Installation Job Aid for Ethernet Routing Switch 3500 Series

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Notices

Notice paragraphs alert you about issues that require your attention.

Following are descriptions of the types of notices used in this document.

Note:

Notes provide tips and useful information regarding the installation and operation of products.

Electrostatic alert:

ESD notices provide information about how to avoid discharge of static electricity and subsequent damage to products.

Caution:

Caution notices provide information about how to avoid possible service disruption or damage to products.

Warning:

Warning notices provide information about how to avoid personal injury when working with products.

Voltage:

Danger—High Voltage notices provide information about how to avoid a situation or condition that can cause serious personal injury or death from high voltage or electric shock.

Danger:

Danger notices provide information about how to avoid a situation or condition that can cause serious personal injury or death.

Safety messages

Safety messages are an important part of the technical documentation. The messages alert you to hazards to personnel and equipment and provide guidance for the safe operation of your equipment. Failure to comply with the safety messages could result in equipment damage and personal injury.

Following are the most common types of safety messages.

Warning:

Installation must be performed by qualified personnel only. Read and follow all warning notices and instructions marked on the product or included in the documentation.

Voltage:

This equipment relies on the building's installation for overcurrent protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15 A U.S. (240 VAC, 16 A International) is used on the phase conductors.

Caution:

This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case the user may be required to take appropriate measures.

Caution:

When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.

Voltage:

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

Warning:

Disconnecting the power cord is the only way to turn off power to this device. Always connect the power cord in a location that can be reached quickly and safely in case of an emergency.

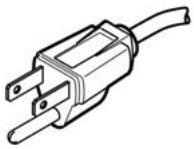
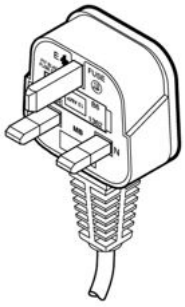
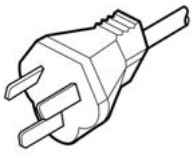
Warning:

Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

AC power cord specifications

Required cable: AC power cord that meets the requirements of your local electrical code. The following table describes the International power cord specifications.

Table 1: International power cord specifications

Country and plug description	Specifications	Typical plug
Continental Europe • CEE7 standard VII male plug • Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21)	220 or 230 VAC 50 Hz Single phase	 228FA
U.S./Canada/Japan • NEMA5-15P male plug • UL-recognized (UL stamped on cord jacket) • CSA-certified (CSA label secured to the cord)	100 or 120 VAC 50-60 Hz Single phase	 227FA
United Kingdom • BS1363 male plug with fuse • Harmonized cord	240 VAC 50 Hz Single phase	 229FA
Australia AS3112-1981 male plug	240 VAC 50 Hz Single phase	 230FA

Before you begin

Ensure the area where you install and use the switch meets the following environmental requirements:

- Ambient temperature between 32°F and 122°F (0°C and 50°C).
- Relative humidity between 0% and 95% noncondensing.
- No nearby heat sources such as hot air vents or direct sunlight.
- No nearby sources of severe electromagnetic noise.
- No excessive dust.
- Adequate power source within six feet; one circuit required for each power supply.
- At least 2 inches (5.1 cm) (or one vertical rack width) on all sides of the switch unit for ventilation.
- Adequate space at the front and rear of the switch for access to cables.

If you are installing a single Ethernet Routing Switch on a table or shelf, ensure the surface can support at least 7 to 13 pounds (3 to 6 kilograms).

Installation preparation

To prevent damage, handle the switch carefully by using the following guidelines:

- To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.
- Always place the switch on appropriate antistatic material.
- Support the switch from underneath with two hands. Do not touch components or connector pins with your hand, or damage can result.
- Do not over tighten screws. Tighten until snug. Do not use a power tool to tighten screws.

For information about technical specifications for the individual switches, see *Installing Ethernet Routing Switch 3500 Series*.

Installing the switch

The following procedures describe how to install an ERS 3500 series on a table or shelf, or in an equipment rack.

Note:

The installation procedure for ERS 3510GT and ERS 3510GT-PWR+ is different from the other switch models in the series. Refer to *Installing an ERS 3510GT or ERS 3510GT-PWR+ switch* section for installation procedures for the switch models ERS 3510GT or ERS 3510GT-PWR+.

Installing an ERS 3500 Series in an equipment rack

This procedure describes how to install an ERS 3500 Series in an equipment rack using the supplied brackets. The brackets secure the chassis and prevent it from sliding around during vibration or when inserting or extracting transceivers.

