

Cisco Nexus 9808 NX-OS Mode Switch Hardware Installation

First Published: 2022-08-19

Last Modified: 2023-08-18

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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).
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- [Line Card Overview, on page 2](#)
- [Supervisor Module Overview, on page 2](#)
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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)
	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 interface. Performing 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 Cisco 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. Top: Port B 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. Bottom: IEEE 1588 Precision Time Protocol (PTP)	8	1.0/2.3 50 ohm con input, and output
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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 [Switches Data Sheet](#).

C

Airflow Direction

To ensure proper airflow for the switch in your facility, position the switch with its air intake on a cold aisle 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 source 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 available 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 Loss)
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 Redundancy Mode in Watts (with Full Supply Loss)
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 Transceiver Group (TMG) Compatibility Matrix Tool:

<https://tmgmatrix.cisco.com/home>

- For QSFP-DD data sheets, refer to the [Cisco 400G QSFP-DD Cable and Transceiver Data Sheet](#).
- For QSFP28 data sheets, refer to the [Cisco 100GBASE QSFP-100G Modules Data Sheet](#).
- For QSFP+ data sheets, refer to the [Cisco 40GBASE QSFP Modules Data Sheet](#).
- For 10G using QSA, refer to the [Cisco 10GBASE SFP+ Modules Data Sheet](#).

Supported Optics

Cisco Nexus 98

Prepare for Installation

Note The images in this chapter are only for representational purposes, unless specified otherwise. The 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. Before you work on any equipment, be aware of the hazards involved with electrical circuitry, and be familiar with all safety practices for preventing accidents. Use the statement number provided at the end of each warning. Refer to its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

- [Safety Guidelines, on page 7](#)
- [Compliance and Safety Information, on page 8](#)
- [Laser Safety, on page 9](#)
- [Energy Hazard, on page 9](#)
- [Preventing Electrostatic Discharge Damage, on page 9](#)
- [Cautions and Regulatory Compliance Statements for NEBS, on page 10](#)
- [Installation Guidelines, on page 10](#)
- [Procure Tools and Equipment, on page 11](#)
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- [Clearance Requirements, on page 15](#)

Safety Guidelines

Before you perform any procedure in this document, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment. The following guidelines are for your safety and to protect the 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 or debris 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 associated 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 removing 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 equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority 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 disconnected 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 designed to support the weight of the unit.
- Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.
- The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide 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](#) Information.

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 (Europe); 32A max (UK) (AC/HVAC/HVDC) (AHF-2DC-6300W), 100A max (LVDC) (DHF-2D

Prepare for Installation

Laser Safety

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

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

Warning Pluggable optical modules comply with IEC 60825-1 Ed. 3 and 21 CFR 1040.10 and 1040.11, except for exception for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated 8/14/09.

Energy Hazard

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

Warning **Statement 1086 Power Terminals**
Hazardous voltage or energy may be present on power terminals. Always replace cover when power is 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 discharge (ESD) precautions can result in intermittent or complete component failures. To minimize the potential for ESD damage, always use an ESD-preventive antistatic wrist strap (or ankle strap) and ensure that there is adequate skin contact.

Note Check the resistance value of the ESD-preventive strap periodically. The measurement should be less than 1 megohms.

Before you perform any of the procedures in this guide, attach an ESD-preventive strap to your wrist and 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 the

Warning The intrabuilding port(s) of the equipment or subassembly, which is the management Ethernet, shall be 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, shall be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE). The addition of Primary Protectors is not sufficient protection from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in 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). Statement 7013

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 7017

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 specifications. For more details on environmental requirements, see [Cisco Nexus 9800 Series Switches](#).
- 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 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 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 fluorescent light fixtures. Make sure that the cabling is safely away from other devices that might damage the cabling.
- Each port must match the wave-length specifications on each end of the cable, and the cable must not exceed the stipulated cable length.

Note Cisco 9800 Series switches function in operating temperatures of up to 40°C at sea level. For elevations above (1000 ft) elevation upto 1800 meters (6000 ft), the maximum temperature is reduced by 1°C per 30 meters (100 ft). For more information on environmental requirements, see [Cisco Nexus 9800 Series Switches Data Sheet](#).

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 chassis.
- 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 codes. 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 two-hole ground 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): <ul style="list-style-type: none">• Support rails are non-adjustable• Set the vertical support rack rails at 32" pitch
	Ground lug kit <ul style="list-style-type: none">• Two-hole lug (1)• 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, such as documentation, hardware, and power cables.

The shipped cables depend on your specification when placing an order. See the Power Supply Power Cables *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 ground.

Prepare for Installation

Note Unless specified otherwise, the image is only for representational purposes. The rack's actual 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 rails that conform to English universal hole spacing according to Section 1 of the ANSI/EIA-310-D-1992 standard.

The spacing between the posts of the rack must be (EIA-310-D-1992 19-inch rack compatible) wide enough 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 following:

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. For information on bolting the rack to the floor, consult a company that specializes in floor mounting kits (such as [Hilti.com](https://www.hilti.com) for details). Make sure that floor mounting bolts are accessible, especially if annual maintenance of the bolts is required.

Note Ensure that the rack in which the chassis is being installed is grounded to earth ground.

Clearance Requirements

To ensure adequate airflow, we recommended that you maintain a minimum clearance distance as 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 depth

(9) Chassis depth

(10) Depth from top of chassis to rear of chassis

(11) Front service area

(12) Front chassis width

(13) Airflow direction

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

Pr

Unpack and Install the Chassis

Note The images in this chapter are only for representation purposes, unless specified otherwise. Appearance and size may vary.

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- [Attach Front Door to Chassis, on page 34](#)

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 about dimensions and clearance requirements see, [Clearance Requirements](#).

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

Unpack the Chassis

Unpack an

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.

Transfer Chassis to a Mechanical Lifting Device

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, adjust 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 shown.

Note Illustrations are for representational purposes only.

Unpack and Install the Chassis

Transfer Chassis to a Mech

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 the (to prevent scratching).
- Step 3

With at least two or three people move the chassis carefully from the pallet onto the lifting device.

Mount Chassis Into the Rack

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 chassis into the rack.

Mount Chassis Into the Rack

To accommodate equipment racks with different mounting hole patterns, the chassis mounting brackets have two groups of screw holes on either side. The mounting holes in the chassis mounting brackets are spaced so that one mounting hole in each hole group aligns with a corresponding hole in the equipment rack. By using the corresponding mounting hole (in the same hole group) on the opposite side of the chassis, you can mount the 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 side handles for only repositioning the chassis after it is already on the mechanical lift or in the rack or cabinet.

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 cm] above the rails.

Unpack and Install the Chassis

Mount

Step 2 Push the chassis all the way onto the rack so that the vertical mounting brackets on the front of the chassis 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 rack.

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.

Mount Chassis Into the Rack

Unpack and In

Figure 11: Attach Chassis to Rack - Rear Right View

- 1

Rear right rack mounting bracket.
- 2

Install screws from
26 in-lbs (2.93 N