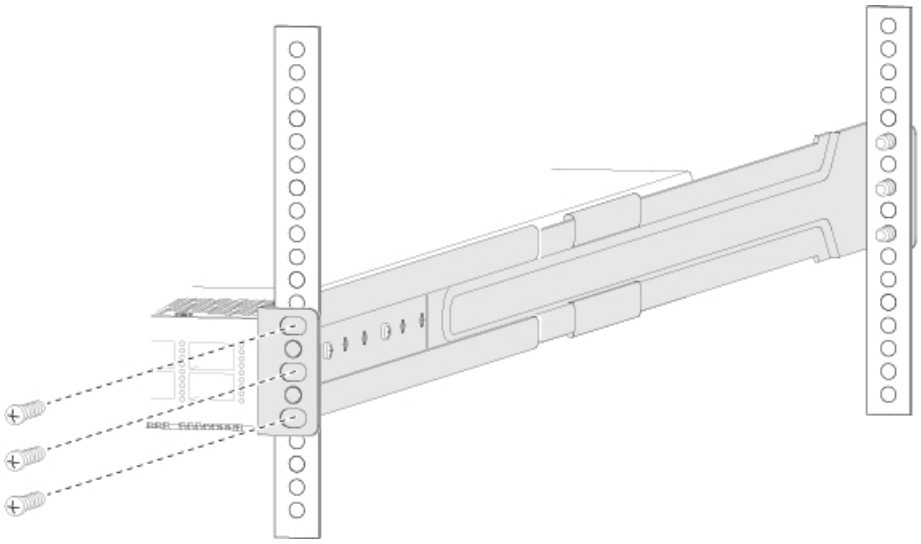
**Step 4** Insert the switch into the rack and attach it as follows:

a) Holding the switch with both hands, position the two rear rack-mount brackets on the switch between the rack or cabinet posts that do not have slider rails attached to them (see the following figure).




b) Align the two rear rack-mount guides on either side of the switch with the slider rails installed in the rack. Slide the rack-mount guides onto the slider rails, and then gently slide the switch all the way into the rack until the front rack-mount brackets come in contact with two rack or cabinet posts.

c) Holding the chassis level, insert screws (12-24 or 10-32, depending on the rack type) in each of the two front rack-mount brackets (using a total of six screws) and into the cage nuts or threaded holes in the vertical rack-mounting rails (see the following figure).



d) Tighten the 10-32 screws to 20 in-lb (2.26 N·m) or tighten the 12-24 screws to 30 in-lb (3.39 N·m).

**Step 5** If you attached a grounding wire to the chassis grounding pad, connect the other end of the wire to the facility ground.

# Installing the Switch Using the N3K-C3064-ACC-KIT Rack-Mount Kit

To install the switch, you must attach front and rear mounting brackets to the switch, install slider rails on the rear of the rack, slide the switch onto the slider rails, and secure the switch to the front of the rack. Typically, the front of the rack is the side easiest to access for maintenance.

**Note** You must supply the eight 10-32 or 12-24 screws required to mount the slider rails and switch to the rack.

### Before you begin

- You have inspected the switch shipment to ensure that you have everything ordered.
- Make sure that the switch rack-mount kit includes the following parts:
  - Front rack-mount brackets (2)
  - Rear rack-mount brackets (2)
  - Slider rails (2)
  - M4 x 0.7 x 8-mm Phillips countersink screws (12)
- The rack is installed and secured to its location.

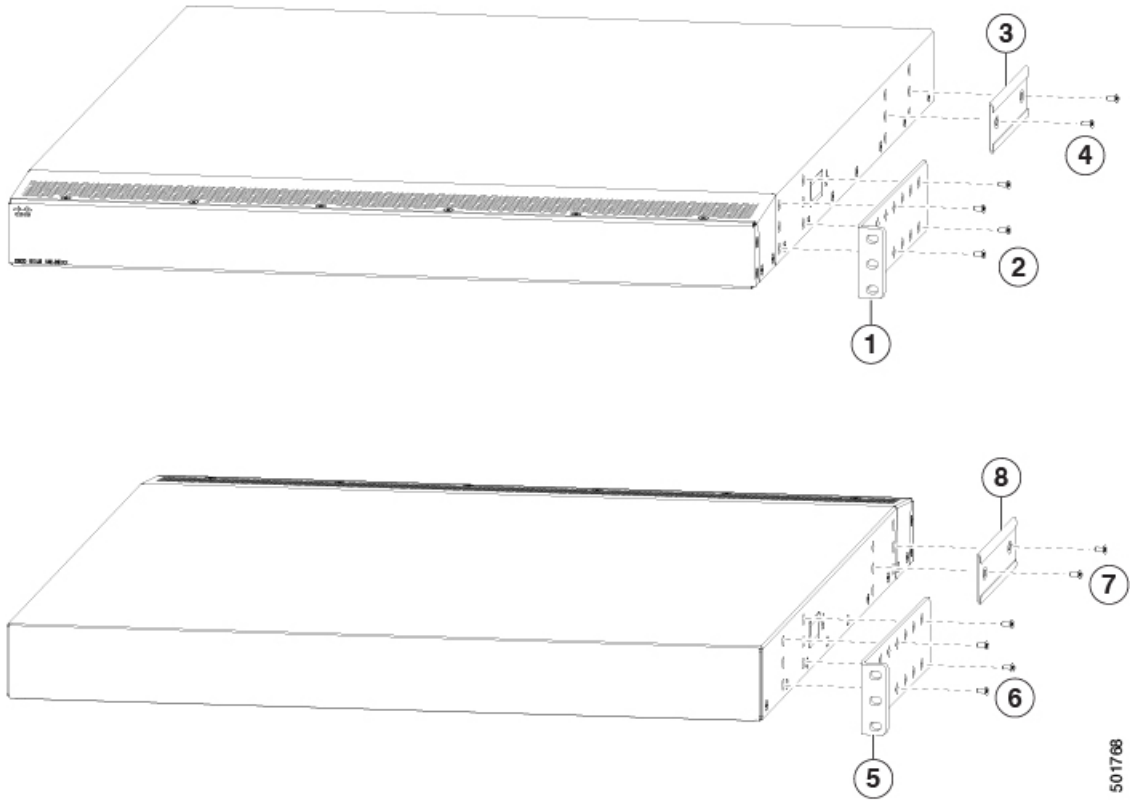
**Step 1** Install two front-mount brackets to the switch as follows:

a) Determine which end of the chassis is to be located in the cold aisle as follows:

- If the switch has port-side intake modules (fan modules with burgundy coloring), position the switch so that its ports will be in the cold aisle.
- If the switch has port-side exhaust modules (fan modules with blue coloring), position the switch so that its fan and power supply modules will be in the cold aisle.

b) Position a front-mount bracket so that four of its screw holes are aligned to the screw holes on the side of the chassis.

**Note** You can align any four of the holes in the front rack-mount bracket to four of the six screw holes on the side of the chassis (see the two ways to mount these brackets on a typical chassis, in following figure). The holes that you use depend on the requirements of your rack and the amount of clearance required for interface cables (3 inches [7.6 mm] minimum) and module handles (1 inch [2.5 mm] minimum).




| | | | |
|---|---|---|---|
| 1 | Front rack-mount bracket aligned to the port end of the chassis | 5 | Front rack-mount bracket aligned to the module end of the chassis |
| 2 | Four M4 screws used to attach the bracket to the chassis | 6 | Four M4 screws used to attach the bracket to the chassis |
| 3 | Rear rack-mount guide aligned to the module end of the chassis | 7 | Two M4 screws used to attach the bracket to the chassis |
| 4 | Two M4 screws used to attach the bracket to the chassis | 8 | Rear rack-mount guide aligned to the port end of the chassis |

c) Secure the front-mount bracket to the chassis using four M4 screws and tighten each screw to 12 in-lb (1.36 N·m) of torque.

d) Repeat Step 1 for the other front rack-mount bracket on the other side of the switch and be sure to position that bracket the same distance from the front of the switch.

**Step 2** Install the two rear rack-mount brackets on the chassis as follows:

a) Align the two screw holes on a rear rack-mount bracket to the middle two screw holes in the remaining six screw holes on a side of the chassis. If you are aligning the guide to holes that are near the port connections end of the chassis, see Callout 3 in the previous figure. Otherwise, see Callout 7 in the previous figure.

b) Attach the guide to the chassis using two M4 screws (see Callout 4 or 8 in the previous figure). Tighten the screws to 12 in-lb (1.36 N·m) of torque.

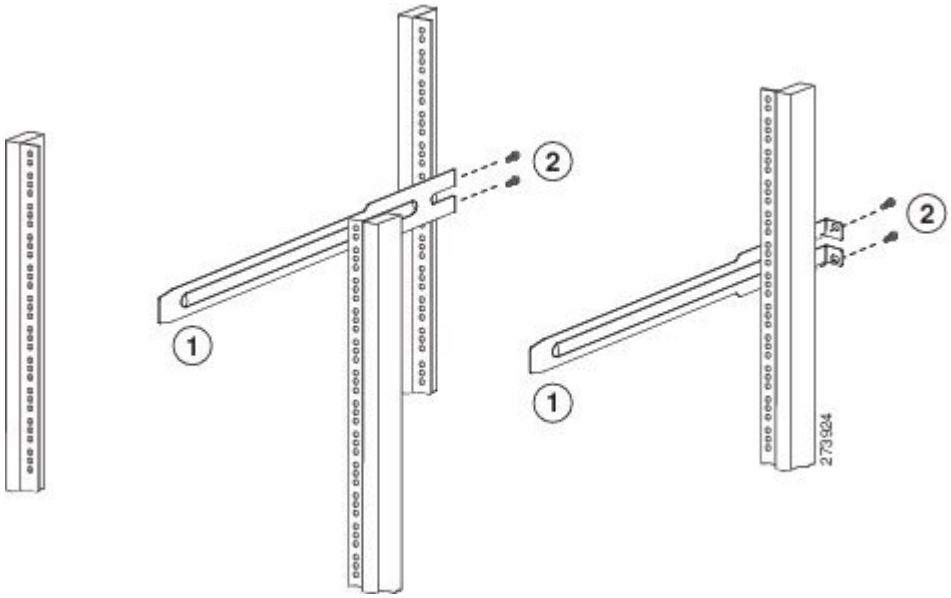
c) Repeat Step 2 for the other rear rack-mount bracket on the other side of the switch.

**Step 3** If you are not installing the chassis into a grounded rack, you must attach a customer-supplied grounding wire to the chassis as explained in the Grounding the Chassis, on page 49 section.. If you are installing the chassis into a grounded rack, you can skip this step.

**Step 4** Install the slider rails on the rack or cabinet as follows:

a) Determine which two posts of the rack or cabinet you should use for the slider rails. Of the four vertical posts in the rack or cabinet, two will be used for the front mount brackets attached to the easiest accessed end of the chassis, and the other two posts will have the slider rails.

b) Position a slider rail at the desired level on the back side of the rack and use two 12-24 screws or two 10-32 screws, depending on the rack thread type, to attach the rails to the rack (see the following figure). Tighten 12-24 screws to 30 in-lb (3.39 N·m) of torque and tighten 10-32 screws to 20 in-lb (2.26 N·m) of torque.



