# Cisco Nexus 9808 NX-OS Mode Switch Hardware Installation

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CHAPTER 1

# Cisco Nexus 9808 Switch Overview

The Cisco 9808 switch includes:

- The Cisco 9808 is a 16-RU switch that supports distributed forwarding across multiple field units (FRUs).



## Cisco 9800 Series Switches

The following table describes the Cisco 9808 switch components, and the supported quantity.

**Table 1: Cisco 9808 Switch Components**

| Component | Quantity |
|---|---|
| Line cards | 8 |
| Supervisor Modules | 2 |
| Fabric Modules | 8 |
| Fan trays | 4 |
| Power trays | 3 |
| Power supplies | HVAC/HVDC—9 (3 per tray)<br>DC60—12 (4 per tray) |

# Line Card Overview

Cisco Nexus 9800 switches support the following line cards:

**Table 2: Supported Line Cards and Transceivers**

| Line Card PIDs | Transceivers |
|---|---|
| N9K-X9836DM-A | QSFP-DD / QSFP28 |
| N9K-X98900CD-A | QSFP-DD / QSFP28 |

**Note** When unlocking the ejector button and then relocking it without removing the line card, the line card power down. The line card will not power up and will not show poweroff module in command line inte Preforming OIR is required to power up the line card.

# Supervisor Module Overview

Cisco Nexus 9800 Supervisor Modules (N9K-C9800-SUP-A) manage all control plane functions on the Cis Nexus 9800 Series Switches.

**Figure 1: Supervisor Module**

| | | | |
|---|---|---|---|
| **1** | Console RS-232 Serial Port RJ45 | **5** | SyncE BITS/DTI/J.211 |
| **2** | USB Port Type-A (2-ports). Port A gets detected ahead of Port B.<br>Top: Port B<br>Bottom: Port A | **6** | G.703 Time-of-Day (TOD |
| **3** | Control Plane Expansion SFP/SFP+ port | **7** | 1.0/2.3 50 ohm connector input, and output |

| | | | |
|---|---|---|---|
| 4 | Top: Management Ethernet (10/100/1000-Mbps) RJ-45 (Copper) port LAN.<br>Bottom: IEEE 1588 Precision Time Protocol (PTP) | 8 | 1.0/2.3 50 ohm con input, and output |

# Fabric Module Overview

Cisco Nexus 9808 switches support the following fabric modules:

- N9K-C9808-FM-A—Cisco Nexus 9808 Fabric Module

# Temperature and Physical Specifications

For temperature and physical specifications, refer to the Physical characteristics table in the 9800 Series Switches Data Sheet.

# Weight and Power Consumption

For weight and power consumption, refer to the Physical characteristics table in the C Switches Data Sheet.

# Airflow Direction

To ensure proper airflow for the switch in your facility, position the switch with its air intake on a c and the air exhaust on a hot aisle.

# Maximum Power Available to the Switch

The maximum power available for operations depends on the input power from your power sour and output capabilities of your power supplies, and the power redundancy mode that you use.

The following table lists the amount of power available for Cisco 9800 series switches from all a power trays.

Maximum Power Available to the Switch

Table 3: Maximum Power Available for a Switch with HVAC/HVDC Power Supplies

| Total Power Supply | Combined Mode in Watts (No redundancy) | N+1 Redundancy Mode in Watts (with Single Supply Loss) |
|---|---|---|
| 1 | 6,300 | — |
| 2 | 12,600 | 6,300 |
| 3 | 18,900 | 12,600 |
| 4 | 25,200 | 18,900 |
| 5 | 31,500 | 25,200 |
| 6 | 37,800 | 31,500 |
| 7 | 44,100 | 37,800 |
| 8 | 50,400 | 44,100 |
| 9 | 56,700 | 50,400 |

