



Preparing for Installation

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Temperature Requirements

The fabric interconnect requires an operating temperature of 32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius). If the fabric interconnect is not operating, the temperature must be between –40 to 158 degrees Fahrenheit (–40 to 70 degrees Celsius).

Humidity Requirements

Buildings in which the climate is controlled by air-conditioning in the warmer months and by heat during the colder months usually maintain an acceptable level of humidity for the fabric interconnect equipment. However, if the fabric interconnect is located in an unusually humid location, use a dehumidifier to maintain the humidity within an acceptable range.

Altitude Requirements

Altitude rating is based on power supply installed; see critical components list in the system CB report for altitude rating.

Dust and Particulate Requirements

Exhaust fans cool power supplies and system fans cool fabric interconnects by drawing in air and exhausting air out through various openings in the chassis. However, fans also ingest dust and other particles, causing contaminant buildup in the fabric interconnect and increased internal chassis temperature. Dust and particles can act as insulators and interfere with the mechanical components in the fabric interconnect. A clean operating environment can greatly reduce the negative effects of dust and other particles.

In addition to keeping your environment free of dust and particles, follow these precautions to avoid contamination of your fabric interconnect:

- Do not permit smoking near the fabric interconnect.
- Do not permit food or drink near the fabric interconnect.

Minimizing Electromagnetic and Radio Frequency Interference

Electromagnetic interference (EMI) and radio frequency interference (RFI) from the fabric interconnect can adversely affect other devices, such as radio and television (TV) receivers. Radio frequencies that emanate from the fabric interconnect can also interfere with cordless and low-power telephones. Conversely, RFI from high-power telephones can cause spurious characters to appear on the fabric interconnect monitor.

RFI is defined as any EMI with a frequency above 10 kHz. This type of interference can travel from the fabric interconnect to other devices through the power cable and power source or through the air as transmitted radio waves. The Federal Communications Commission (FCC) publishes specific regulations to limit the amount of EMI and RFI that are emitted by computing equipment. Each fabric interconnect meets these FCC regulations.

To reduce the possibility of EMI and RFI, follow these guidelines:

- Cover all open expansion slots with a blank filler plate.
- Always use shielded cables with metal connector shells for attaching peripherals to the fabric interconnect.

When wires are run for any significant distance in an electromagnetic field, interference can occur to the signals on the wires with the following implications:

- Bad wiring can result in radio interference emanating from the plant wiring.
- Strong EMI, especially when it is caused by lightning or radio transmitters, can destroy the signal drivers and receivers in the chassis and even create an electrical hazard by conducting power surges through lines into equipment.



Note To predict and prevent strong EMI, you need to consult experts in radio frequency interference (RFI).

The wiring is unlikely to emit radio interference if you use a twisted-pair cable with a good distribution of grounding conductors. If you exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable.

**Caution**

If the wires exceed the recommended distances, or if wires pass between buildings, give special consideration to the effect of a lightning strike in your vicinity. The electromagnetic pulse that is caused by lightning or other high-energy phenomena can easily couple enough energy into unshielded conductors to destroy electronic fabric interconnects. You will want to consult experts in electrical surge suppression and shielding if you had similar problems in the past.

Shock and Vibration Requirements

The fabric interconnect has been shock- and vibration-tested for operating ranges, handling, and earthquake standards.

Grounding Requirements

The fabric interconnect is sensitive to variations in voltage that is supplied by the power sources. Overvoltage, undervoltage, and transients (or spikes) can erase data from memory or cause components to fail. To protect against these types of problems, ensure that there is an earth-ground connection for the fabric interconnect. You can connect the grounding pad on the fabric interconnect either directly to the earth-ground connection or to a fully bonded and grounded rack.

When you properly install the chassis in a grounded rack, the fabric interconnect is grounded because it has a metal-to-metal connection to the rack. Alternatively, you can ground the chassis by using a customer-supplied grounding cable that meets your local and national installation requirements. For U.S. installations, we recommend 6-AWG wire. Connect your grounding cable to the chassis with a grounding lug (provided in the fabric interconnect accessory kit) and to the facility ground.

**Note**

You automatically ground AC power supplies when you connect them to AC power sources.

**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.

Planning for Power Requirements

The fabric interconnect includes two power supplies (1-to-1 redundancy with current sharing) in one of the following combinations:



Note For $n+1$ redundancy, you can use one or two power sources for the two power supplies. For $n+n$ redundancy, you must use two power sources and connect each power supply to a separate power source.



