Installation Preparation

- Installation Warnings, on page 1
- Safety Recommendations, on page 4
- Maintain Safety with Electricity, on page 4
- Prevent ESD Damage, on page 5
- Site Environment, on page 5
- Site Considerations, on page 5
- Power Supply Considerations, on page 6
- Rack Configuration Considerations, on page 6

Installation Warnings

Read the Regulatory Compliance and Safety Information document before installing the security appliance.

Take note of the following warnings:

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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 standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

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Warning Statement 1015—Battery Handling

To reduce risk of fire, explosion or leakage of flammable liquid or gas,

• Replace the battery only with the same or equivalent type recommended by the manufacturer.
• Do not dismantle, crush, puncture, use sharp tool to remove, short external contacts, or dispose of in fire
• Do not use if battery is warped or swollen
• Do not store or use battery in a temperature > __/__ C
• Do not store or use battery in low air pressure environment < __/__

Warning Statement 12—Power Supply Disconnection Warning

Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.

Warning Statement 43—Jewelry Removal Warning

Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.

Warning Statement 94—Wrist Strap 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.

Warning Statement 1004—Installation Instructions

Read the installation instructions before using, installing or connecting the system to the power source.

Warning Statement 1007—TN and IT Power Systems

This equipment has been designed for connection to TN and IT power systems.

Warning Statement 1017—Restricted Area

This unit is intended for installation in restricted access areas. A restricted access area can be accessed by skilled, instructed or qualified personnel.
Warning Statement 1021—SELV Circuit
To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

Warning Statement 1024—Ground Conductor
This equipment must be grounded. To reduce the risk of electric shock, 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 that suitable grounding is available.

Warning Statement 1028—More Than One Power Supply
This unit might have more than one power supply connection. To reduce risk of electric shock, all connections must be removed to de-energize the unit.

Warning Statement 1029—Blank Faceplates and Cover Panels
Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Warning Statement 1030—Equipment Installation
Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Warning Statement 1040—Product Disposal
Ultimate disposal of this product should be handled according to all national laws and regulations.

Warning Statement 1073—No User-Serviceable Parts
No serviceable parts inside. To avoid risk of electric shock, do not open.
Warning Statement 1045—Short-Circuit Protection
This product requires short-circuit (overcurrent) protection to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

Warning Statement 1074—Comply with Local and National Electrical Codes
To reduce risk of electric shock or fire, installation of the equipment must comply with local and national electrical codes.

Safety Recommendations

Observe these safety guidelines:

• Keep the area clear and dust-free before, during, and after installation.
• Keep tools away from walkways, where you and others might trip over them.
• Do not wear loose clothing or jewelry, such as earrings, bracelets, or chains that could get caught in the chassis.
• Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
• Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
• Never attempt to lift an object that is too heavy for one person.

Maintain Safety with Electricity

Warning Before working on a chassis, be sure the power cord is unplugged.

Read the document before installing the security appliance.

Follow these guidelines when working on equipment powered by electricity:

• Before beginning procedures that require access to the interior of the chassis, locate the emergency power-off switch for the room in which you are working. Then, if an electrical accident occurs, you can act quickly to turn off the power.
• Do not work alone if potentially hazardous conditions exist anywhere in your work space.
• Never assume that power is disconnected; always check.
• Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.
• If an electrical accident occurs:
Prevent ESD Damage

ESD occurs when electronic components are improperly handled, and it can damage equipment and impair electrical circuitry, resulting in intermittent or complete failure.

Always follow ESD-prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to an earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the grounding clip to an unpainted surface of the chassis frame to safely ground ESD voltages. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

For safety, periodically check the resistance value of the antistatic strap, which should be between one and 10 megohms.

Site Environment

See Hardware Specifications for information about physical specifications.

When planning the site layout and equipment locations, consider the information in the next sections to help avoid equipment failures and reduce the possibility of environmentally caused shutdowns. If you are currently experiencing shutdowns or unusually high error rates with your existing equipment, these considerations may help you isolate the cause of failures and prevent future problems.

Site Considerations

Considering the following helps you plan an acceptable operating environment for the chassis, and avoid environmentally caused equipment failures.

- Electrical equipment generates heat. Ambient air temperature might not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Ensure that the room in which you operate your system has adequate air circulation.

- Ensure that the chassis cover is secure. The chassis is designed to allow cooling air to flow effectively within it. An open chassis allows air leaks, which may interrupt and redirect the flow of cooling air from the internal components.

- Always follow the ESD-prevention procedures described previously to avoid damage to equipment. Damage from static discharge can cause immediate or intermittent equipment failure.
**Power Supply Considerations**

See Power Supply Modules for more detailed information about the power supply modules for your model.

When installing the chassis, consider the following:

- Check the power at the site before installing the chassis to ensure that it is “clean” (free of spikes and noise). Install a power conditioner, if necessary, to ensure proper voltages and power levels in the appliance input voltage.

- Install proper grounding for the site to avoid damage from lightning and power surges.

- The chassis does not have a user-selectable operating range. Refer to the label on the chassis for the correct appliance input-power requirement.

- Several styles of AC-input power supply cords are available; make sure that you have the correct style for your site.

- Install an uninterruptible power source for your site, if possible.

- If you are using dual redundant (1+1) power supplies, we recommend that you use independent electrical circuits for each power supply.

**Rack Configuration Considerations**

See Rack-Mount the Chassis Using Slide Rails and Rack-Mount the Chassis for the procedure for rack-mounting the chassis.

Consider the following when planning a rack configuration:

- Standard 19-in. (48.3 cm) 4-post EIA rack with mounting rails that conform to English universal hole spacing according to section 1 of ANSI/EIA-310-D-1992.

- The rack-mounting posts need to be 2 to 3.5 mm thick to work with the slide rail rack mounting.

- If you are mounting a chassis in an open rack, make sure that the rack frame does not block the intake or exhaust ports.

- If your rack includes closing front and rear doors, the doors must have 65 percent open perforated area evenly distributed from top to bottom to permit adequate airflow.

- Be sure enclosed racks have adequate ventilation. Make sure that the rack is not overly congested as each chassis generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air.

- In an enclosed rack with a ventilation fan in the top, heat generated by equipment near the bottom of the rack can be drawn upward and into the intake ports of the equipment above it in the rack. Ensure that you provide adequate ventilation for equipment at the bottom of the rack.

- Baffles can help to isolate exhaust air from intake air, which also helps to draw cooling air through the chassis. The best placement of the baffles depends on the airflow patterns in the rack. Experiment with different arrangements to position the baffles effectively.