Table 4: Maximum Power Available for a Switch with DC60 Power Supplies

| Total Power Supply | Combined Mode in Watts (No redundancy) | N+1 Redundancy Mode in Watts (with Single Supply Loss) | N+N Redundancy in Watts (with Feed |
|---|---|---|---|
| 1 | 4,400 | — | 2,200 |
| 2 | 8,800 | 4,400 | 4,400 |
| 3 | 13,200 | 8,800 | 6,600 |
| 4 | 17,600 | 13,200 | 8,800 |
| 5 | 22,000 | 17,600 | 11,000 |
| 6 | 26,400 | 22,000 | 13,200 |
| 7 | 30,800 | 26,400 | 15,400 |
| 8 | 35,200 | 30,800 | 17,600 |
| 9 | 39,600 | 35,200 | 19,800 |
| 10 | 44,000 | 39,600 | 22,000 |
| 11 | 48,400 | 44,000 | 24,200 |
| 12 | 52,800 | 48,400 | 26,400 |

Table 5: Maximum Power Available for a Switch with DC100 Power Supplies

| Total Power Supply | Combined Mode in Watts (No redundancy) | N+1 Redundancy Mode in Watts (with Single Supply Loss) | N+N Redunda in Watts (with F |
|---|---|---|---|
| 1 | 4,800 | — | 2,400 |
| 2 | 9,600 | 4,800 | 4,800 |
| 3 | 14,400 | 9,600 | 7,200 |
| 4 | 19,200 | 14,400 | 9,600 |
| 5 | 24,000 | 19,200 | 12,000 |
| 6 | 28,800 | 24,000 | 14,400 |
| 7 | 33,600 | 28,800 | 16,800 |
| 8 | 38,400 | 33,600 | 19,200 |
| 9 | 43,200 | 38,400 | 21,600 |
| 10 | 48,000 | 43,200 | 24,000 |
| 11 | 52,800 | 48,000 | 26,400 |
| 12 | 57,600 | 52,800 | 28,800 |

# Supported Optics

**Note** To determine which transceivers and cables are supported by this switch, refer to the Tran Group (TMG) Compatibility Matrix Tool:

https://tmgmatrix.cisco.com/home

- For QSFP-DD data sheets, refer to the Cisco 400G QSFP-DD Cable and Transc Sheet.
- For QSFP28 data sheets, refer to the Cisco 100GBASE QSFP-100G Modules Da
- For QSFP+ data sheets, refer to the Cisco 40GBASE QSFP Modules Data
- For 10G using QSA, refer to the Cisco 10GBASE SFP+ Modules Data Sheet

## Supported Optics

CHAPTER 2

# Prepare for Installation

**Note** The images in this chapter are only for representational purposes, unless specified otherw
actual appearance and size may vary.

**Warning** **Statement 1071 Warning Definition**

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. B
on any equipment, be aware of the hazards involved with electrical circuitry, and be familia
practices for preventing accidents. Use the statement number provided at the end of each
its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS



## Safety Guidelines

Before you perform any procedure in this document, review the safety guidelines in this section
injuring yourself or damaging the equipment. The following guidelines are for your safety and to
equipment. Because the guidelines do not include all hazards, be constantly alert.

- Keep the work area clear, smoke and dust-free during and after installation. Do not allow dirt o to enter into any laser-based components.
- Do not wear loose clothing, jewelry, or other items that could get caught in the switch or other associat components.
- Cisco equipment operates safely when used in accordance with its specifications and product- instructions.
- Be sure to power down a fixed configuration PDU or modular configuration power shelf before it from the chassis.
- If potentially hazardous conditions exist, do not work alone.
- Take care when connecting multiple units to the supply circuit so that wiring is not overloaded.
- This equipment must be grounded. Never defeat the ground conductor or operate the equipme absence of a suitably installed ground conductor. Contact the appropriate electrical inspection or an electrician if you are uncertain about whether suitable grounding is available.
- When installing or replacing the unit, the ground connection must always be made first and dis last.
- 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 designe support the weight of the unit.
- Hazardous voltage or energy is present on the backplane when the system is operating. Use caution w servicing.
- The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you sli out the unit for servicing. Failure to stabilize the rack may cause the rack to tip over.