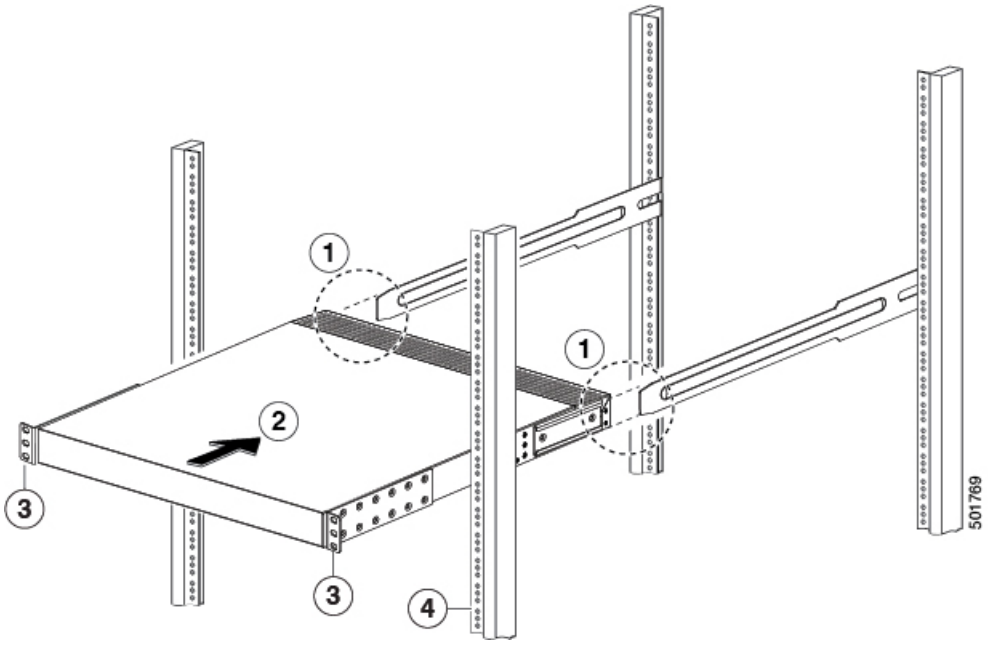

| | | | |
|---|---|---|---|
| 1 | Slider rail with screw holes aligned to screw holes in rack | 2 | Two customer-supplied 12-24 or 10-32 screws used to attach each slider rail to the rack |

c) Repeat Step 3 to attach the other slider rail to the other side of the rack.

To make sure that the slider rails are at the same level, you should use a level tool, tape measure, or carefully count the screw holes in the vertical mounting rails.

**Step 5** Insert the switch into the rack and attach it as follows:

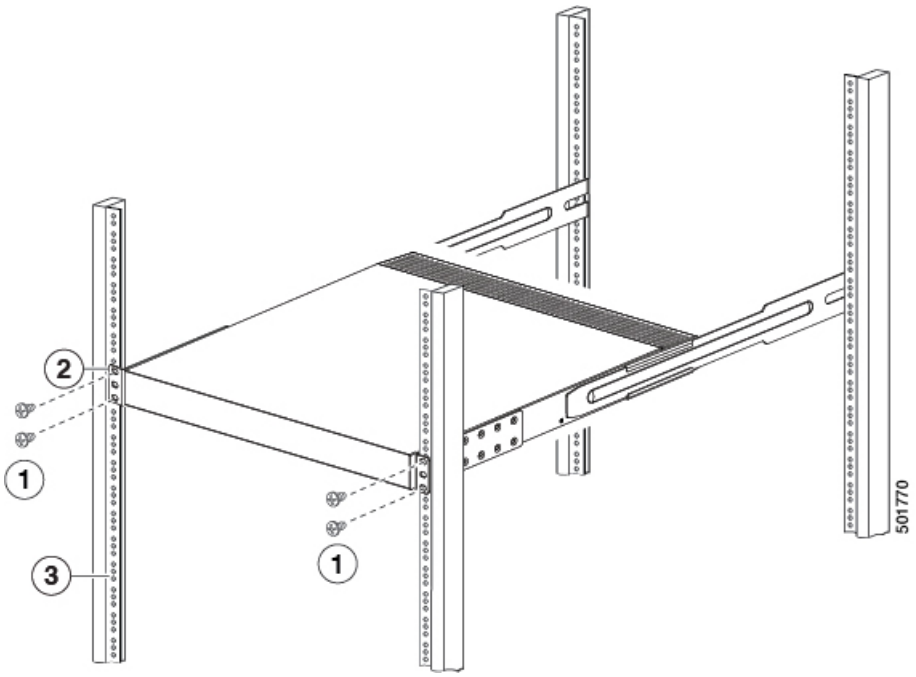
a) Holding the switch with both hands, position the two rear rack-mount brackets on the switch between the rack or cabinet posts that do not have slider rails attached to them (see the following figure).




| | | | |
|---|---|---|---|
| 1 | Align the two rear rack-mount bracket guides with the slider rails installed in the rack. | 3 | Front-mount brackets. |
| 2 | Slide the rack-mount guides onto the slider rails until the front rack-mount brackets come in contact with the front rack-mount rails. | 4 | Mounting rails on rack or cabinet posts. |

b) Align the two rear rack-mount guides on either side of the switch with the slider rails installed in the rack. Slide the rack-mount guides onto the slider rails, and then gently slide the switch all the way into the rack until the front rack-mount brackets come in contact with two rack or cabinet posts.

c) Holding the chassis level, insert two screws (12-24 or 10-32, depending on the rack type) in each of the two front rack-mount brackets (using a total of four screws) and into the cage nuts or threaded holes in the vertical rack-mounting rails (see the following figure).




| | | | |
|---|---|---|---|
| 1 | Fasten the chassis to the front of the rack with two 12-24 or 10-32 screws on each side. | 3 | Mounting rails on rack or cabinet posts. |
| 2 | Front-mount bracket. | | |

d) Tighten the 10-32 screws to 20 in-lb (2.26 N·m) or tighten the 12-24 screws to 30 in-lb (3.39 N·m).

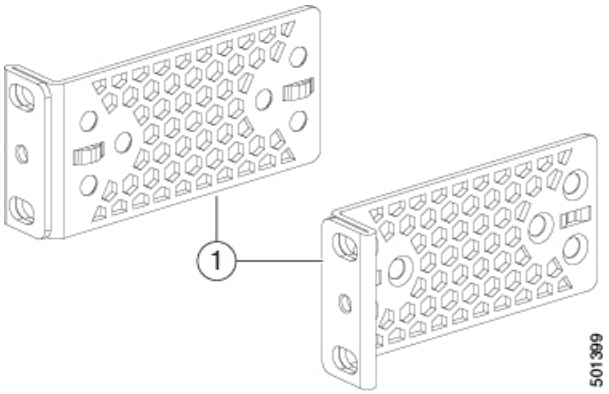
**Step 6** If you attached a grounding wire to the chassis grounding pad, connect the other end of the wire to the facility ground.

# Installing a 1 (RU) Chassis in a Two-Post Rack

This section describes the rack installation for the Cisco Nexus 3000 series switch into a two-post rack.

To install a switch, you must attach mounting brackets to the switch and secure the switch to the rack. Installation in racks other than 19-inch racks requires a bracket kit not included with the switch.

The following figure shows the standard 19-inch mounting brackets.




| | | | |
|---|---|---|---|
| 1 | 19-inch brackets (C3850-RACK-KIT=) | | |

## SUMMARY STEPS

1. Install the brackets to a typical switch.
2. Install the chassis into the rack.

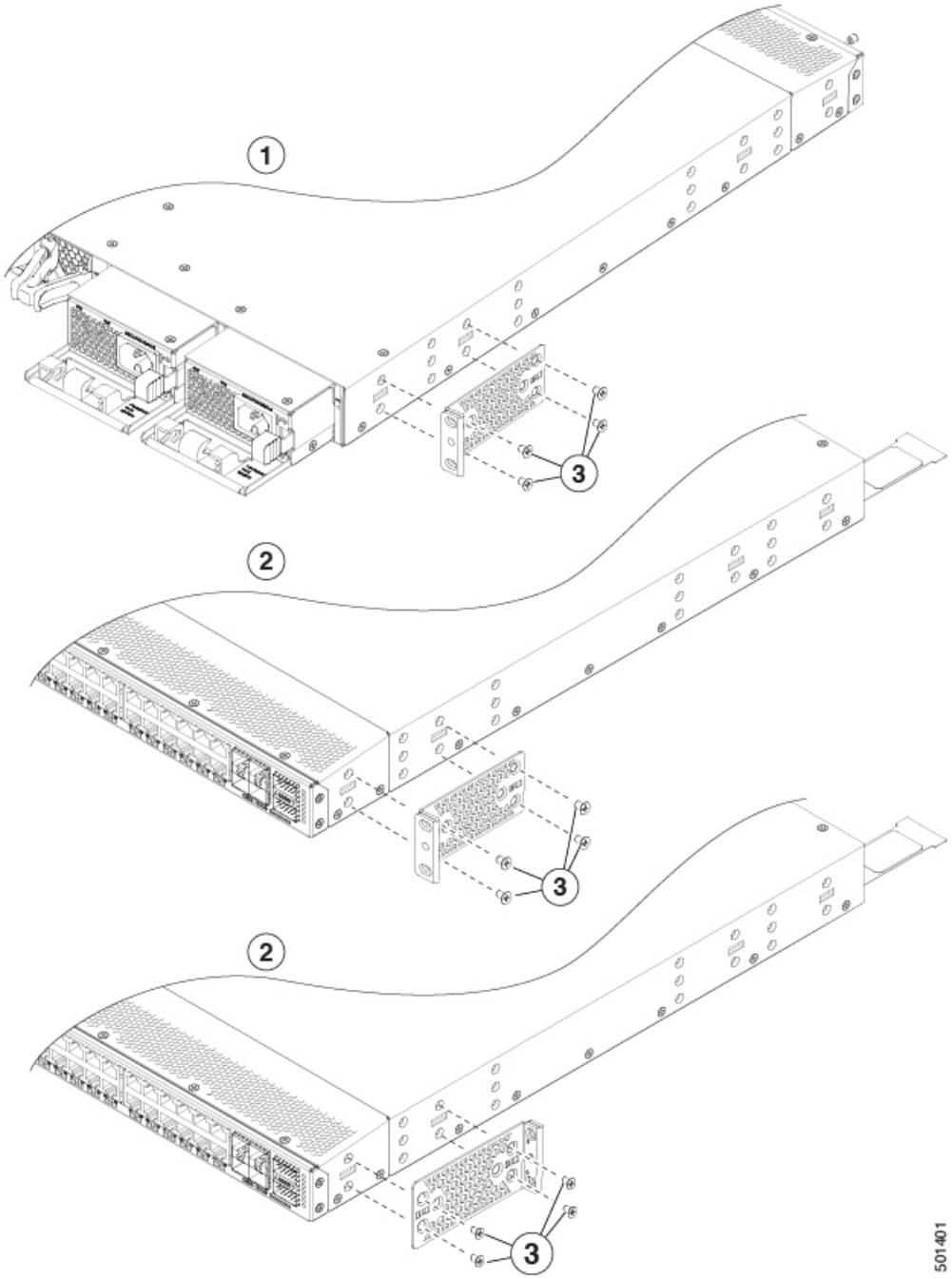
## DETAILED STEPS

**Step 1** Install the brackets to a typical switch.

a) Determine which end of the chassis is to be located in the cold aisle as follows:

- If the switch has port-side intake modules (fan modules with burgundy coloring), position the switch so that its ports will be in the cold aisle.
- If the switch has port-side exhaust modules (fan modules with blue coloring), position the switch so that its fan and power supply modules will be in the cold aisle.

b) Position the bracket so that four of its screw holes are aligned to the screw holes on the side of the chassis.