Required tool: Phillips screwdriver for attaching brackets to the switch.

Rack requirements:

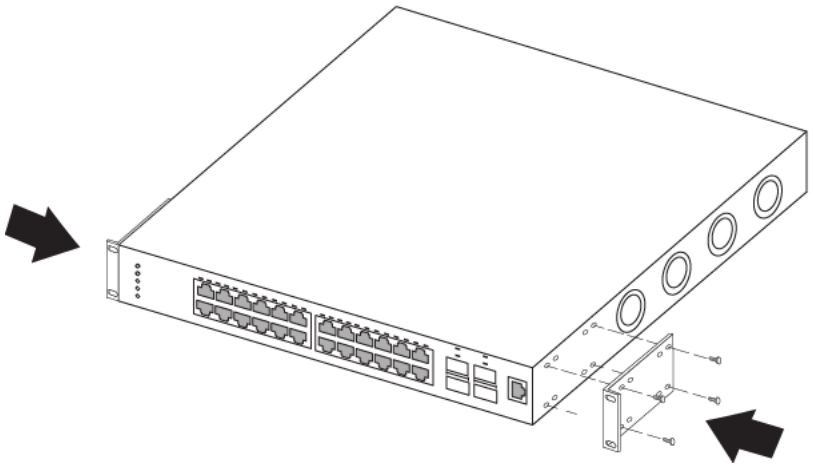
- Space of 2.8 inches (7.1 cm) (or one vertical rack width) for each switch in an E1A or 1EC 20 standard 19 inch (48.2 cm) equipment rack and T1A 23 inch (58.5 cm) equipment rack.
- Appropriate rack space to accommodate 1U switch height (44 mm).
- Rack bolted to floor and braced if necessary.
- Rack must be grounded to the same grounding electrode used by the power service in the area. The group path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.

Bracket requirements: One Spare Rack Mount Kit — this kit can be used as a replacement rack mount kit for the ERS switch and must be ordered separately.

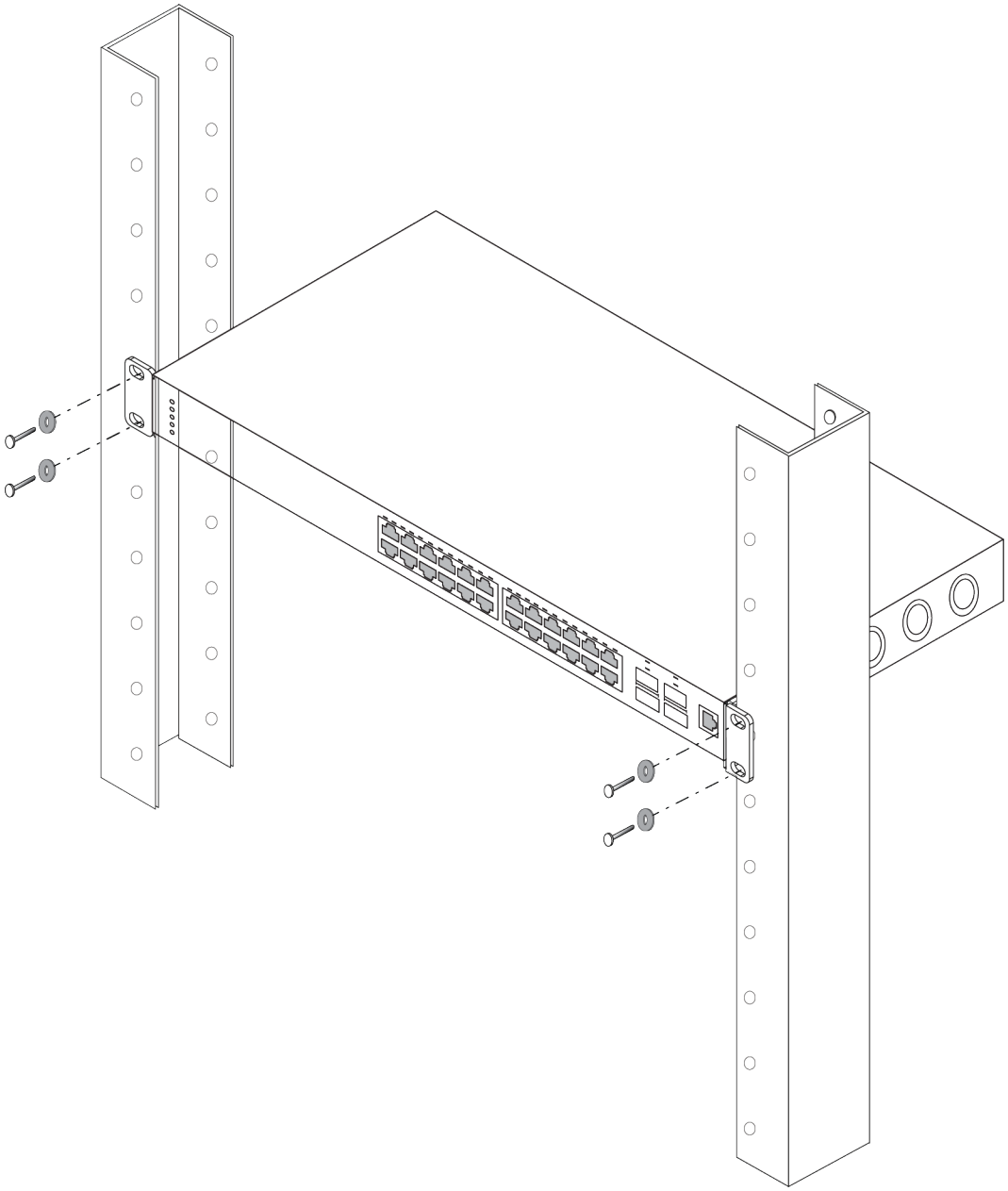
Perform the following procedure to install your switch in an equipment rack.