# Compliance and Safety Information

The Cisco Nexus 9800 Series Switches are designed to meet the regulatory compliance and safety requirements. For detailed safety information, see Regulatory Compliance and Safety Inf

**Warning**

### Statement 1005 Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection.

- Ensure that the protective devices are rated not greater than 30A max (North America); 32A max 32A max (UK) (AC/HVAC/HVDC) (AHF-2DC-6300W), 100A max (LVDC) (DHF-2D

# Laser Safety

**Warning** Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not sta
view directly with optical instruments.

**Warning** Invisible laser radiation is present. Do not expose to users of telescopic optics. This applie
laser products.

**Warning** Pluggable optical modules comply with IEC 60825-1 Ed. 3 and 21 CFR 1040.10 and 1040
exception for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, da

# Energy Hazard

The switch can be configured for a DC power source. Do not touch terminals while they are live.
the following warning to prevent injury.

**Warning** **Statement 1086 Power Terminals**

Hazardous voltage or energy may be present on power terminals. Always replace cover wi
not in service. Be sure uninsulated conductors are not accessible when cover is in place.

# Preventing Electrostatic Discharge Damage

Many components can be damaged by static electricity. Not exercising the proper electrostatic c
(ESD) precautions can result in intermittent or complete component failures. To minimize the po
ESD damage, always use an ESD-preventive antistatic wrist strap (or ankle strap) and ensure th
adequate skin contact.

**Note** Check the resistance value of the ESD-preventive strap periodically. The measurement sh
megohms.

Before you perform any of the procedures in this guide, attach an ESD-preventive strap to your
connect the leash to the chassis.

# Cautions and Regulatory Compliance Statements for NEBS

The NEBS-GR-1089-CORE regulatory compliance statements and requirements are discussed in th

**Warning** The intrabuilding port(s) of the equipment or subassembly, which is the management Ethernet shielded intrabuilding cabling/wiring that is grounded at both ends. Statement 7003

**Warning** The intrabuilding port(s) of the equipment or subassembly, which is the management Ethernet be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces a for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient pro order to connect these interfaces metallically to OSP wiring. Statement 7005

**Warning** This equipment shall be connected to AC mains provided with a surge protective device (SPD) equipment complying with NFPA 70, the National Electrical Code (NEC). Statement 7012

**Warning** This equipment is suitable for installations utilizing the Common Bonding Network (CBN). Stat

**Warning** The battery return conductor of this equipment shall be treated as (DC-I). Statement 7016

**Warning** This equipment is suitable for installation in Network Telecommunications Facilities. Statement

**Warning** This equipment is suitable for installation in locations where the NEC applies. Statement 8016

# Installation Guidelines

Before installing the chassis, ensure that the following guidelines are met:

- Site is properly prepared so that there is sufficient room for installation and maintenance.
- Operating environment is within the ranges that are listed in Environment and Physical specific For more details on environmental requirements, see Cisco Nexus 9800 Series Switche
- Chassis is mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting the chassis in a partially filled rack, load the rack from the bottom to the to heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or serv chassis in the rack.
- Airflow around the chassis and through the vents is unrestricted.
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluoresce fixtures. Make sure that the cabling is safely away from other devices that might damage th
- Each port must match the wave-length specifications on each end of the cable, and the cable mus exceed the stipulated cable length.

**Note** Cisco 9800 Series switches function in operating temperatures of up to 40°C at sea level. For eve (1000 ft) elevation upto 1800 meters (6000 ft), the maximum temperature is reduced by 1° on environmental requirements, see Cisco Nexus 9800 Series Switches Data She

# Procure Tools and Equipment

Obtain these necessary tools and equipment for installing the chassis:

- Number 1 and number 2 Phillips screwdrivers with torque capability to rack-mount the chas
- 3/16-inch flat-blade screwdriver.
- Tape measure and level.
- ESD wrist strap or other grounding device.
- Antistatic mat or antistatic foam.
- Two-hole ground lug (1).
- Grounding cable (2 AWG recommended), sized according to local and national installation the required length depends on the proximity of the switch to proper grounding facilities.
- A crimping tool specified by the lug manufacturer that is large enough to accommodate the lug.
- Wire-stripping tool.
- A maximum of 70 rack mount screws can be used based on your rack selection.