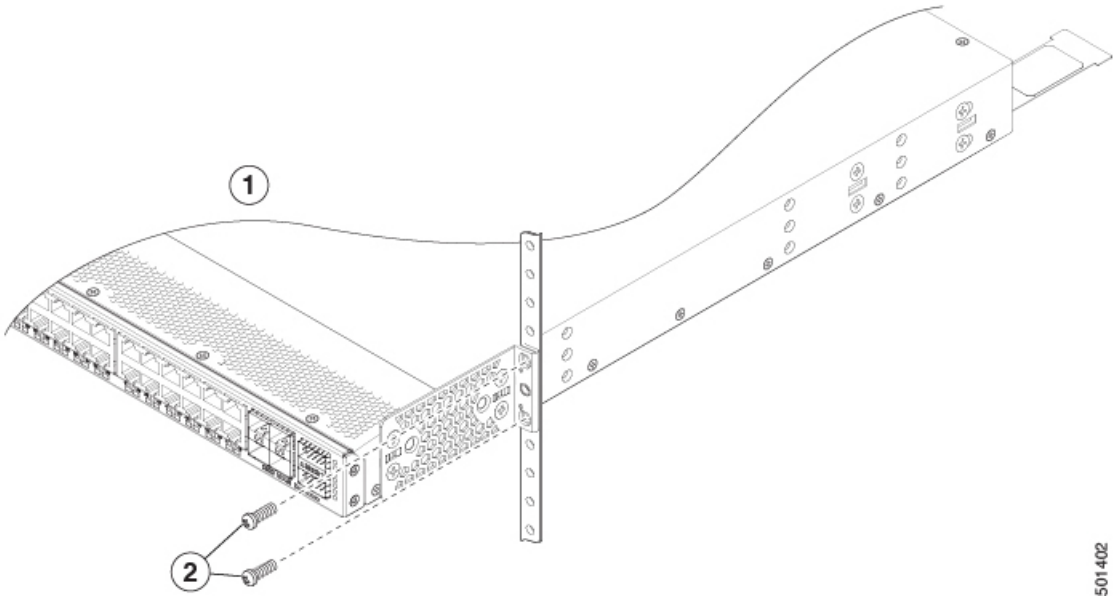

| | | | |
|---|---|---|---|
| 1 | Rear-mounting position | 3 | Number-8 Phillips flat-head screws (4 each bracket) |
| 2 | Front-mounting position | | |

c) Secure the bracket to the chassis using four Number-8 Phillips flat-head screws and tighten each screw to 12 in-lb (1.36 N·m) of torque.

d) Repeat previous step for the other front rack-mount bracket on the other side of the switch and be sure to position that bracket the same distance from the front of the switch.

**Step 2** Install the chassis into the rack.

a) Use two M4 screws to attach the brackets to the rack.




| | | | |
|---|---|---|---|
| 1 | Front-mounting position | 2 | M4 screws (2 each side) |

# Installing a 2 (RU) Chassis in a Four-Post Rack

This section describes the rack installation for the Cisco Nexus 3000 series switch into a four-post rack.

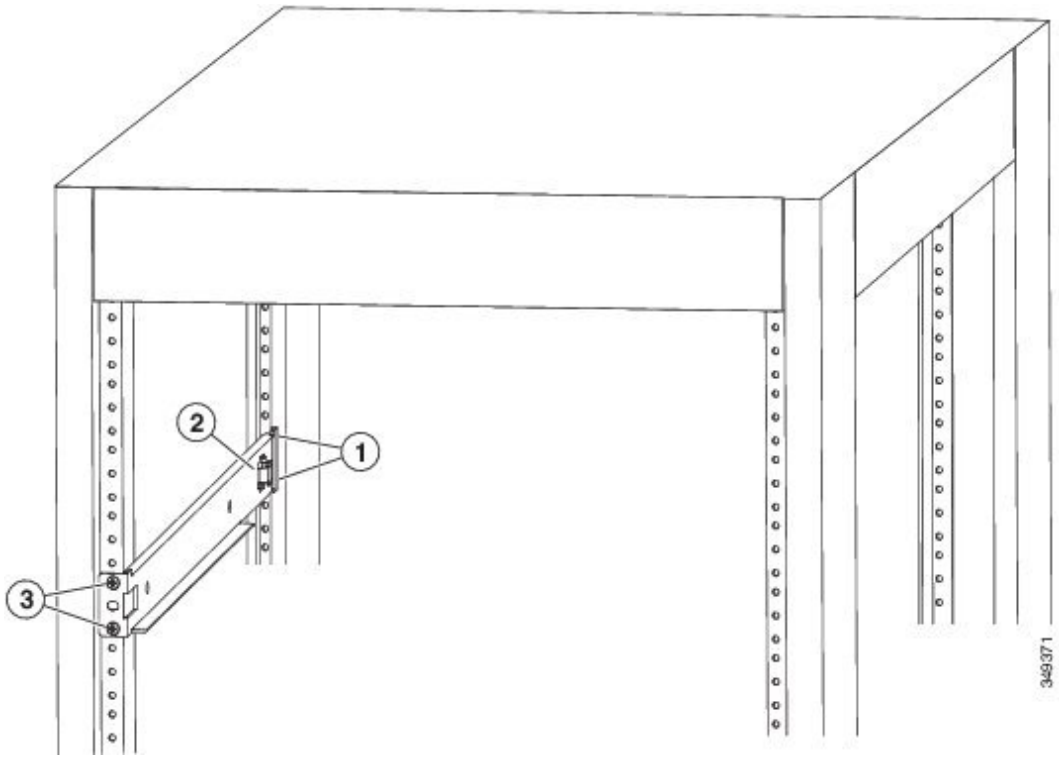
Before moving or lifting the chassis, follow these guidelines:

- Ensure that all cables are disconnected from the switch.
- Ensure that there is adequate space around the switch for servicing and airflow.
- Ensure that you have solid footing and that the weight of the switch is evenly distributed between your feet.
- Lift the switch slowly, keeping your back straight. Lift with your legs, not with your back. Bend at the knees, not at the waist.

**Step 1** Attach the bottom-support rails on the rack as follows:

a) Position an expanding set of bottom-support brackets on the rack with each end touching a vertical mounting rail on the front and rear of the rack. Ensure that the chassis stop is on the side of the chassis where you plan to position the power supply and fan modules when you install the chassis (see the following figure).

*Figure 24: Positioning an Expanding Bottom-Support Rail Set*




| | | | |
|---|---|---|---|
| 1 | 2 screws holding one end of the bottom-support bracket to the rear of the rack | 3 | 2 screws holding the front end of the bottom-support bracket to the front side of the rack |
| 2 | Chassis stop on the expanding bottom-support bracket | | |

b) Holding the bottom-support rail level, attach the rail to the front and rear vertical mounting rails using four customer-supplied screws that are appropriate for the rack (use two screws for each vertical mounting rail), and tighten each screw to the appropriate torque setting for that screw.

Typically, you use one of the following types of screws and the associated torque settings when tightening them:

- M4 screws—use 12 in-lb (1.36 N·m) of torque
- M6 screws—use 40 in-lb (4.5 N·m) of torque
- 10-32 screws— use 20 in-lb (2.26 N·m) of torque

If the rack requires another type of screw, use the appropriate torque setting for that type of screw.

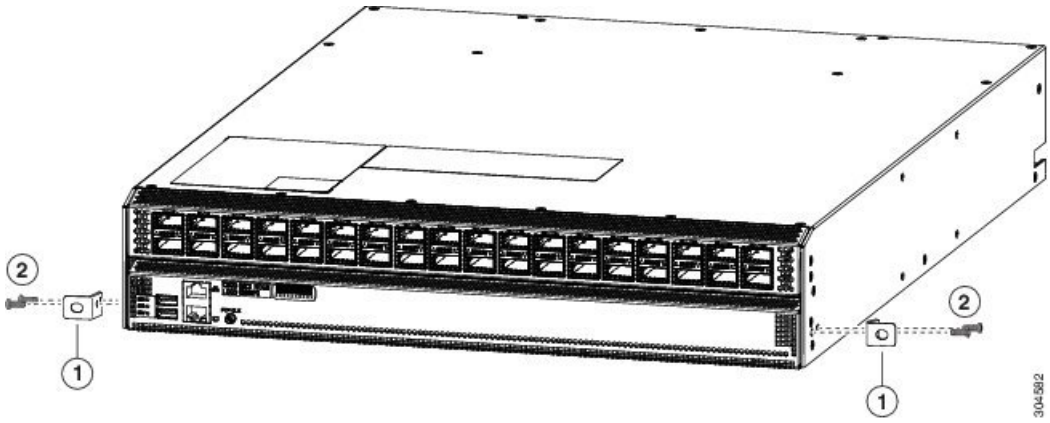
c) Repeat Steps 1a and 1b to attach the other expanding bottom-support rail to the other side of the rack at the same level as the attached bottom-support rail.

**Note** Verify that the two sets of bottom-support rails are level with each other before going to the next step.

**Step 2** Attach two front-mount brackets to the sides of the chassis as follows:

a) Align the two holes in one side of a front-mount bracket to two holes on the left or right side of the chassis as shown in the following figure.

*Figure 25: Aligning and attaching Front-Mount Brackets to the Chassis*




| | | | |
|---|---|---|---|
| 1 | Front rack-mount bracket | 2 | 2 M4 x 6 mm screws |

b) Use two M4 x 6 mm screws to attach the bracket to the chassis and tighten each screw to 12 in-lb (1.36 N·m) of torque.

