



Preparing for Installation

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Safety Warnings

Safety warnings appear throughout this publication in procedures that may harm you if you perform them incorrectly. A warning symbol precedes each warning statement. The warnings below are general warnings that are applicable to the entire publication.



Warning

Class 1 laser product. **Statement 1008**



Warning

Read the installation instructions before connecting the system to the power source. **Statement 1004**



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. **Statement 1030**



Warning

Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. **Statement 1041**

**Warning**

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself. **Statement 94**

**Warning**

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. **Statement 1051**

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage may occur when modules or other FRUs are improperly handled, and result in intermittent or complete failure of the modules or FRUs. Modules consist of printed circuit boards that are fixed in metal carriers. EMI shielding and connectors are integral components of a carrier. Although the metal carrier helps to protect the board from ESD, always use an ESD-grounding strap when handling modules. To prevent ESD damage, follow these guidelines:

Related Topics

[Installing an Ethernet Switching Module](#)

[Establishing System Ground, on page 2](#)

[Tools Required for Module Installation or Removal, on page 7](#)

Establishing System Ground

To attach the grounding lug and cable to the grounding pad, perform these steps

Before You Begin

To connect the system ground, you require the following tools and materials:

- Grounding lug—A two-hole right-angled lug. Supports up to 6 AWG wire. Supplied as part of accessory kit.
- Grounding screws—Two M4 x 8 mm (metric) pan-head screws. Supplied as part of the accessory kit.
- Grounding wire—Not supplied as part of accessory kit. The grounding wire should be sized according to local and national installation requirements. Depending on the power supply and system, a 12 to 6 AWG copper conductor is required for U.S. installations. Commercially available 6-AWG wire is recommended. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.
- No. 1 Phillips screwdriver.
- Crimping tool to crimp the grounding wire to the grounding lug.
- Wire-stripping tool to remove the insulation from the grounding wire.

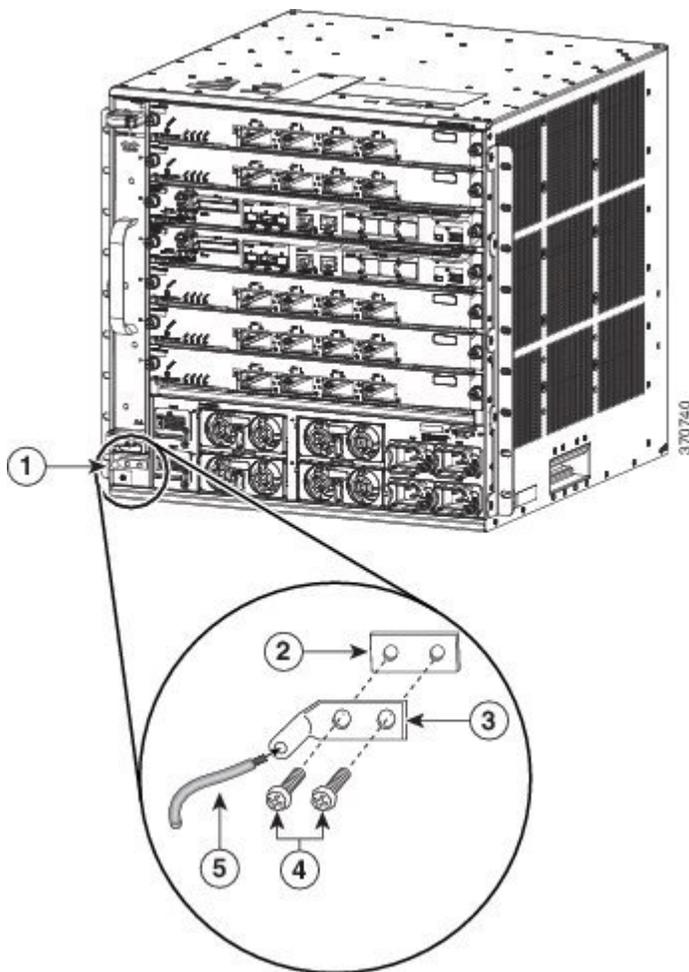
SUMMARY STEPS

1. Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the grounding wire.
2. Insert the stripped end of the grounding wire into the open end of the right-angled grounding lug.
3. Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug.
4. Secure the grounding lug to the system ground connector with two M4 screws. Ensure that the grounding lug and the grounding wire do not interfere with other switch hardware or rack equipment.
5. Prepare the other end of the grounding wire, and connect it to an appropriate grounding point in your site to ensure adequate earth ground for the switch.

DETAILED STEPS

- Step 1** Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the grounding wire.
- Step 2** Insert the stripped end of the grounding wire into the open end of the right-angled grounding lug.
- Step 3** Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug.
- Step 4** Secure the grounding lug to the system ground connector with two M4 screws. Ensure that the grounding lug and the grounding wire do not interfere with other switch hardware or rack equipment.

Figure 1: Locating and Connecting System Ground



1	System ground location	4	M4 screws to secure the lug to the connector
2	System ground connector	5	Stripped end of the grounding wire inserted into the open end of the right-angled grounding lug

3	Right-angled grounding lug	
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Step 5 Prepare the other end of the grounding wire, and connect it to an appropriate grounding point in your site to ensure adequate earth ground for the switch.