## Rack Mount and Accessory Kits

**Accessory Kit**

Accessory kit (N9K-C9800-IN-KIT) includes the following:

Table 6: Accessory Kit

| Illustration | Description |
| --- | --- |
| | Rack mount kit (N9K-C9800-AR-KIT):<br>• Support rails are non-adjustable<br>• Set the vertical support rack rails at 32" pitch |
| | Ground lug kit<br>• Two-hole lug (1)<br>• 1/4"-20 Phillips pan-head screws (2) |
| | ESD wrist strap (disposable) |

**More Hardware Components**

If you purchased this product through a Cisco reseller, you might receive more contents in your kit, s documentation, hardware, and power cables.

The shipped cables depend on your specification when placing an order. See the Power Supply Pow *Specifications section for information on the available power cords.*

If you notice any discrepancies or damage, send the following information to your customer service representative by email:

- Invoice number of the shipper (see the packing slip)
- Model and serial number of the missing or damaged unit
- Description of the problem and how it affects the installation
- Photos of the damage to external packaging, internal packaging, and product

# Prepare Your Location

This section illustrates how the building that houses the chassis must be properly grounded to the earth grou

**Note** Unless specified otherwise, the image is only for representational purposes. The rack's act
size may vary.

**Note** This image is only for representational purposes. Your grounding requirement depends on

**Figure 2: Building with Rack Room Connected to Earth Ground**

# Prepare Yourself

This section illustrates how to prepare yourself before removing the chassis from the sealed antistat
The figures show how to cuff the ESD strap around the wrist and the ground cord that connects the
the ground. ESD wrist straps are the primary means of controlling static charge on personnel.

**Figure 3: Wearing the ESD Strap**

# Prepare Rack for Chassis Installation

Install the switch on a standard 19 inch, Electronic Industries Alliance (EIA) rack with mounting r
conform to English universal hole spacing according to Section 1 of the ANSI/EIA-310-D-1992 s

The spacing between the posts of the rack must be (EIA-310-D-1992 19-inch rack compatible) w
to accommodate the width of the chassis.

Before you move the chassis or mount the chassis into the rack, we recommend that you do the

**Procedure**

**Step 1** Place the rack at the location where you plan to install the chassis.

**Step 2** (Optional) Secure the rack to the floor.

To bolt the rack to the floor, a floor bolt kit (also called an anchor embedment kit) is required. Fo
on bolting the rack to the floor, consult a company that specializes in floor mounting kits (such a
Hilti.com for details). Make sure that floor mounting bolts are accessible, especially if annual r
bolts is required.

**Note** Ensure that the rack in which the chassis is being installed is grounded to earth gr

# Clearance Requirements

To ensure adequate airflow, we recommended that you maintain a minimum clearance distance
mentioned in the following figure.

Following figure shows the clearances required for installation of the switch.

**Clearance Requirements**

**Figure 4: Clearances Required Around the Chassis**

(1) Vertical rack post

(2) Vertical rack rail

(3) Chassis

(4) Outside of the rack (no clearance required)

(5) Rear chassis width

(6) Clearance required for the fan tray handle at the rear

(7) Rear service area for the fan tray and fabric card replacement

(8) Mounting de

(9) Chassis depth

(10) Depth from t

(11) Front service

(12) Front chass

(13) Airflow dir

Following figure shows the clearances required for the cable management of the switch.

**Figure 5: Clearances Required Around the Chassis Door**

(1) Overall door width on side (in an open position)

(2) Maximum vertical rack rail setback, when filters are installed on the chassis

(3) Depth of cable manag

(4) Overall door depth on

**Clearance Requirements**

CHAPTER 3

# Unpack and Install the Chassis

**Note** The images in this chapter are only for representation purposes, unless specified otherwis
appearance and size may vary.



