Cabinet and Rack Requirements

This appendix describes the cabinet and rack requirements for the Cisco Nexus 7000 Series switches and includes these sections:

General Requirements for Cabinets and Racks

This section provides the Cisco Nexus 7000 Series switch requirements for the following types of racks and cabinets, assuming an external ambient air temperature range of 32 to 104°F (0 to 40°C):

- Standard perforated cabinets
- Solid-walled cabinets with a roof fan tray (bottom to top cooling)
- Standard open racks
- Four-post Telco racks (required by the Cisco Nexus 7010 and 7018 switches and can be used for the Cisco Nexus 7004 and 7009 switches)
- Two-post Telco racks (used with only the Cisco Nexus 7004 and 7009 switches)

Note If you select an enclosed cabinet, we recommend that you use one of the following thermally validated types: standard perforated or solid-walled with a fan tray.

To correctly install the Cisco Nexus 7000 Series switch in a cabinet that is located in a hot-aisle/cold-aisle environment, you should fit a cabinet with baffles to prevent exhaust air from recirculating into the chassis air intake.

The rack or cabinet used to hold a Cisco Nexus 7000 Series chassis should meet the following physical requirements:

- Use a standard 19-inch, four-post Electronic Industries Alliance (EIA) cabinet or rack with mounting rails that conform to English universal hole spacing per section 1 of the ANSI/EIA-310-D-1992 standard.
- The height of the rack or cabinet must accommodate the Cisco Nexus 7000 Series switches as follows:
  - For the Cisco Nexus 7004 switch, the rack height must be at least 7 RU for one chassis and up to 42 RU for up to six chassis.

- For the Cisco Nexus 7009 switch, the rack height must be at least 15 RU for one chassis and at least 30 RU for two chassis. This requirement includes 14 RU for each chassis and 1 RU for the bottom support bracket used with each chassis.

> **Note** Alternatively, if you need to install three 14 RU Cisco Nexus 7009 chassis in a 42 RU rack, you can perform a front-mount installation for all three chassis without using the bottom-support rails. For front-mount installations, you must use a mechanical lift to first position the lowest chassis at the lowest RU in the rack before attaching it. After that, you raise a second chassis to the top of the lowest chassis and slide the second chassis on top before attaching it to the rack. Finally, you raise a third chassis to the top of the second installed chassis, and slide the third one on top of the second installed chassis before attaching it to the rack.

> **Caution** If you are doing center-mount installations, you must use a bottom-support rail for each chassis, which requires 15 RU for each installed chassis.

- For the Cisco Nexus 7010 switch, the rack height must be at least 21 RU for one chassis and 42 RU for two chassis (45 RU is recommended).

- For the Cisco Nexus 7018 switch, the rack height must be at least 25 RU for one chassis.

- The depth of a four-post rack must be 24 to 32 inches (61.0 to 81.3 cm) between the front and rear mounting brackets.

- Required clearances between the Cisco Nexus 7004 chassis and the edge of its rack or interior of its cabinet are as follows:

   - If you are using a cabinet, you must have 7 inches (17.8 cm) between the chassis and the front of the cabinet walls (required for cabling). This requirement does not apply to a two-post rack.

> **Note** If the chassis is installed with the alternative center-mount brackets, the chassis will protrude 5.7 inches (14.4 cm) beyond the mounting rails, so you must plan for 12.7 inches (32.3 cm) clearance in front of the mounting rails to get the required 7 inches (17.8 cm) clearance in front of the chassis.

   - 11 inches (27.9 cm) between the right side of the chassis and the interior of the cabinet or the clearance area for the next rack or cabinet (required for side-to-back airflow with all types of racks or cabinets). No clearance is required on the left side.

- Required clearances between the Cisco Nexus 7009 chassis and the edge of its rack or interior of its cabinet are as follows:

   - If you are using a four-post rack or cabinet, you must have 7 inches (17.8 cm) between the chassis and the front and back of a four-post rack or interior of the cabinet (required for cabling). This requirement does not apply to a two-post rack.

> **Note** If the chassis is installed with the alternative center-mount bottom-support brackets, the chassis will protrude 6 inches (15.25 cm) beyond the mounting rails, so you must plan for 13 inches (33.0 cm) clearance in front of the mounting rails to get the required 7 inches (17.8 cm) clearance in front of the chassis.

- – 11 inches (27.9 cm) between the side of the chassis and the interior of the cabinet or the clearance area for the next rack or cabinet (required for side-to-side airflow with all types of racks or cabinets).

- Required clearances between the Cisco Nexus 7010 chassis and the edges of its rack or the interior of its cabinet are as follows:

  - – 7 inches (17.8 cm) between the chassis and the front and back of the rack or interior of the cabinet (required for cabling).

  - – No clearance is required between the sides of the rack or cabinet with front-to-back airflow.

- Required clearances between the Cisco Nexus 7018 chassis and the edges of its rack or the interior of its cabinet are as follows:

  - – 7 inches (17.8 cm) between the chassis and the front and back of the rack or interior of the cabinet (required for cabling)

  - – 11 inches (27.9 cm) between the side of the chassis and the interior of the cabinet or the clearance area for the next rack or cabinet (required for side-to-side airflow)

Additionally, you must consider the following site requirements for the rack:

- AC power receptacles must be located within 12 feet (3.6 m) of each power supply unit in each chassis.

- Cable management for one or two switches in the same rack are as follows:

  - – For the Cisco Nexus 7004 switch, provide cable management for up to 96 ports for each chassis.

  - – For the Cisco Nexus 7009 switch, provide cable management for up to 336 ports for each chassis.

  - – For the Cisco Nexus 7010 switch, provide cable management for up to 384 ports for each chassis.

  - – For the Cisco Nexus 7018 switch, provide cable management for up to 768 ports for each chassis.

- Cable routing within the cabinet or beside the rack must not block access to any of the removable modules installed in a chassis or block any airflow on the inlet and exhaust vents of the chassis. With cabinets, route the cables out the top or bottom as follows:

  - – For the Cisco Nexus 7004 switch, you can route the cables along the left or right side of the chassis as long as nothing else obstructs airflow on the right side.

  - – For the Cisco Nexus 7009 switch, route the cables along the left side of the front of the chassis so that cooling air can flow to the chassis from the right front side and heated exhaust air is vented to the left and directed to the hot aisle in the rear. If necessary, you can also route cables to the upper half of the right side of the chassis if the lower right side of the front is open for airflow from the cold-aisle and floor to the air intake.

  - – For the Cisco Nexus 7010 switch, route the cables through the cable management area on the top front of the switch.

  - – For the Cisco Nexus 7018 switch, route the cables along the left side of the front of the chassis so that cooling air can flow to the chassis from the right front side and heated exhaust air is vented to the left and directed to the hot aisle in the rear. If necessary, you can also route cables to the upper half of the right side of the chassis if the lower right side of the front is open for airflow from the cold-aisle and floor to the air intake.

- Where necessary, have a seismic rating of Network Equipment Building Standards (NEBS) Zone 3 or Zone 4, per GR-63-CORE if required.

- Minimum gross load rating of 2000 lb (907.2 kg) (static load rating) if supporting two switches.

Cabinet and Rack Vendors

You can install a Cisco Nexus 7000 Series switch in any cabinet or rack that meets the specifications listed in the "General Requirements for Cabinets and Racks" section on page A-1. Work with your cabinet vendors to determine which of their cabinets meet these requirements or see the Cisco Technical Assistance Center (TAC) for recommendations.