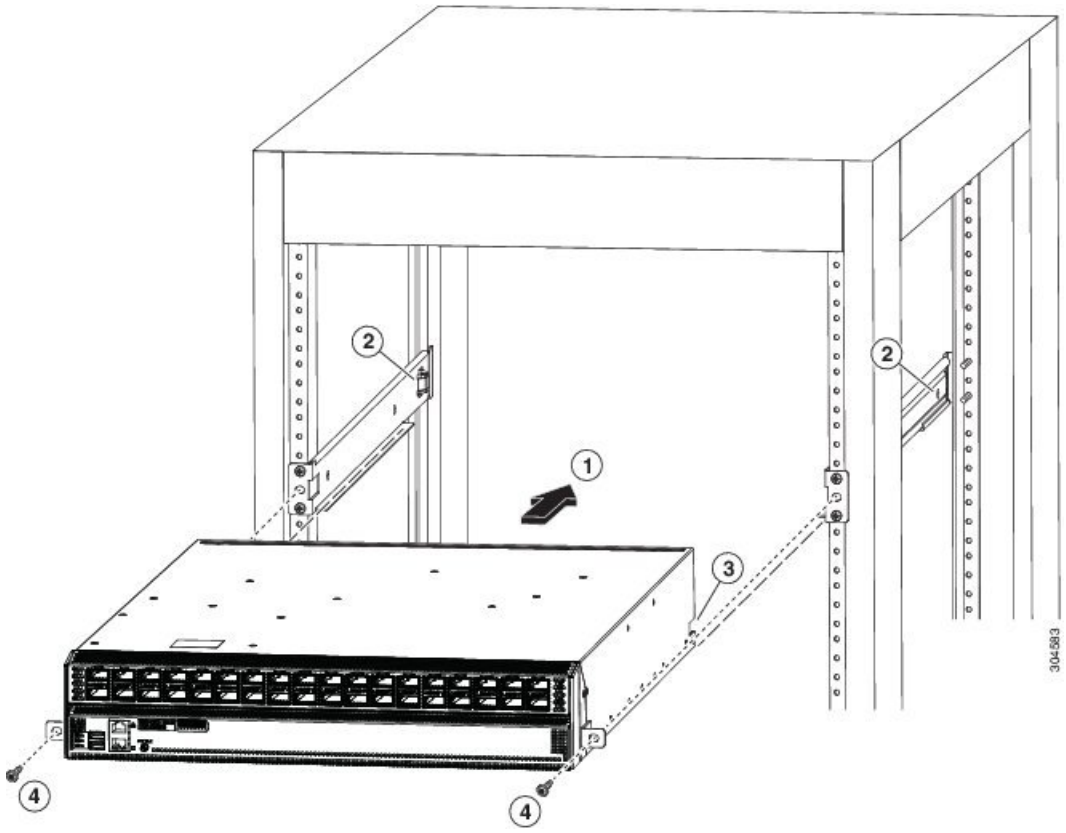
c) Repeat Steps 2a and 2b to attach the other front-mount bracket to the other side of the chassis.

**Step 3** Install the chassis in the rack as follows:

a) Slide the power supply end of the chassis onto the installed bottom-support rails as shown in the following figure.

When you have fully pushed the chassis all the way onto the bottom-support rails, the chassis stops on the bottom-support rails insert into the chassis notches and the front-mount brackets touch the front vertical mounting rails.

*Figure 26: Sliding the Chassis onto the Bottom-Support Rails*




| | | | |
|---|---|---|---|
| 1 | Slide the power-supply end of the chassis onto the bottom-support rails so that the chassis stops insert into the chassis notches. | 3 | Receiving notches on each side of the chassis for the chassis stops on the bottom-support rails. |
| 2 | Chassis stops | 4 | Rack-mount screw |

b) Use two screws that are appropriate for the rack to attach the front-mount brackets to the rack (one screw for each mounting bracket).

Typically, you use one of the following types of screws and the associated torque settings when tightening them:

- M4 screws—use 12 in-lb (1.36 N·m) of torque
- M6 screws—use 40 in-lb (4.5 N·m) of torque
- 10-32 screws— use 20 in-lb (2.26 N·m) of torque

If the rack requires another type of screw, use the appropriate torque setting for that type of screw.

# Installing a 2 (RU) Chassis in a Two-Post Rack

This section describes the rack installation for the Cisco Nexus 3000 series switch into a two-post rack.

You need to attach a right-angled bracket to each side of the chassis. This bracket centers the chassis and secures it in place on a two-post rack.

Position the chassis near the top of the rack with the power supply and fan modules in the appropriate aisle for their required airflow. If the fan modules have a blue coloring for port-side exhaust airflow, then you must position the modules by the cold aisle. If the fan modules have a burgundy coloring for port-side intake airflow, you must position the modules by the hot aisle.

**Warning** **Statement 1006—**Chassis Warning for Rack-Mounting and Servicing

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

### Before you begin

- You must separately order the center-mount brackets if you are installing the chassis in a two-post rack. These brackets do not ship with the chassis unless you specifically order them.
- You must have the following tools and equipment:
  - Manual Phillips-head torque screwdriver
  - Center-mount bracket kit
  - Make sure that you have six customer-supplied rack-mount screws (typically M6 x 10 mm or the appropriate screw for the vertical mounting rails on the rack).
  - You have at least two people to install the chassis.

### SUMMARY STEPS

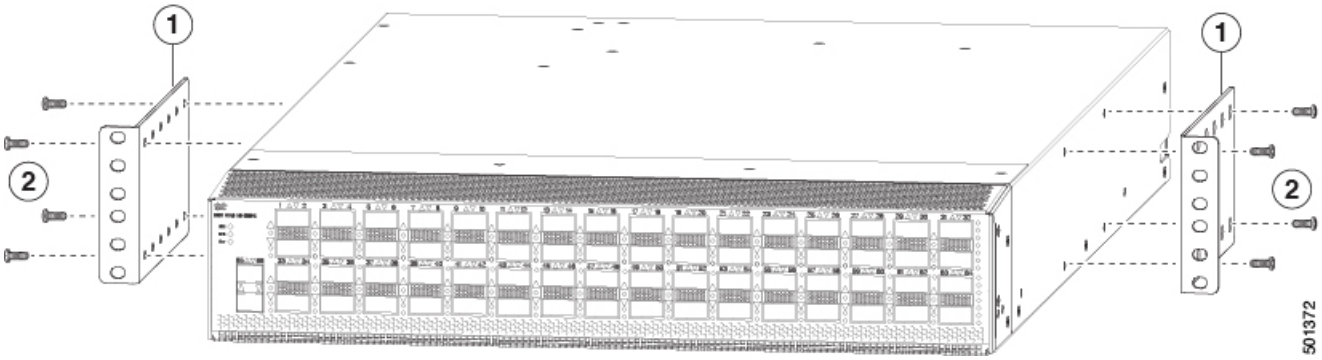
1. Align one of the two center-mount brackets on the left or right side of the chassis and be sure that the angled portion is facing the front of the chassis (see the following figure).
2. Use four M4 x 8 mm screws to attach the bracket to the chassis. Tighten each screw to 11 to 15 in-lb (1.2 to 1.7 N·m).
3. Repeat Steps 1 and 2 to attach the second center-mount bracket to the other side of the chassis.
4. Use one person to position the chassis so that it is near the top of the rack with the fan and power supply modules in the appropriate aisle and the center-mount bracket has its screw holes aligned to screw holes on the two-post rack.

5. Use the second person to secure the three customer-supplied rack-mount screws (typically M6 x 10 mm or other appropriate screws for the rack) on each center-mount bracket to attach the chassis to the rack. Tighten each screw to the appropriate torque setting for the screws (for M6 x 10 mm screws, use 40 in-lbs [4.5 N·m] of torque).

## DETAILED STEPS

**Step 1** Align one of the two center-mount brackets on the left or right side of the chassis and be sure that the angled portion is facing the front of the chassis (see the following figure).

Be sure to align four of the screw holes on the larger side of the bracket with the four screw holes near the center of the left or right side of the chassis.



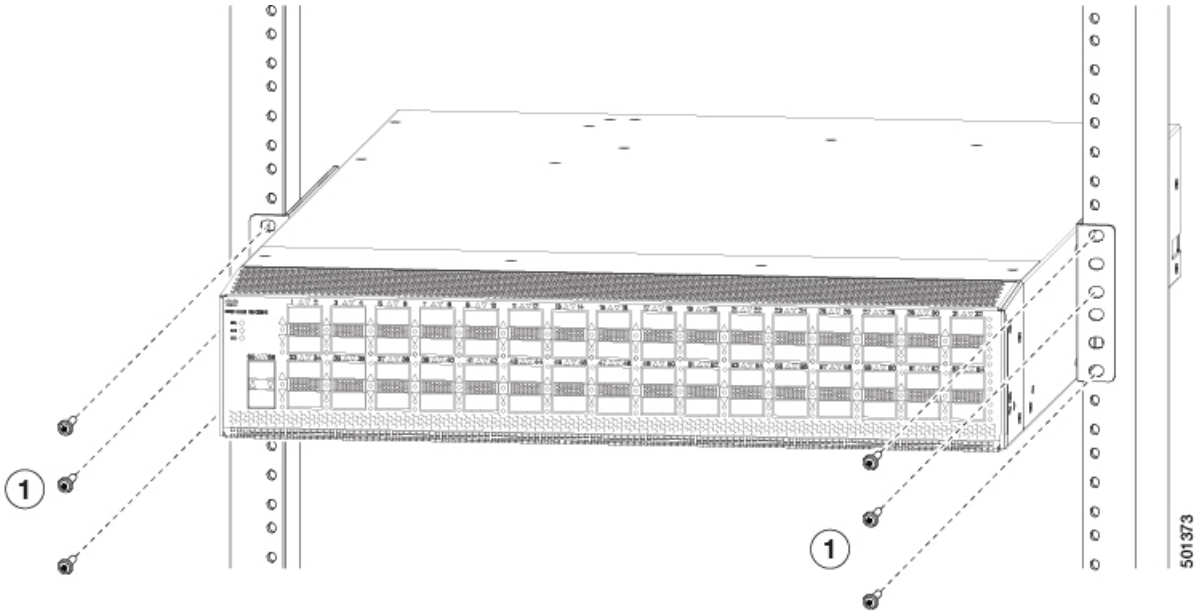

| | | | |
|---|---|---|---|
| 1 | Center-mount bracket with its larger side facing the chassis and the longer side facing the front (port side) of the chassis. Align four screw holes in the bracket to four screw holes in the side of the chassis. | 2 | Four M4 x 8 mm screws used to fasten the bracket to the chassis. |

**Step 2** Use four M4 x 8 mm screws to attach the bracket to the chassis. Tighten each screw to 11 to 15 in-lb (1.2 to 1.7 N·m).

**Step 3** Repeat Steps 1 and 2 to attach the second center-mount bracket to the other side of the chassis.

**Step 4** Use one person to position the chassis so that it is near the top of the rack with the fan and power supply modules in the appropriate aisle and the center-mount bracket has its screw holes aligned to screw holes on the two-post rack.

If these modules have a blue coloring for port-side exhaust airflow, then you must position the modules by the cold aisle. If the modules have a burgundy coloring for port-side intake airflow, you must position the modules by the hot aisle.




| | | | |
|---|---|---|---|
| 1 | Three customer-supplied screws (typically M6 x 10 mm screws or the appropriate screws for the rack) to hold each side of the chassis to the two-post rack. | | |

**Step 5** Use the second person to secure the three customer-supplied rack-mount screws (typically M6 x 10 mm or other appropriate screws for the rack) on each center-mount bracket to attach the chassis to the rack. Tighten each screw to the appropriate torque setting for the screws (for M6 x 10 mm screws, use 40 in-lbs [4.5 N·m] of torque).