## Unpack the Chassis

**Tip** Be sure to save the packaging in case you need to return any of the components products.

Ensure that there is sufficient room around the chassis pallet for unpacking. For information abo
dimensions and clearance requirements see, Clearance Requirements.

Carefully move the pallet containing the chassis to the staging area where you plan on unpackin

Unpack an

## Unpack the Chassis

Figure 6: Remove Shipping Brackets from the Chassis

Remove the shipping brackets:

- 16 x M4 screws from the chassis

To make the chassis weigh less for moving, remove the following module and place them where their co
will not be damaged:

- Fan trays

Leave the chassis on the pallet until you are ready to move and install the chassis in a rack.

# Install Bottom-Support Rails

The bottom-support rails support the weight of the chassis in the rack. To maximize the stability
you must attach these rails at the lowest possible rack unit (RU).

**Procedure**

**Step 1** Position the vertical rack rails at 32" depth to match with the length of the bottom-support rails. C
considerations.

- Maintain at least 16 RU (28 inches [71.12 cm]) for 9808 chassis of vertical space above su

**Step 2** Attach the bottom-support rail to the rack using a Phillips torque screwdriver on M6 x 19 mm or
inch screws for each end of the rail (as shown in the following figure) and tighten each screw to 40 in-lbs
N-m) of torque.

Figure 7: Attach Bottom-Support Rails to a Rack

**Note** Use at least three screws on each end of each bottom-support rail.

**Step 3** Repeat Steps 1 and 2 to attach the other bottom-support rail to the rack.

**Note** Make sure that the two bottom-support rails are level with one another. If they are not level, a the higher rail down to the level of the lower rail.

**What to do next**

Mount the chassis into the rack.

# Transfer Chassis to a Mechanical Lifting Device

**Procedure**

**Step 1** Place the mechanical lifting device in front of the chassis on the pallet (or on Line Card side) as sho

**Note** Illustrations are for representational purposes only.

Figure 8: Align the Lifting Device in Front of the Chassis on the Pallet

**Step 2** Prepare to use the mechanical lifting device by placing a piece of cardboard on the surface of th
prevent scratching).

**Step 3** With at least two or three people move the chassis carefully from the pallet onto the lifting devic

Figure 9: Move the Chassis on to the Lifting Device

### What to do next

After moving the chassis to the room or area where you will install it, begin the procedure to mount the chass into the rack.

# Mount Chassis Into the Rack

To accommodate equipment racks with different mounting hole patterns, the chassis mounting brack groups of screw holes on either side. The mounting holes in the chassis mounting brackets are spaced so th one mounting hole in each hole group aligns with a corresponding hole in the equipment rack. By us corresponding mounting hole (in the same hole group) on the opposite side of the chassis, you can chassis in the rack.

**Note** To lift the chassis, use a mechanical lift. Do not use the handles on the side of the chassis. Use the sid for only repositioning the chassis after it is already on the mechanical lift or in the rack or cabin

### Procedure

**Step 1** Using your mechanical lift, raise the chassis so that it is in level with or not more than 1/4 inch [0.635 above the rails.

**Step 2** Push the chassis all the way onto the rack so that the vertical mounting brackets on the front of the chas come in contact with the vertical mounting rails on the rack.

**Step 3** Use screws provided with the rack to secure the chassis with the vertical mounting rails on the r

**Figure 10: Attach Chassis to Rack - Front**

**Note** You should remove the power shelf to facilitate attaching chassis to the rack.

**Step 4** Use the screws provided with the rack to attach the chassis rear rails.

**Figure 11: Attach Chassis to Rack - Rear Right View**

| | |
|---|---|
| 1 | Rear right rack mounting bracket. |
| 2 | Install screws fro<br>26 in-lbs (2.93 N |