Procedure

1. Ensure power is disconnected from the switch.
2. Attach a bracket to each side of the switch with the included screws.



3. Slide the switch into the rack. Insert and tighten the rack mount screws.



4. Verify that the switch is securely fastened to the rack.

Installing an ERS 3510GT or ERS 3510GT-PWR+ switch

The following procedures describe how to install the switch models ERS 3510GT or ERS 3510GT-PWR+ on a table or shelf, or in an equipment rack.

Installing an ERS 3510GT or ERS 3510GT-PWR+ switch on a table or shelf

You can install the switch models ERS 3510GT or ERS 3510GT-PWR+ on a flat surface such as a table or shelf. The surface must be able to support the combined weight of the switch and attached

cables. An ERS 3510GT switch weighs 3.85 lb (1.75 kg). An ERS 3510GT-PWR+ switch weighs 5.9 lb (2.70 kg). Cable weight varies for each installation.

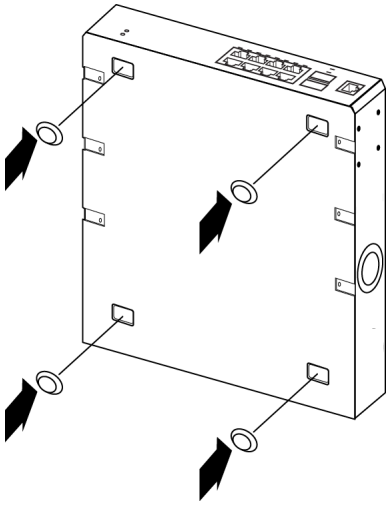
Important:

Allow at least 2 inches (5.1 cm) on each side of the switch for proper ventilation and at least 5 inches (12.7 cm) at the back of the switch for power cord clearance.

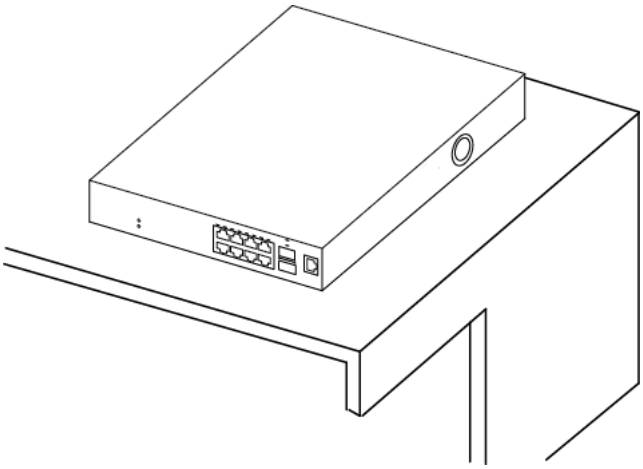
The following procedure provides instructions for installing the switch on a table or shelf.