Note Some of the power supply modules have rating capabilities that exceed the fabric interconnect requirements. When calculating your power requirements, use the fabric interconnect requirements to determine the amount of power that is required for the power supplies.

To minimize the possibility of circuit failure, make sure that each power-source circuit that is used by the fabric interconnect is dedicated to the fabric interconnect.



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



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 20A (North America), 16A (Europe), and 13A (UK).



Note For the power cables to use with the power supplies, see [Power Cable Specifications](#).

Airflow Requirements

The fabric interconnect is positioned with its ports in either the front or the rear of the rack depending on your cabling and maintenance requirements. You must have fan and power supply modules that move the coolant air from the cold aisle to the hot aisle in one of the following ways:

- Port-side exhaust airflow—Cool air enters the chassis through the fan and power supply modules in the cold aisle and exhausts through the port end of the chassis in the hot aisle.

You can identify the airflow direction of each fan and power supply module by its coloring. Blue or dark grey coloring indicates port-side exhaust airflow.



Note To prevent the fabric interconnect from overheating and shutting down, you must position the air intake for the fabric interconnect in a cold aisle. The fan and power supply modules must have the same direction of airflow (even if their coloring is different). If you must change the airflow direction for the fabric interconnect, you must shutdown the fabric interconnect before changing the modules.

Rack and Cabinet Requirements

You can install the following types of racks or cabinets for your fabric interconnect:

- Standard perforated cabinets
- Solid-walled cabinets with a roof fan tray (bottom-to-top cooling)
- Standard open four-post Telco racks

Work with your cabinet vendors to determine which of their cabinets meet the following requirements or see the Cisco Technical Assistance Center (TAC) for recommendations:

- Use a standard 19-inch (48.3-cm), 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 depth of a four-post rack must be 24 to 32 inches (61.0 to 81.3 cm) between the front and rear mounting rails (for proper mounting of the bottom-support brackets or other mounting hardware).

Also, you must have power receptacles that are located within reach of the power cords that are used with the fabric interconnect.

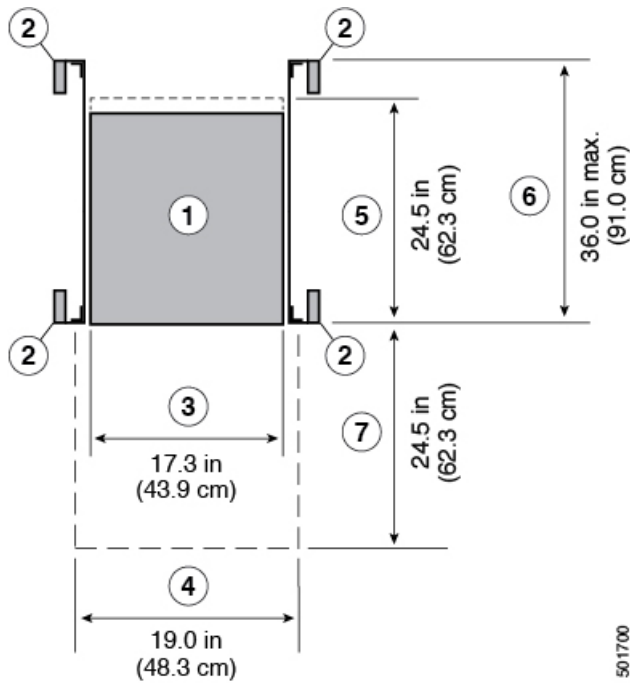


Warning Statement 1048—Rack Stabilization

The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before installation or servicing. Failure to stabilize the rack can cause bodily injury.

Clearance Requirements

Provide the chassis with adequate clearance between the chassis and any other rack, device, or structure so that you can properly install the chassis. Provide the chassis with adequate clearance to route cables, provide airflow, and maintain the fabric interconnect. For the clearances required for an installation of this chassis in a four-post rack, see the following figure.



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1	Chassis	5	Depth of the chassis
2	Vertical rack-mount posts and rails	6	Maximum extension of the bottom-support rails 36.0 in (91.0 cm)
3	Chassis width 17.3 in (43.9 cm)	7	Depth of the front clearance area (equal to the depth of the chassis).
4	Width of the front clearance area (equal to the width of the chassis with two rack-mount brackets that are attached to it). 19.0 in (43.3 cm)		



Note Both the front and rear of the chassis must be open to both aisles for airflow.