



Prepare to Installation

This chapter prepares you to install the Cisco Firepower 7000 and 8000 Series appliances and contains the following sections:

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Installation Guidelines

When you are installing an appliance, use the following guidelines:

- Ensure that there is adequate space around the appliance to allow for servicing the appliance and for adequate airflow. The airflow in the appliance is from front to back.
- Ensure that the air-conditioning can keep the security appliance at a temperature of 41 to 95°F (5 to 35°C).
- Ensure that the cabinet or rack meets the rack requirements.
- Ensure that the site power meets the power requirements listed in 770 W AC Power Supply. If available, you can use an uninterruptible power supply (UPS) to protect against power failures.

Safety Recommendations

Use the information in the following sections to help ensure your safety and to protect the chassis. This information may not address all potentially hazardous situations in your working environment, so be alert and exercise good judgment at all times.

Observe these safety guidelines:

- Observe good housekeeping in the area of the machines during and after maintenance.
- 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, chains, or metal fasteners for your clothing that could get caught in the chassis.



Caution

Metal objects are good electrical conductors.

- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- 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.
- When lifting any heavy object:
 - Lifting the chassis may require two people.
 - Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you
 - Ensure you can stand safely without slipping.
 - Distribute the weight of the object equally between your feet.
 - Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back.
 - Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
- Do not perform any action that causes hazards or makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
- To avoid electrical shock, do not open or remove chassis covers or metal parts without proper instruction.
- Wear safety glasses when you are: hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- There must be ample clearance on all sides of the chassis for the cooling air inlet and exhaust ports, as well as for access to the network interface modules (no less than 2 inches).
- Remove all factory packaging before using the appliance.

- Do not cover or block vents, or otherwise enclose the appliance.

Maintain Safety with Electricity



Warning

Before working on a chassis, be sure the power cord is unplugged. Be sure to read the [Regulatory and Compliance Safety Information](#) 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:
 - Use caution; do not become a victim yourself.
 - Disconnect power from the system.
 - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim, and then call for help.
 - Determine whether the person needs rescue breathing or external cardiac compressions; then take appropriate action.
- Use the chassis within its marked electrical ratings and product usage instructions.
- The Firepower Management Center security appliances are equipped with an AC-input power supply, which is shipped with a three-wire electrical cord with a grounding-type plug that fits into a grounding-type power outlet only. Do not circumvent this safety feature. Equipment grounding should comply with local and national electrical codes.

Prevent Electrostatic Discharge Damage

Electrostatic discharge (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 anti-static strap, which should be between one and 10 megohms.

Site Environment

When planning the site layout and equipment locations, consider the information in the next section 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.

Power Supply Considerations

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 for the appliance; make sure that you have the correct style for your site.
- If you are using dual redundant (1+1) power supplies, we recommend that you use independent electrical circuits for each power supply. The power supplies are hot-swappable.
- Install an uninterruptible power source for your site, if possible.

Equipment Rack Configuration Considerations

Consider the following when planning an equipment-rack configuration:

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