# Grounding the Chassis

The switch chassis is automatically grounded when you properly install the switch in a grounded rack with metal-to-metal connections between the switch and rack.

**Note** An electrical conducting path shall exist between the product chassis and the metal surface of the enclosure or rack in which it is mounted or to a grounding conductor. Electrical continuity shall be provided by using thread-forming type mounting screws that remove any paint or non-conductive coatings and establish a metal-to-metal contact. Any paint or other non-conductive coatings shall be removed on the surfaces between the mounting hardware and the enclosure or rack. The surfaces shall be cleaned and an antioxidant applied before installation.

You can also ground the chassis, which is required if the rack is not grounded, by attaching a customer-supplied grounding cable. Attach the cable to the chassis grounding pad and the facility ground.

**Warning** **Statement 1024—**Ground Conductor

This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

**Warning** **Statement 1046—**Installing or Replacing the Unit

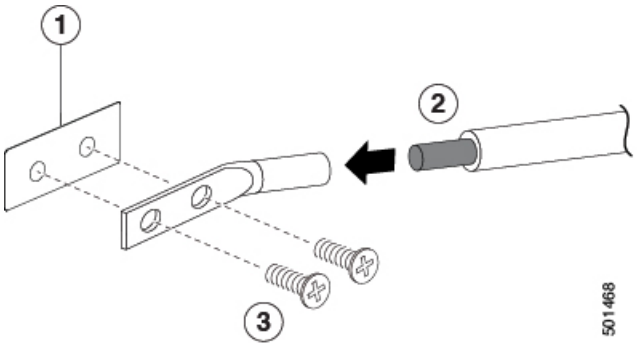
To reduce risk of electric shock, when installing or replacing the unit, the ground connection must always be made first and disconnected last.

### Before you begin

Before you can ground the chassis, you must have a connection to the earth ground for the data center building.

**Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire. We recommend 6-AWG wire for the U.S. installations.

**Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug. Use a crimping tool to crimp the lug to the wire, see the following figure. Verify that the ground wire is securely attached to the grounding lug by attempting to pull the wire out of the crimped lug.




| | | | |
|---|---|---|---|
| 1 | Chassis grounding pad | 3 | 2 M4 screws are used to secure the grounding lug to the chassis |
| 2 | Grounding cable, with 0.75 in. (19 mm) of insulation that is stripped from one end, which is inserted into the grounding lug and crimped in place | | |

**Step 3** Secure the grounding lug to the chassis grounding pad with two M4 screws, see the previous figure. Tighten the screws to 11 to 15 in-lb (1.24 to 1.69 N·m) of torque.

**Step 4** Prepare the other end of the grounding wire and connect it to the facility ground.

# Starting the Switch

To power up the switch, follow these steps:

### Before you begin

- Verify that the switch is fully installed and secured to a rack.
- Verify that the switch is adequately grounded to the facility earth ground or to a grounded rack.
- Verify that all of the fan and power supply modules are installed in the chassis. If the chassis has only one power supply, there must be a blank module (N2200-P-BLNK) in the open power supply slot to maintain the designed airflow.
- If you are using a DC power source, verify that the circuit is shut off at a circuit breaker.

**Step 1** If the switch has AC power supplies, connect those power supplies to an AC power source as follows:

a) Verify that the AC power source is turned off at the circuit breaker.
b) Plug the power cable into the power receptacle on the power supply.
c) Attach the other end of the power cable to the AC power source.
d) Turn on the power at the circuit breaker.
e) Verify that the power supply is functioning by making sure that the OK LED turns green and the FAULT LED is off.

**Step 2** If the switch has HVAC/HVDC power supplies, connect those power supplies to a power source as follows:

a) Using the recommended high voltage power cable for your country or region, connect the Anderson Power Saf-D-Grid connector on the power cable to the power receptacle on the power supply. Make sure that the connector clicks when fully pushed into the receptacle.
b) Connect the other end of the power cable to a power source.
   - When connecting to an HVAC power source, insert the C14 or LS-25 plug in a receptacle for the HVAC power source.
   - When connecting to an HVDC power source, do the following:
     1. Verify that the power is turned off at a circuit breaker for the power source terminals.
     2. Remove the nuts from each of the terminal posts for the power supply.
     3. Place the power cable negative-wire terminal ring on the negative terminal for the power source and secure them with a terminal nut.
     4. Place the power cable positive-wire terminal ring on the positive terminal for the power source and secure them with a terminal nut.
     5. Place the power cable ground-wire terminal ring on the ground terminal for the power source and secure them with a terminal nut.
     6. If there is a safety cover for the power source terminals, place and secure it over the terminals to avoid an electrical shock hazard.
     7. Turn on the power at the power source circuit breaker.

**Step 3** If the switch has DC power supplies, connect those power supplies to a DC power source as follows:

a) Verify that the DC power source is turned off at the circuit breaker.
b) Remove the clear plastic safety cover that prevents you from touching the negative (-) and positive (+) terminals on the power supply.
c) Connect a negative cable from the power source to the left (-) terminal on the power supply.
d) Connect a positive cable from the power source to the right (+) terminal on the power supply.
e) Clip on the clear plastic safety cover over the power supply terminals to prevent accidental touching of these terminals.
f) Turn on the power at the circuit breaker.
g) Verify that the power supply is functioning by making sure that the OK LED turns green and the FAULT LED is off.

**Step 4** Listen for the fans; they should begin operating when the power cable is plugged in.

**Step 5** After the switch boots, verify that the following LEDs are on:

- Power supply LED—lit and green

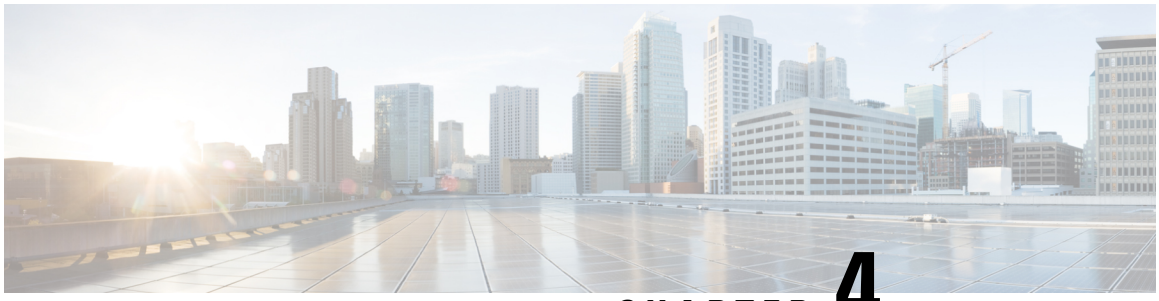
  If not green, try removing the module part way from its slot and reinstalling it.

- Fan LED—lit and green

  If not green, try removing the module part way from its slot and reinstalling it.

- System Status LED—lit and green (if this LED is orange or red, then one or more environmental monitors is reporting a problem.)

- Link LEDs for the Ethernet connector—Off



CHAPTER 4

# Connecting the Switch to the Network


- Preparing for Network Connections, on page 53
- Connecting to a Console, on page 53
- Connecting the Management Interface, on page 54
- Connecting Interface Ports to Other Devices, on page 54
- Maintaining Transceivers and Optical Cables, on page 57


## Preparing for Network Connections

When preparing your site for network connections to your switch, consider the following for each type of interface and gather all the required equipment before connecting the ports:

- Cabling required for each interface type
- Distance limitations for each signal type
- Additional interface equipment required

## Connecting to a Console

You can connect the switch to a console to perform the following functions:

- Configuring the switch using the CLI
- Monitoring network statistics and errors
- Configuring SNMP agent parameters
- Downloading software updates

**Note** We recommend that you use this port to create a local management connection to set the IP address and other initial configuration settings before connecting the switch to the network for the first time.

The console port on the switch is an RS-232 port with an RJ-45 interface. This is an asynchronous (async) serial port; any device connected to this port must be capable of asynchronous transmission.

**Caution** The console port can be used to connect to a modem. If you do not connect it to a modem, connect it either before powering the switch on or after the switch has completed the boot process.

### Before you begin

Before you connect the switch to a console, ensure that you have the following:

- Computer terminal that supports VT100 terminal emulation. The terminal emulation software (such as HyperTerminal or Procomm Plus) makes communication between the switch and a computer possible during setup and configuration.

**Step 1** Configure the terminal emulator program to match each of the following default port characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity

**Step 2** Connect the DB-9 connector on the other end of the cable to the computer serial port.

### What to do next

You are ready to configure the switch.

# Connecting the Management Interface

### Before you begin

To prevent an IP address conflict, you must complete the initial configuration and establish an IP address for the switch.

**Step 1** Connect the appropriate modular cable to on the switch.

**Step 2** Connect the other end of the cable to the switch, hub, or router.

# Connecting Interface Ports to Other Devices

After you perform the initial configuration for the switch and create a management connection, you are ready to connect the interface ports on the switch to other devices. Depending on the types of interface ports on the

switch, you will need to use interface cables with QSFP28, QSFP+, SFP+, or SFP transceivers or RJ-45 connectors to connect the switch to other devices.

The transceivers used with many fiber-optic cables come separated from their cables. To prevent damage to the fiber-optic cables and their transceivers, we recommend that you keep these transceivers disconnected from their fiber-optic cables when installing the transceiver in the interface port. Before removing a transceiver for a fiber-optic cable, you must remove the cable from the transceiver.

To maximize the effectiveness and life of your transceivers and optical cables, do the following:

- Wear an ESD-preventative wrist strap that is connected to an earth ground whenever handling transceivers. The switch is typically grounded during installation and provides an ESD port to which you can connect your wrist strap.
- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.
- Keep the transceivers and fiber-optic cables clean and dust free to maintain high signal accuracy and to prevent damage to the connectors. Attenuation (loss of light) is increased by contamination and should be kept below 0.35 dB.
- Clean these parts before installation to prevent dust from scratching the fiber-optic cable ends.
- Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to your site's fiber-optic connection cleaning procedures.
- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.
- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.

**Warning** **Statement 1051—**Laser Radiaation

Invisible laser radiation may be emitted from disconneted fibers or connectors. Do not stare into beams or view directly with optical instruments

# Installing SFP+ and SFP Transceivers

**Note** Excessively removing and installing an SFP or SFP+ transceiver can shorten its life. Unless it is absolutely necessary, do not remove and insert SFP or SFP+ transceivers. To prevent damage to an optical cable and transceiver, we recommend that you disconnect cables before installing or removing transceivers.

**Note** If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

**Step 1** Attach an ESD-preventive wrist strap and follow its instructions for use.

**Step 2** Remove the dust cover from the port cage.

**Step 3** Remove the dust cover from the port end of the transceiver.

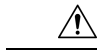
**Step 4** Insert the transceiver into the port as follows:

- If the transceiver has a Mylar tab latch, position the transceiver with the tab on the bottom, and then gently insert the transceiver into the port until it clicks into place.
- If the transceiver has a bale clasp latch, position the transceiver with the clasp on the bottom, close the clasp by pushing it up over the transceiver, and then gently insert the transceiver into the port until it clicks into place.