Procedure

1. Attach the rubber feet at the marked locations.



2. Set the switch on a table or shelf.



Installing a single ERS 3510GT or ERS 3510GT-PWR+ switch in an equipment rack

The following procedure describes how to install the switch models ERS 3510GT or ERS 3510GT-PWR+ using the supplied brackets. The brackets secure the chassis and prevent it from sliding around during vibration or when inserting or extracting transceivers.

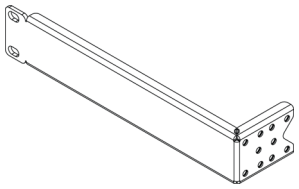
Required Tool: Phillips screwdriver for attaching brackets to the switch.

Rack requirements:

- Provide the equivalent of one rack of vertical space for each switch in an E1A or 1EC standard 19 inch (48.2 cm) equipment rack and T1A 23 inch (58.5 cm) equipment rack.
- Appropriate rack space to accommodate 1U switch height (44 mm).
- Rack bolted to floor and braced if necessary.
- Rack must be grounded to the same grounding electrode used by the power service in the area. The group path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.

Bracket requirements:

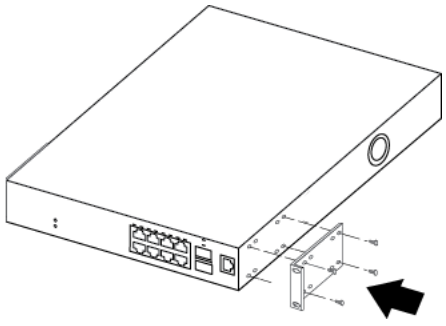
- one 3510–Single Rack Mount Kit — this accessory kit is used to mount a single ERS 3510GT or ERS 3510GT-PWR+ switch in a standard 19 inch rack. The kit contains the necessary bracket (see Figure below) and all required fasteners and must be order separately.



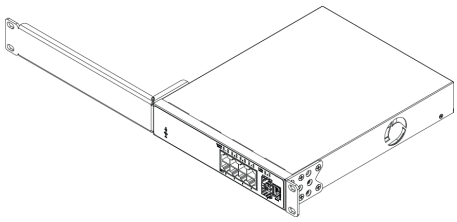
Perform the following procedure to install your switch in a equipment rack.

Procedure

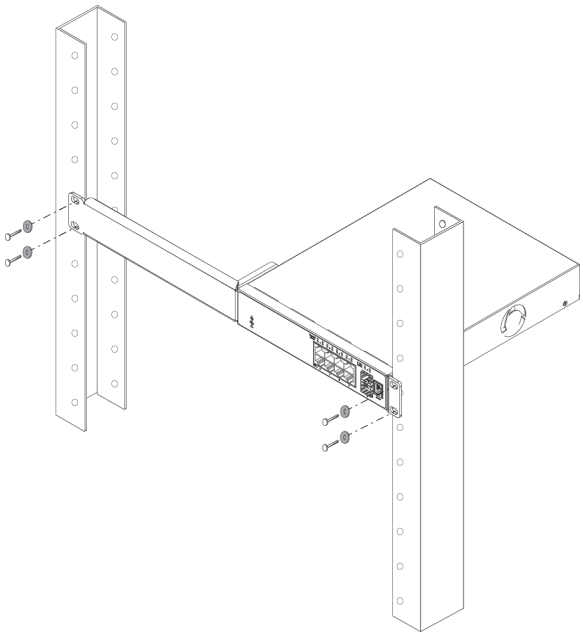
1. Ensure power is disconnected from the switch.
2. With the front of the ERS 3510GT or ERS 3510GT-PWR+ unit facing you, attach the small bracket from the optional kit to the right side of the switch using the flathead screws provided.



3. With the front of the ERS 3510GT or ERS 3510GT-PWR+ unit facing you, attach the long bracket from the optional kit (see Figure that follows) to the left side of the switch using the flathead screws provided.



4. Slide the switch into the rack as shown in the figure that follows. Insert and tighten the rack mount screws.



Note:

The ERS 3500 Series mounting hardware is specific for each switch model. Do not mix screws or brackets between different ERS 3500 Series switches.

5. Verify that the switch is securely fastened to the rack.

Installing two ERS 3510GT or ERS 3510GT-PWR+ switches in an equipment rack

You can install two ERS 3510GT or ERS 3510GT-PWR+ units together to form one standard width rack-wide system using a 19 inch side-by-side Rack Mount Kit (ordered separately).