Related Topics

[Preventing Electrostatic Discharge Damage](#) , on page 2

[Tools Required for Module Installation or Removal](#) , on page 7

Attaching an ESD Strap

After you install the system ground lug, follow these steps to correctly attach the ESD wrist strap:

SUMMARY STEPS

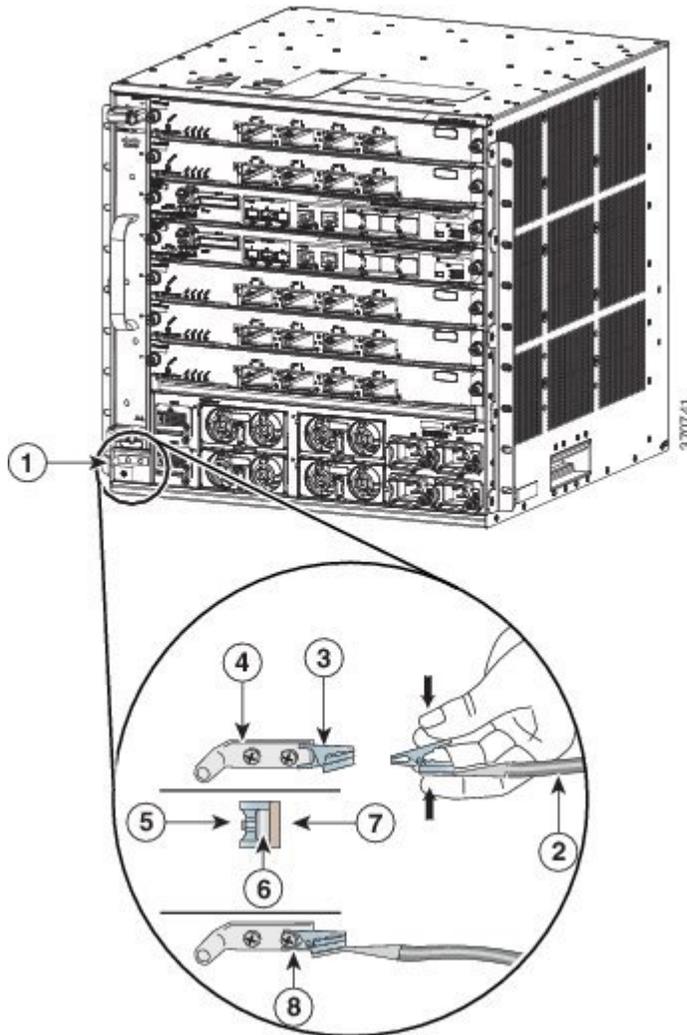
1. Attach the ESD wrist strap to bare skin as follows:
2. Grasp the spring or alligator clip on the ESD wrist strap and momentarily touch the clip to a bare metal spot (unpainted surface) on the rack. We recommend that you touch the clip to an unpainted rack rail so that any built-up static charge is then safely dissipated to the entire rack.
3. Attach either the spring clip or the alligator clip to the ground lug screw as follows:

DETAILED STEPS

- Step 1** Attach the ESD wrist strap to bare skin as follows:
- a) If you are using the ESD wrist strap supplied with the FRUs, open the wrist strap package and unwrap the ESD wrist strap. Place the black conductive loop over your wrist and tighten the strap such that it touches your bare skin well.
 - b) If you are using an ESD wrist strap equipped with an alligator clip, open the package and remove the ESD wrist strap. Locate the end of the wrist strap that attaches to your body and secure it to your bare skin.
- Step 2** Grasp the spring or alligator clip on the ESD wrist strap and momentarily touch the clip to a bare metal spot (unpainted surface) on the rack. We recommend that you touch the clip to an unpainted rack rail so that any built-up static charge is then safely dissipated to the entire rack.
- Step 3** Attach either the spring clip or the alligator clip to the ground lug screw as follows:
- a) If you are using the ESD wrist strap that is supplied with the FRUs, squeeze the spring clip jaws open, position the spring clip to one side of the system ground lug screw head, and slide the spring clip over the lug screw head so that the spring clip jaws close behind the lug screw head.
- Note** The spring clip jaws do not open wide enough to fit directly over the head of the lug screw or the lug barrel.

- b) If you are using an ESD wrist strap that is equipped with an alligator clip, attach the alligator clip directly over the head of the system ground lug screw or to the system ground lug barrel.

Figure 2: Attaching the ESD Wrist Strap Clip to the System Ground Lug Screw



1	System ground connector	5	Side clip behind the screw
2	ESD ground strap	6	Screw
3	Clip	7	Side view of grounding lug
4	Right-angled grounding lug	8	Clip installed behind the screw

When handling modules, follow these guidelines:

- Handle carriers using the available handles or edges only; avoid touching the printed circuit boards or connectors.
- Place a removed component boardside up on an antistatic surface or in a static shielding container. If you plan to return the component to the factory, immediately place it in a static shielding container.
- Never attempt to remove the printed circuit board from the metal carrier.

Caution For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohm (Mohm).

Tools Required for Module Installation or Removal

These tools are required to perform the installation or removal of Ethernet modules:

- Antistatic mat or foam pad to support an unpackaged module.
- Small flat-blade screwdriver.
- Number 2 Phillips screwdriver.
- Your own ESD-prevention equipment.

Related Topics

[Installing an Ethernet Switching Module](#)

[Establishing System Ground, on page 2](#)

[Preventing Electrostatic Discharge Damage , on page 2](#)