**Caution** If the transceiver does not install easily, ensure that it is correctly positioned and the tab or clasp are in the correct position before continuing.

# Installing QSFP+ Transceivers

The QSFP+ transceiver module can have either a bail-clasp latch or a pull-tab latch.



**Caution** The QSFP+ transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling QSFP+ transceiver modules or coming into contact with system modules.

**Step 1** Attach an ESD wrist strap to yourself and a properly grounded point on the chassis or the rack. Follow its instructions for use.

**Step 2** Remove the QSFP+ transceiver module from its protective packaging.

**Step 3** Remove the dust cover from the port end of the transceiver.

**Step 4** Check the label on the QSFP+ transceiver module body to verify that you have the correct model for your network.

**Step 5** For optical QSFP+ transceivers, remove the optical bore dust plug and set it aside.

**Step 6** For transceivers equipped with a bail-clasp latch, do the following:

a) Keep the bail-clasp aligned in a vertical position.
b) Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.

**Step 7** For QSFP+ transceivers equipped with a pull-tab, do the following:

a) Hold the transceiver so that the identifier label is on the top.
b) Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.

# Installing SFP+ and SFP Optical Cables

**Note** To prevent damage to an optical cable and transceiver, disconnect cables before installing or removing transceivers.

**Step 1** Attach an ESD-preventive wrist strap and follow its instructions for use.

**Step 2** Remove the dust cover from the connector on the cable.

**Step 3** Remove the dust cover from the cable end of the transceiver.

**Step 4** Align the cable connector with the transceiver and insert the connector into the transceiver until it clicks into place.

**Caution** If the cable does not install easily, ensure that it is correctly positioned before continuing.

**Note** If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

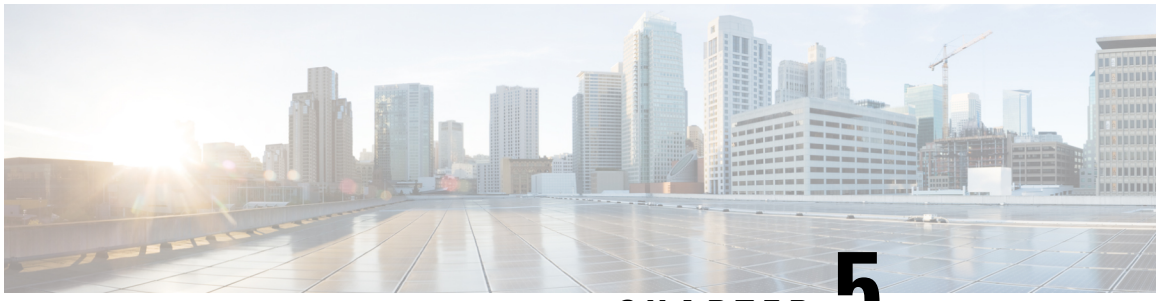
For instructions on verifying connectivity, see the appropriate Cisco Nexus Series configuration guide.

# Maintaining Transceivers and Optical Cables

Transceivers and fiber-optic cables must be kept clean and dust free to maintain high signal accuracy and prevent damage to the connectors. Contamination increases attenuation (loss of light) and should be below 0.35 dB.

Consider the following maintenance guidelines:

- Transceivers are static sensitive. To prevent ESD damage, wear an ESD-preventative wrist strap that is connected to the grounded chassis.
- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.
- Keep all optical connections covered when not in use. Clean them before using to prevent dust from scratching the fiber-optic cable ends.
- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.
- Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to the fiber-optic connection cleaning procedures for your site.
- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.



CHAPTER 5

# Replacing Modules


- Replacing a Fan Tray, on page 59
- Replacing a 1 (RU) Fan Module, on page 60
- Replacing a 2 (RU) Fan Module, on page 61
- Replacing an AC Power Supply, on page 62
- Replacing a DC Power Supply, on page 63


## Replacing a Fan Tray

The fan tray is designed to be removed and replaced while the system is operating without causing an electrical hazard or damage to the system if the replacement is performed within one minute.

If you do not have the appropriate replacement fan tray, leave the original fan tray in its slot to preserve the designed airflow for the switch until you have the replacement fan module.

**Caution** The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

To replace a fan tray, follow these steps:

### Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage for components that you touch.
- Verify that you have an antistatic surface or bag for placing the fan module that you remove from the chassis.
- Verify that the replacement fan tray has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis).

**Step 1** Remove the fan tray that you are replacing as follows:

a) Loosen the captive screws on the fan tray by turning them counterclockwise, using a flat-blade or number 1 Phillips screwdriver if required.

b) Grasp the captive screws of the fan tray and pull it outward.

c) Pull the fan tray clear of the chassis and set it on an antistatic surface or repack it in packing materials.

**Step 2** Install the replacement fan tray as follows:

a) Hold the fan tray with the sheet metal flange holding the connector on the bottom.
b) Place the fan tray into the front chassis cavity so it rests on the chassis, and then push the fan tray into the chassis as far as it can go until the captive screw makes contact with the chassis.
c) Tighten the captive screw.
d) Listen for the fans if the device is powered on. You should immediately hear them operating. If you do not hear them, ensure that the fan tray is inserted completely in the chassis and the faceplate is flush with the outside surface of the chassis.
e) Verify that the LED is green. If the LED is not green, one or more fans are faulty. If this problem occurs, contact your customer service representative for a replacement part.

# Replacing a 1 (RU) Fan Module

The fan module is designed to be removed and replaced while the system is operating without causing an electrical hazard or damage to the system if the replacement is performed within one minute.

If you do not have the appropriate replacement fan module, leave the original fan module in its slot to preserve the designed airflow for the switch until you have the replacement fan module. The module number can be found on the chassis.

**Caution** The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

### Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage for components that you touch.
- Verify that you have an antistatic surface or bag for placing the fan module that you remove from the chassis.
- Verify that the replacement fan module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis).

**Step 1** Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

**Step 2** Remove the fan module that you are replacing as follows:

a) On the fan module that you are removing, press the two sides of the fan module handle next to where it connects to the fan module and pull on the handles enough to unseat the module from its connectors.
b) Holding the handle, pull the module out of the chassis and set it on an antistatic surface or in a antistatic bag.

**Caution** Do not touch the electrical connectors on the back side of the module and prevent anything else from coming into contact with and damaging the connectors.

**Step 3** Install the replacement fan module as follows:

a) Holding the fan module by its handle, align the back of the fan module (the side with the electrical connectors) to the open fan slot in the chassis.
b) Slide the fan module into the slot until it clicks in place.
c) Verify that the Status (STS) LED turns on and becomes green.

# Replacing a 2 (RU) Fan Module

The fan module is designed to be removed and replaced while the system is operating without causing an electrical hazard or damage to the system if the replacement is performed within one minute.

If you do not have the appropriate replacement fan module, leave the original fan module in its slot to preserve the designed airflow for the switch until you have the replacement fan module. The module number can be found on the chassis.

**Caution** The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

### Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage for components that you touch.
- Verify that you have an antistatic surface or bag for placing the fan module that you remove from the chassis.
- Verify that the replacement fan module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis).

**Step 1** Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

**Step 2** Remove the fan module that you are replacing as follows:

a) Depending on which type of fan module that you are removing, either press the two sides of the fan module handle next to where it connects to the fan module, or loosen the captive screws by turning them counterclockwise using a flat-blade or number 1 Phillips screwdriver, and pull on the handles enough to unseat the module from its connectors.
b) Holding the handle, pull the module out of the chassis and set it on an antistatic surface or in a antistatic bag.

**Caution** Do not touch the electrical connectors on the back side of the module and prevent anything else from coming into contact with and damaging the connectors.

**Step 3** Install the replacement fan module as follows:

a) Holding the fan module by its handle, align the back of the fan module (the side with the electrical connectors) to the open fan slot in the chassis.
b) Slide the fan module into the slot until it clicks in place. Tighten screws if applicable.
c) Verify that the Status (STS) LED turns on and becomes green.

# Replacing an AC Power Supply

You can replace an AC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot before removing the other power supply. The module number can be found on the chassis.

### Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage to the components that you touch.
- Verify that you have an antistatic surface or bag for placing the power supply module that you remove from the chassis.
- Verify that the replacement power supply module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis). Otherwise the switch can overheat and shut down.

**Step 1** Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

**Step 2** Remove the power supply as follows:

a) Pull the power cord out from the power receptacle on the power supply to be removed and verify that the OK LED turns off.
b) Remove the power supply from the chassis by pushing and holding its thumb latch to the left and pulling the power supply part way out of the chassis.
c) Place your other hand under the power supply to support it while you slide it out of the chassis.

   Either place the power supply on an antistatic surface or pack it in its packing materials.

d) If the power supply slot is to remain empty, install a blank power supply filler panel (part number N2200-P-BLNK).

**Step 3** Install the replacement power supply as follows:

a) Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, align the back end of the power supply (the end with the electrical connections) to the open power supply slot and slide the power supply all the way into the slot until it clicks into place.
b) Test the installation by trying to pull the power supply out of the slot without using the release latch.

If the power supply does not move out of place, it is secured in the slot. If the power supply moves, press it all the way into the slot until it clicks in place.

**Step 4** Connect the new power supply to an AC power source as follows:

a) Attach the power cable to the electrical outlet on the front of the power supply.

b) Connect the other end of the power cable to an AC power source.

- For no power redundancy, connect one power supply to one power source.
- For n+1 redundancy, connect two power supplies to one or two power sources.
- For n+n redundancy, connect each of two power supplies to a different power source.

**Note** Depending on the outlet receptacle on your power distribution unit, you might need the optional jumper cable to connect the switch to your outlet receptacle.

c) Verify that the power supply is operational by checking that the power supply OK LED is green.

# Replacing a DC Power Supply

You can replace a DC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot and making it operational before removing the other power supply. The module number can be found on the chassis.

**Warning** **Statement 1034—**Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

### Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage to the components that you touch.
- Verify that you have an antistatic surface or antistatic bag for placing the power supply module that you remove from the chassis.
- Verify that the replacement power supply module has the same direction of airflow as the other modules in the same chassis. Otherwise the switch can overheat and shut down.
- Verify that the circuit breaker for the DC power source is turned off.