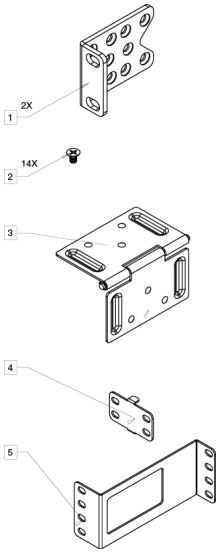
Required tool: Phillips screwdriver for attaching brackets to the switch.

Rack requirements:

- Provide the equivalent of one rack of vertical space for each switch in an E1A or 1EC standard 19 inch (48.2 cm) equipment rack and T1A 23 inch (58.5 cm) equipment rack.
- Appropriate rack space to accommodate 1U switch height (44 mm).
- Rack bolted to floor and braced if necessary.
- Rack must be grounded to the same grounding electrode used by the power service in the area. The group path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.

Bracket requirements:

The following image shows the contents of the Side-by-Side Rack Mount Kit:



1. Rack mount brackets — Quantity: 2
2. M4 flat head screws — Quantity: 14
3. Hinged mating bracket — Quantity: 1
4. Rear bracket for mating identical 3510 switches — Quantity: 1
5. Rear bracket for mating 3510GT and 3510GT-PWR+ switches — Quantity: 1

   #10–32 rack mounting screws (not shown) — Quantity: 4

   #12–24 rack mounting screws (not shown) — Quantity: 4

   M6 rack mounting screws (not shown) — Quantity: 4

Perform the following procedure to install your switch in an equipment rack.

Note:

When mounting two 3510GT-PWR+ units side by side in an equipment rack, run the switches in high power mode to ensure adequate airflow. In high power mode, the available power is 170 Watts.

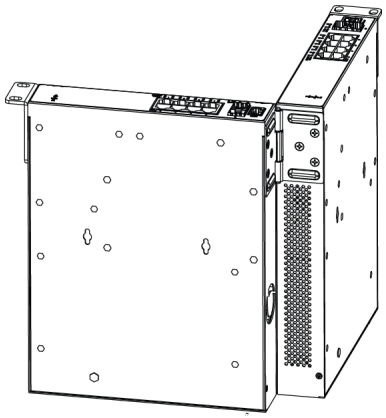
```
#show poe-main-status

PoE Main Status - Stand-alone
-------------------------------------------------
Power Mode                  : High Power Budget
Available DTE Power         : 170 Watts
DTE Power Status            : Normal
DTE Power Consumption       : 0 Watts
DTE Power Usage Threshold   : 80%
PD Detect Type              : 802.3at and Legacy
Power Source Present        : AC Only
AC Power Status             : Present
DC Power Status             : Not Present
```

Note:

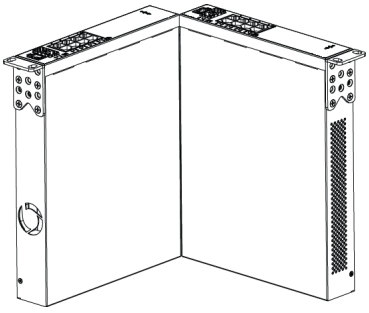
The PoE+ model supports Power over Ethernet+ with compatibility to 802.3at PoE+. 802.3at is backward compatible for detection with 802.3af.

Procedure

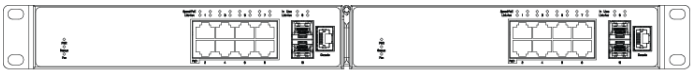
1. Ensure power is disconnected from the switch.
2. Connect the two ERS 3510GT switches together by opening the hinged bracket to 90° and attaching it to each ERS 3510GT switch with three M4 flat head screws (included), as shown below.



3. Attach the standard rack mount bracket ears to the outer end of each switch as shown below.

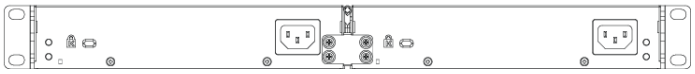


4. Once the switches are joined together, fold the hinged bracket inward.



5. Perform one of the following

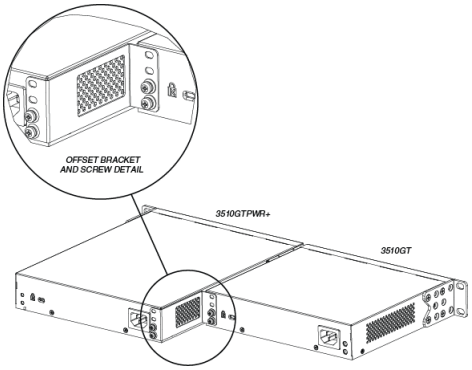
   - **To connect two ERS 3510GT or two 3510GT-PWR+ switches together** use the rear bracket as shown below, with four M4 pan head screws to secure the switches at the rear. Once the rear bracket has been installed, the switches can be installed in the rack.



