Preparing for Installation

Safety Recommendations and Warnings

Review the safety warnings listed in Regulatory Compliance and Safety Information for the Cisco 5100 Enterprise Network Compute System before installing, configuring, or maintaining the device.

Please read the following safety guidelines before you install this product:

Warning   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. Statement 1071

Warning   Read the installation instructions before you connect the system to its power source. Statement 1004

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

Warning   Installation of the equipment must comply with local and national electrical codes. Statement 1074

Always follow these electrostatic discharge (ESD) prevention procedures when removing and replacing modules:

- Ensure that the chassis is electrically connected to ground.

- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to channel unwanted ESD voltages safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must operate effectively.

- If no wrist strap is available, ground yourself by touching a metal part of the chassis.

Note For the safety of your equipment, periodically check the resistance value of the anti-static strap. It should be between 1 and 10 megohms (Mohm).

Safety with Electricity

Follow these general guidelines when working on equipment that is powered by electricity:

- Locate the emergency power-off switch in the room in which you are working. If an electrical accident occurs, you can quickly turn off the power.

- Disconnect all power before doing the following:

    - Installing or removing a chassis.

    - Working near power supplies.

- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.

- Do not work alone if hazardous conditions exist.

- Never assume that power is disconnected from a circuit. Always check.

- Never open the enclosure of the internal power supply.

- If an electrical accident occurs, proceed as follows:

    - Turn off power to the device.

    - Call for help.

    - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Follow these guidelines when working with any equipment that is disconnected from a power source but is still connected to telephone wiring or other network cabling:

- Never install telephone wiring during a lightning storm.

- Never install telephone jacks in wet locations unless the jack is specifically designed for it.

- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.

- Use caution when installing or modifying telephone lines.

- Remove power cables from all installed power supplies before opening the chassis.

Always follow these electrostatic discharge (ESD) prevention procedures when removing and replacing modules:

- Ensure that the router chassis is electrically connected to ground.

- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to channel unwanted ESD voltages safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must operate effectively.

- If no wrist strap is available, ground yourself by touching a metal part of the chassis.

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Caution   For the safety of your equipment, periodically check the resistance value of the anti-static strap. It should be between 1 and 10 megohms (Mohm).

Site Requirements

Follow the general precautions listed below when installing or working with your device:

- Do not block cooling vents.

- Route system cables, and the power supply cable and plug so that they cannot be stepped on or tripped over. Be sure that nothing else rests on your system component cables or power cable.

- If you turn off your system, wait at least 30 seconds before turning it on again to avoid system component damage.

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  Warning   This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 20A Statement 1005

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  Warning   To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 40 degrees C. Statement 1047

Temperature, humidity, altitude, and vibration can affect the performance and reliability of the chassis. After installation, ensure that the site maintains the environmental characteristics shown in this table:

Environmental Characteristic	Minimum	Maximum
Steady State Operating	0 degree C	40 degree C (40 degrees C at 10,000 feet)
Storage	-20 degrees C	+70 degrees C
Humidity operating (noncondensing)	10%	90%
Humidity nonoperating (noncondensing)	5%	95%
Altitude operating: over allowable temperature range (0 to 40 degrees C)	-500 feet	10,000 feet
Altitude, nonoperating: over allowable temperature range	-1000 feet	50,000 feet
Thermal shock non-operating with change over time of 3 minute	-25 degrees C	+70 degrees C
Thermal Shock - Operating at 2.5 degree C per minute	0 degrees C	+40 degrees C

Mounting Requirements

The height, width, depth and weight of the chassis are displayed in this table:

Characteristic	Measurement
Height	1.73 inches (4.39 cm) — 1RU rack-mount
Width	12.70 inches (32.258 cm)
Depth	10.0 inches (25.4 cm)
Weight	6.6 lbs. (2.99 kg)

To place the system in a proper location, it is necessary to know the dimensions of the device's chassis.

The Cisco 5100 ENCS can be placed on a desktop or installed in a rack. The mounting ears for the device are designed for #12-24 UNC screws.

The location of your device and the layout of your equipment rack or wiring room are extremely important considerations for proper operation. Equipment placed too close together, inadequate ventilation, and inaccessible panels can cause malfunctions and shutdowns, and can make maintenance difficult. Plan for access to both front and rear panels of the device.

This information can help you plan the rack configuration for your equipment:

- Allow clearance around the rack for maintenance.

- Allow at least one rack unit of vertical space between devices.

- Enclosed racks must have adequate ventilation. Ensure that the rack is not congested, because each device generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air. Heat generated by equipment near the bottom of the rack can be drawn upward into the intake ports of the equipment above it.

- When mounting a chassis in an open rack, ensure that the rack frame does not block the intake or exhaust ports. If the chassis is installed on slides, check the position of the chassis when it is seated in the rack.

Power Guidelines and Requirements

Check the power at your site to ensure that you are receiving "clean" power (free of spikes and noise). Install a power conditioner if necessary.

The AC power supply supports either 110V or 220V operation. All units include a 6-foot (1.8-meter) electrical power cord.

Network Cabling Specification

- Ethernet cables for RJ45 ports

- Serial or console cables used to connect devices like routers

- Shielded USB cables with properly terminated shields for the USB port

Required Tools and Equipment

You will need the following equipment to install the device and its equipment:

- ESD-preventive cord and wrist strap

- Phillips screwdrivers: small, 3/16-in. (4 to 5 mm), and medium, 1/4-in. (6 to 7 mm)

- Screws that fit your rack

- Wire crimper for chassis grounding - to be used along with the ground lug kit

- One 14 AWG cable for the ground lug kit

In addition, depending on the type of modules you plan to use, you might need the following equipment to connect a port to an external network

- Cables for connection to the WAN and LAN ports (dependent on the configuration)

Note If you order the required cables when you purchase the device, the cables ship along with the product.