**Step 1** Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

**Step 2** Verify that the DC power source is turned off at a circuit breaker.

**Step 3** Remove the DC power supply that needs to be replaced as follows:

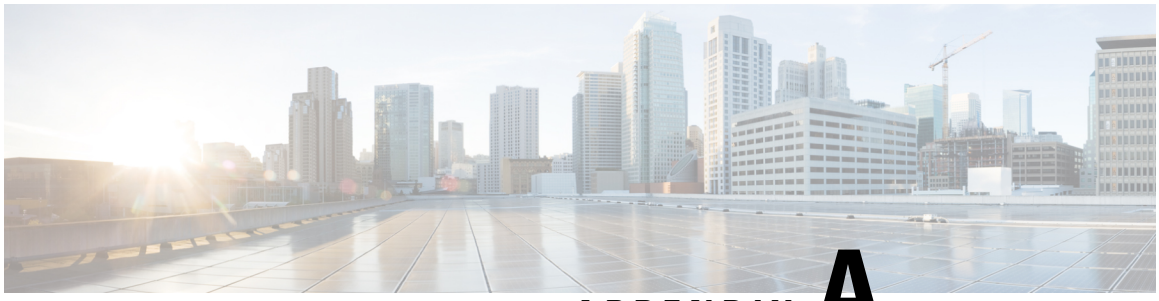
a) Turn off the circuit breaker for the power source to the power supply that you are replacing.

Verify that the OK LED turns off.

b) Unclip and remove the clear plastic cover that prevents access to the positive and negative terminals on the DC power supply.
c) Unfasten the positive power cable from the right terminal.
d) Unfasten the negative power cable from the left terminal.
e) Replace the clear plastic cover that prevents access to the terminals.
f) Press the thumb latch to disengage the power supply from the chassis and use the handle to pull it part way out of the chassis.
g) Place your other hand under the power supply to support it while you slide it out of the chassis. Place the power supply on an antistatic surface.
h) If the power supply bay is to remain empty, install a blank power supply filler panel (N2200-P-BLNK).

**Step 4** Install the replacement DC power supply as follows:

a) Hold the replacement power supply by the handle and position it so that the thumb latch is on the right, and then slide it all the way into the power supply bay (the thumb latch will click), ensuring that the power supply is fully seated in the bay.
b) If there is a clear plastic cover that prevents your access to the terminals, unclip it and remove it from the chassis.
c) Fasten the negative cable to the left terminal.
d) Fasten the positive cable to the right terminal.
e) Clip the clear plastic cover over the terminals to prevent accidental touching of the terminals.
f) Turn on the power at the circuit breaker.
g) Verify the power supply operation by checking that the OK LED is green.



APPENDIX A

# Rack Specifications


- General Requirements and Guidelines for Cabinets and Racks, on page 65
- About Requirements for Perforated Cabinets, on page 66
- About Requirements for Open Racks, on page 66


## General Requirements and Guidelines for Cabinets and Racks

The cabinet or rack must have all of the following characteristics:

- Standard 19-inch (48.3 cm) four-post EIA cabinet or rack.
- Mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992). See below.

The cabinet or rack must also meet the following requirements:

- The minimum vertical rack space per Cisco Nexus switch chassis must be one RU (rack units), equal to 1.75 inches (4.4 cm).
- The width between the rack-mounting rails must be at least 17.75 inches (45.0 cm) if the rear of the device is not attached to the rack. For four-post EIA racks, this measurement is the distance between the two front rails.

Four-post EIA cabinets (perforated or solid-walled) must meet the following requirements:

- The minimum spacing for the bend radius for fiber-optic cables should have the front-mounting rails of the cabinet offset from the front door by a minimum of 3 inches (7.6 cm).
- The distance between the outside face of the front mounting rail and the outside face of the back mounting rail should be 23.0 to 30.0 inches (58.4 to 76.2 cm) to allow for rear-bracket installation.
- A minimum of 2.5 inches (6.4 cm) of clear space should exist between the side edge of the chassis and the side wall of the cabinet. No sizeable flow obstructions should be immediately in the way of chassis air intake or exhaust vents.

**Note** To help with cable management, consider planning additional space in the rack or cabinet above and below the chassis to make it easier to route all of the fiber optic or copper cables through the rack.

# About Requirements for Perforated Cabinets

A perforated cabinet has perforations in its front and rear doors and side walls. In addition to the requirements listed in the “General Requirements for Cabinets and Racks” section, perforated cabinets must meet the following requirements:

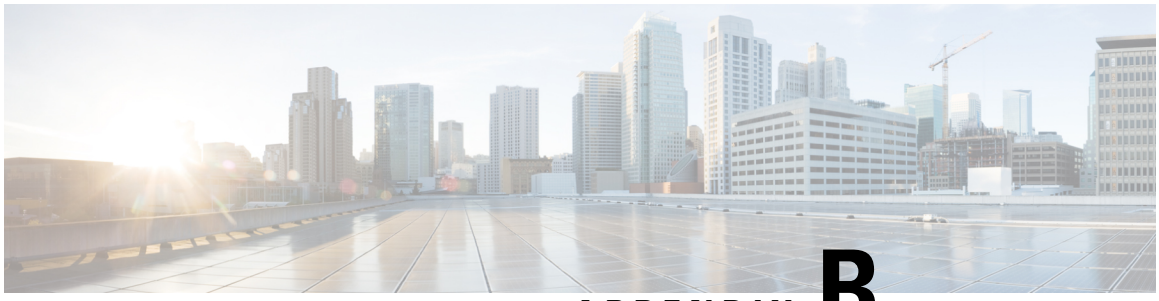
- The front and rear doors must have at least a 60-percent open area perforation pattern, with at least 15 square inches (96.8 square cm) of open area per rack unit of door height.
- The roof should be perforated with at least a 20-percent open area.
- The cabinet floor should be open or perforated to enhance cooling.

The Cisco R Series rack conforms to these requirements.

# About Requirements for Open Racks

In addition to the requirements listed in the “General Requirements for Cabinets and Racks” section on page A-1, if you are mounting the chassis in an open rack (no side panels or doors), ensure that the rack meets the following requirements:

- The minimum vertical rack space per chassis must be two rack units (RU), equal to 3.47 inches (8.8 cm).
- The horizontal distance between the chassis and any adjacent chassis should be 6 inches (15.2 cm), and the distance between the chassis air vents and any walls should be 2.5 inches (6.4 cm).



APPENDIX B

# System Specifications


- Environmental Specifications, on page 67
- Switch Dimensions, on page 67
- AC Power Cable Specifications, on page 69
- DC Power Cable Specifications, on page 70
- HVDC Power Cable Specifications, on page 70


## Environmental Specifications

| Environment | | Specification |
|---|---|---|
| Temperature | Ambient operating temperature | 32 to 104°F (0 to 40°C) |
| | Ambient nonoperating | –40 to 158°F (–40 to 70°C) |
| Humidity | Ambient operating humidity | 10 to 85% |
| | Ambient nonoperating | 5 to 95% |
| Altitude | Ambient operating altitude | 0 to 10,000 feet (0 to 3050 m) |
| | Ambient nonoperating | –1000 to 30,000 feet (–304 to 15,150 m) |

## Switch Dimensions

| Switch Component | Width | Depth | Height |
|---|---|---|---|
| Cisco Nexus 3016 chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.038 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3048 chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3064-T chassis | 17.3 inches (43.9 cm) | 22.45 inches (57.0 cm) | 1.72 inches (4.37 cm) (1 RU) |

| Switch Component | Width | Depth | Height |
|---|---|---|---|
| Cisco Nexus 3064-32T chassis | 17.3 inches (43.9 cm) | 22.45 inches (57.0 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3064-X chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3132C-Z chassis | 17.3 inches (43.9 cm) | 18.48 inches (46.9 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3132Q chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3132Q-V chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3132Q-X chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3132Q-XL chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3164Q chassis | 17.4 inches (44.2 cm) | 22.3 inches (56.6 cm) | 3.5 inches (8.9 cm) (2 RU) |
| Cisco Nexus 3172PQ chassis | 17.3 inches (43.9 cm) | 17 inches (43.2 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3172PQ -XL chassis | 17.3 inches (43.9 cm) | 17 inches (43.2 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3172TQ chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3172TQ-32T chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3172TQ-XL chassis | 17.3 inches (43.9 cm) | 19.7 inches (50.04 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 3232C chassis | 17.3 inches (43.9 cm) | 22.4 inches (56.9 cm) | 1.72 inches (4.4 cm) (1 RU) |
| Cisco Nexus 3264C-E | 17.4 inches (44.2 cm) | 23.5 inches (59.69 cm) | 3.39 inches (8.61 cm) (2 RU) |
| Cisco Nexus 3264Q chassis | 17.4 inches (44.2 cm) | 22.3 inches (56.6 cm) | 3.5 inches (8.9 cm) (2 RU) |
| Cisco Nexus 31108PC-V | 17.3 inches (43.9 cm) | 22.28 inches (56.6 cm) | 1.72 inches (4.37 cm) (1 RU) |
| Cisco Nexus 31108TC-V | 17.3 inches (43.9 cm) | 22.28 inches (56.6 cm) | 1.72 inches (4.37 cm) (1 RU) |

| Switch Component | Width | Depth | Height |
|---|---|---|---|
| Cisco Nexus 31128PQ chassis | 17.4 inches (44.2 cm) | 23.7 inches (60.2 cm) | 3.39 inches (8.61 cm) (2 RU) |

# AC Power Cable Specifications

| Cable | Description | Length |
|---|---|---|
| SFS-250V-10A-AR (Argentina) | 250 VAC 10 A, IRAM 2073 plug | 8.2 feet (2.5 m) |
| CAB-9K10A-AU (Australia) | 250 VAC 10 A, 3112 plug | 8.2 feet (2.5 m) |
| SFS-250V-10A-CN (China) | 250 VAC 10 A, GB 2009 plug | 8.2 feet (2.5 m) |
| CAB-9K10A-EU (Europe) | 250 VAC 10 A, M 2511 plug | 8.2 feet (2.5 m) |
| SFS-250V-10A-ID (South Africa, United Arab Emerits, and India) | 250 VAC 16 A, EL-208 plug | 8.2 feet (2.5 m) |
| SFS-250V-10A-IS (Israel) | 250 VAC 10 A, SI-32 plug | 8.2 feet (2.5 m) |
| CAB-9K10A-IT (Italy) | 250 VAC 10 A, CEI 23-16 plug | 8.2 feet (2.5 m) |
| CAB-9K10A-SW (Switzerland) | 250 VAC 10 A, MP232 plug | 8.2 feet (2.5 m) |
| CAB-9K10A-UK (United Kingdom) | 250 VAC 10 A, BS1363 plug (13-A fuse) | 8.2 feet (2.5 m) |
| CAB-AC-250V/13A (North America) | 250 VAC 13 A, NEMA L6-20 plug | 6.6 feet (2.0 m) |
| CAB-N5K6A-NA (North America) | 250 VAC 10 A, NEMA 6-15 plug | 8.2 feet (2.5 m) |
| CAB-9K12A-NA (North America) | 125 VAC 13 A, NEMA 5-15 plug | 8.2 feet (2.5 m) |
| CAB-C13-CBN | 250 VAC 10 A, SS 10-A plug | 8.2 feet (2.5 m) |
| CAB-C13-C14-2M | Cabinet Jumper Power Cord, 250 VAC 10 A, C13-C14 Connectors | 6.6 feet (2 m) |
| CAB-C13-C14-AC | Cabinet Jumper Power Cord, 250 VAC 10 A, C13-C14 Connectors | 9.8 feet (3 m) |
| CAB-C13-C14-JMPR | Cabinet Jumper Power Cord 250 VAC 13 A, C13-C14 Connectors | 2.2 feet (0.7 m) |
| CAB-IND-10A | 250 VAC 10 A, EL-208B plug | 8.2 feet (2.5 m) |