   - **To connect one ERS 3510GT switch and one ERS 3510GT-PWR+ switch together** use the offset rear bracket with four M4 pan head screws to join the switches at the rear. Once the rear bracket has been installed, the switches can be installed in the rack.

Note:

If you are mounting a mix of ERS 3510GT and ERS 3510GT-PWR+ units side by side, ensure that the ERS 3510GT unit is mounted on the LEFT side (when viewed from the front) for adequate airflow.



6. Slide the switches into the rack. Insert and tighten the rack mount screws.
7. Verify that the switch is securely fastened to the rack.

Connecting AC power

Before you begin

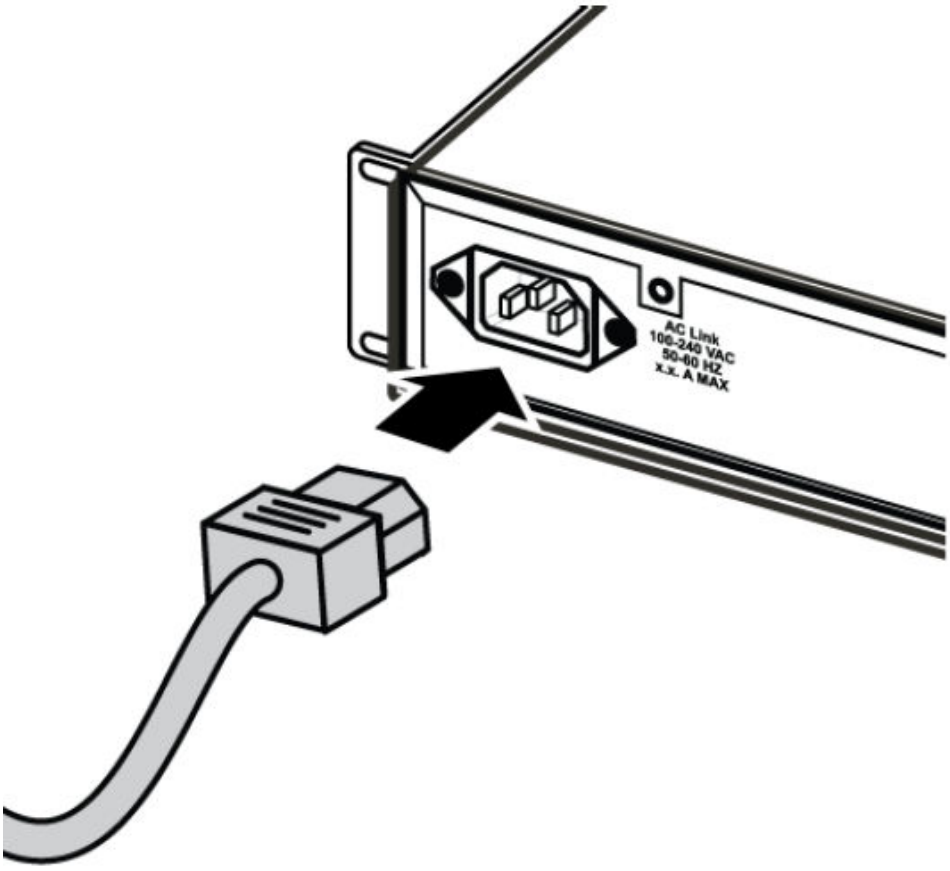
- Ensure to check AC power specifications for the switch.
- Ensure to check the AC power cord for international use. You must use a power cord that is approved for the receptacle type in your country.

Procedure

1. Connect the AC power cord to the back of the switch, and then connect the cord to a power outlet.

   Note:

   ERS 3500 Series does not have a power switch. When you connect the AC power cord to a suitable AC power outlet, the switch powers up immediately.



2. Check the front-panel LEDs as the device is powered on to be sure the PWR LED is lit. If not, check that the power cable is correctly plugged in.

   Connect the AC power cord to the back of the switch, and then connect the cord to a power outlet.

   Danger:

   Using power cords with a proper grounding path

   Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.