# DC Power Cable Specifications

| Power Supply | Power Cord | Cord Set Description |
|---|---|---|
| All except Argentina, Brazil, and Japan | NO-POWER-CORD | No power cord included with switch |

**Note** For N2200-PDC-350W-B or N2200-PDC-400W DC power supplies

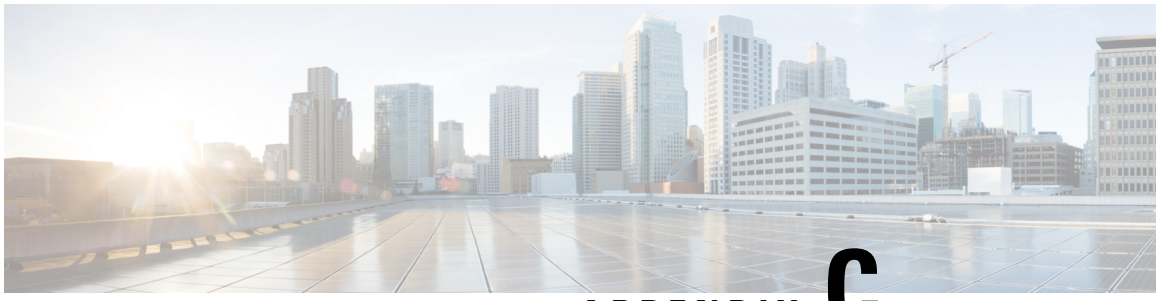
The terminal block used (2-position) accepts wire sizes 22AWG-14AWG.

For the maximum input current of approximately 15A, a 18AWG wire meets minimum requirements. 16AWG adds some margin, and is recommended.

There is no earth ground connection on this input terminal block, thus the earth grounding is provided by the system being grounded.

# HVDC Power Cable Specifications

| Type | Power Cord Part Number | Cord Set Description |
|---|---|---|
| HVDC | CAB-HVDC-3T-2M | 6.6-foot (2.0 m) cable with Saf-D-Grid and three terminal connectors |



APPENDIX C

# LEDs


- Chassis LEDs, on page 71
- Fan LEDs, on page 72
- Power Supply LEDs, on page 73


## Chassis LEDs

This table provides information about chassis LEDs for Cisco Nexus 3000 Series switches.

| Component | LED | Status | Description |
|---|---|---|---|
| Chassis (front and back) | Beacon (BCN) | Flashing blue | The operator has activated this LED to ident chassis. |
| | Identification (ID) | On (blue) | Identifies the chassis receiving the beacon si |
| | Management (MGMT) | Left side<br>Off<br>Solid on (green) | This port has no physical link. |
| | | | This port has a physical link. |
| | | Right side<br>Off<br>Blinking (green) | This port has no activity. |
| | | | This port has activity. |
| | Port | Green | Port admin state is 'Enabled', SFP is present connected (that is, cabled, and the link is up) |
| | | Amber | Port admin state is 'Disabled, or the SFP is a |
| | | Off | Port admin state is 'Enabled' and SFP is pres connected. |
| | Status (STS) | Solid on (green) | All diagnostics pass. The module is operatio |
| | | Off | The module is not receiving power. |
| | | On (amber) | The module is booting or running diagnostic |
| | | | The switch is overheating. The temperature exceeded by a small value during environme |
| | | Blinking (amber) | The switch has overheated. The temperature exceeded by a large value during environme |
| | | | If the module fails during initial reset, the LI and the module does not come online. |
| | | | The module has a runtime failure and is brou |

# Fan LEDs

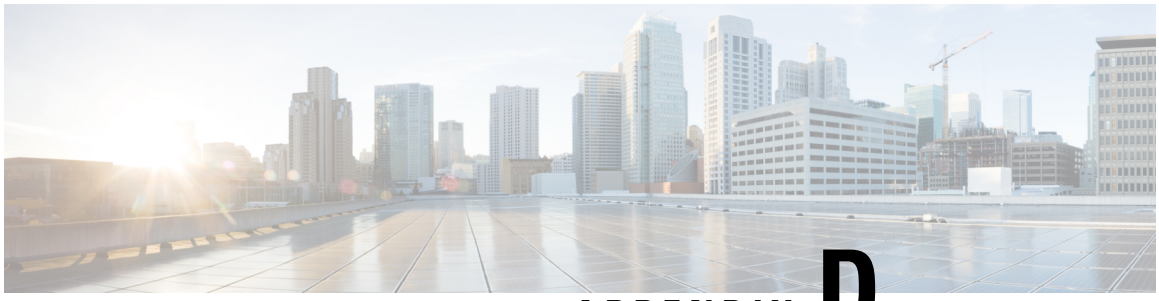
This table provides information about fan LEDs for Cisco Nexus 3000 Series switches.

| Component | LED | Status | Description |
|---|---|---|---|
| Fan | Status | Solid on (green) | All diagnostics pass. The module is operational. |
| | | Off | The module is not receiving power. |
| | | Solid on (amber) | The module is booting or running diagnostics. |
| | | Blinking (amber) | If the module fails during an initial reset, the LED continue to blink and the module does not come online.<br>The module has a runtime failure and is brought offline. |

# Power Supply LEDs

This table provides information about power supply LEDs for Cisco Nexus 3000 Series switches.

| Component | LED | Status | Description |
|---|---|---|---|
| Power supply | OK (green) | Solid on | Power supply is on and okay. |
| | | Blinking | 3.3 voltage standby (VSB) is on but the power supply unit not powering the other modules. |
| | | Off | No power to the power supply. |
| | FAULT (amber) | Solid on | Power supply failure, overvoltage, overcurrent, or overheati |
| | | Blinking | Power is present, 3.3 VSB on, and the power supply is off.<br>PSU fan rotor is not functioning normally. |
| | | Off | Operating normally. |



APPENDIX D

# Spare Parts Table


- Spares Support Table, on page 75


## Spares Support Table

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side intake (NXA-PAC-650W-PI)<br>AC port-side exhaust (NXA-PAC-650W-PE)<br>HVAC/HVDC dual-direction airflow (N9K-PUV-1200W)<br>DC port-side exhaust (NXA-PDC-930W-PE)<br>DC port-side intake (NXA-PDC-930W-PI)<br>930W-DC PSU is supported in redundancy mode if 3.5W QSFP+ modules or Passive QSFP cables are used & the system is used in 40C ambient temp or less; for other optics or higher ambient temps, 930W-DC is supported with 2 PSU's in non-redundancy mode only. | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Rack mount kit (NXK-ACC-KIT-1RU)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[3] | Port-side exhaust (N3K-C3064-FAN=)<br>Port-side intake (N3K-C3064-FAN-B=) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT) |

Spare Parts Table

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (N3K-C3048-FAN=)<br>Port-side intake (N3K-C3048-FAN-B=) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>AC port-side exhaust (NXA-PAC-500W=)<br>AC port-side intake (NXA-PAC-500W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (N3K-C3048-FAN=)<br>Port-side intake (N3K-C3048-FAN-B=) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (N3K-C3048-FAN=)<br>Port-side intake (N3K-C3048-FAN-B=) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1]<br>AC port-side intake (NXA-PAC-650W-PI)<br>AC port-side exhaust (NXA-PAC-650W-PE)<br>AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=)<br>DC port-side intake (UCSC-PSU-930WDC=) | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N9K-PAC-1200W-B=)<br>AC port-side intake (N9K-PAC-1200W=) | Port-side exhaust (N9K-C9300-FAN-B)<br>Port-side intake (N9K-C9300-FAN3) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N9K-C9300-RMK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>AC port-side exhaust (NXA-PAC-500W=)<br>AC port-side intake (NXA-PAC-500W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |

Spare Parts Table

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>AC port-side exhaust (NXA-PAC-500W=)<br>AC port-side intake (NXA-PAC-500W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>AC port-side exhaust (NXA-PAC-500W=)<br>AC port-side intake (NXA-PAC-500W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>AC port-side exhaust (NXA-PAC-500W=)<br>AC port-side intake (NXA-PAC-500W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1] | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=)<br>DC port-side intake (UCSC-PSU-930WDC=) | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side exhaust (NXA-PAC-1200W-PE)<br>AC port-side intake (NXA-PAC-1200W-PI)<br>HVAC/HVDC dual-direction airflow (N9K-PUV-1200W)<br>DC port-side exhaust (NXA-PDC-930W-PE)<br>DC port-side intake (NXA-PDC-930W-PI)<br>930W-DC PSU is supported in redundancy mode if 3.5W QSFP+ modules or Passive QSFP cables are used & the system is used in 40C ambient temp or less; for other optics or higher ambient temps, 930W-DC is supported with 2 PSU's in non-redundancy mode only. | Port-side exhaust (NXA-FAN-160CFM-PE)<br>Port-side intake (NXA-FAN-160CFM-PE) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (NXK-ACC-RMK-2RU) |
| AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=) | Port-side exhaust (N9K-C9300-FAN-B)<br>Port-side intake (N9K-C9300-FAN3) [4] | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N9K-C9300-RMK) |
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1]<br>AC port-side intake (NXA-PAC-650W-PI)<br>AC port-side exhaust (NXA-PAC-650W-PE)<br>AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=)<br>DC port-side intake (UCSC-PSU-930WDC=) | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |

Spare Parts Table

| Power Supply Options | Fan Options | Accessory Kits |
|---|---|---|
| AC port-side exhaust (N2200-PAC-400W=)<br>AC port-side intake (N2200-PAC-400W-B=)<br>DC port-side exhaust (N2200-PDC-400W=)<br>DC port-side intake (N3K-PDC-350W-B=)[1]<br>AC port-side intake (NXA-PAC-650W-PI)<br>AC port-side exhaust (NXA-PAC-650W-PE)<br>AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=)<br>DC port-side intake (UCSC-PSU-930WDC=) | Port-side exhaust (NXA-FAN-30CFM-F)<br>Port-side intake (NXA-FAN-30CFM-B) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N3K-C3064-ACC-KIT)<br>Filler blank module (N2200-P-BLNK) |
| AC port-side exhaust (N9K-PAC-650W-B=)<br>AC port-side intake (N9K-PAC-650W=)<br>DC port-side exhaust (UCSC-PSU-930WDC=)<br>DC port-side intake (UCS-PSU-6332-DC=) | Port-side exhaust (N9K-C9300-FAN-B)<br>Port-side intake (N9K-C9300-FAN3) | Accessory kit (N9K-C9300-ACK)<br>Rack mount kit (N9K-C9300-RMK) |

[3] The N3K-PDC-350W-B power supply is the same as the N2200-PDC-350-B power supply and they are interchangeable.

[4] **Note** ***Table 2: Fan Speeds for this Switch***

| | Port-Side Intake Fan Speed % | Port-Side Exhaust Fan Speed % |
|---|---|---|
| Typical/Minimum | 50% | 70% |
| Maximum | 100% | 100% |