Prepare for Installation

This chapter provides preinstallation information, such as recommendations and requirements that must be met before installing your platform. Before you begin, inspect all items for shipping damage. If anything appears to be damaged or if you encounter problems installing or configuring your platform, contact customer service.

Standard Warning Statements

This section describes the warning definition and then lists core safety warnings grouped by topic.

Warning

Statement 1071—Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number at the beginning of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS

General Safety Warnings

Warning **Statement 445—**Connect the Chassis to Earth Ground

To reduce the risk of electric shock, connect the chassis of this equipment to permanent earth ground during normal use.

Warning **Statement 1005**—Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than: 20A.

Warning **Statement 1008—**Class 1 Laser Product

This product is a Class 1 laser product.

Warning **Statement 1017—**Restricted Area

This unit is intended for installation in restricted access areas. Only skilled, instructed, or qualified personnel can access a restricted access area.

Warning **Statement 1022—**Disconnect Device

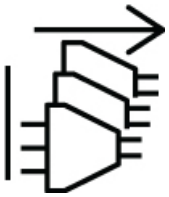
To reduce the risk of electric shock and fire, a readily accessible disconnect device must be incorporated in the fixed wiring.

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, remove all connections to de-energize the unit.



Warning **Statement 1029—**Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they reduce the risk of electric shock and fire, 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 1032—**Lifting the Chassis

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules, such as power supplies, fans, or cards. These types of handles are not designed to support the weight of the unit.

Warning **Statement 1035—**Proximity to Water

Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Warning **Statement 1038—**Telephone Use During an Electrical Storm

Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a risk of electric shock from lightning.

Warning **Statement 1039—**Telephone Use by Gas Leak

To reduce the risk of ignition, do not use a telephone in the vicinity of a gas leak.

Warning **Statement 1041—**Disconnect Telephone Network Cables

Before opening the unit, disconnect the telephone network cables to avoid contact with telephone network voltages.

Warning **Statement 1055—**Class 1/1M Laser

Invisible laser radiation is present. Do not expose to users of telescopic optics. This applies to Class 1/1M laser products.

Warning **Statement 1056—**Unterminated Fiber Cable

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments, for example, eye loupes, magnifiers, and microscopes, within a distance of 100 mm, may pose an eye hazard.

Warning **Statement 1073—**No User-Serviceable Parts

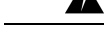
There are no serviceable parts inside. To avoid risk of electric shock, do not open.

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.

Warning **Statement 1086—**Replace Cover on Power Terminals

Hazardous voltage or energy may be present on power terminals. To reduce the risk of electric shock, make sure the power terminal cover is in place when the power terminal is not being serviced. Be sure uninsulated conductors are not accessible when the cover is in place.



Warning **Statement 1089—**Instructed and Skilled Person Definitions

An instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment.

A skilled person or qualified personnel is someone who has training or experience in the equipment technology and understands potential hazards when working with equipment.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Warning **Statement 1090—**Installation by Skilled Person

Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Warning **Statement 1091—**Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Warning **Statement 1100—**Before Making Telecommunication Network Connection

High touch/leakage current—Permanently connected protective earth ground is essential before connecting to the telecommunication network.

Warning **Statement 9001—**Product Disposal

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

Safety Recommendations

Follow these guidelines to ensure general safety:

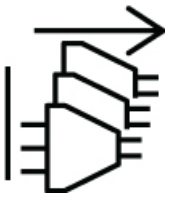
- Never attempt to lift an object that might be too heavy for you to lift by yourself.
- Keep the chassis area clear and dust-free during and after installation.
- If you remove the chassis cover, place it in a safe place.
- Keep tools and chassis components away from walk areas.
- Do not wear loose clothing that may get caught in the chassis. Fasten any tie or scarf and roll up sleeves.

- Wear safety glasses when working under conditions that might be hazardous to your eyes.
- Do not perform any action that may create a hazard to people or makes equipment unsafe.

Safety with Electricity

Warning **Statement 1028—**More Than One Power Supply

This unit might have more than one power supply connection. To reduce risk of electric shock, remove all connections to de-energize the unit.



Follow these guidelines when working on equipment 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 to another person, proceed as follows:
  - Use caution; do not become a victim yourself
  - Turn off power to the device
  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help
  - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action

In addition, use the following guidelines when working with any equipment that is disconnected from a power source but has telephone wiring or other network cabling connections:

- 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

Prevent Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It can occur if electronic printed circuit cards are improperly handled and can cause complete or intermittent failures. Always follow these ESD prevention procedures when removing and replacing modules:

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

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).

General Site Requirements

This section describes the requirements your site must meet for the safe installation and operation of your router. Ensure that the site is properly prepared before beginning installation. If you are experiencing shutdowns or unusually high errors with your existing equipment, the guidelines provided in this section can also help you isolate the cause of failures and prevent future problems.

General Precautions

Observe the following general precautions when using and working with your Cisco Catalyst 8200 Series Edge Platforms:

- Keep your system components away from radiators and heat sources, and do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment.
- Do not push any objects into the openings of your system components. Doing that can cause fire or electric shock by shorting out interior components.
- Position system cables and power supply cables carefully. 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.

- Do not modify power cables or plugs. Consult a licensed electrician or your power company for electrical modifications at your site. Always follow your local and national wiring rules.
- If you turn off your system, wait at least 30 seconds before turning it on again to avoid system component damage.

Site Selection Guidelines

Cisco Catalyst 8200 Series Edge Platforms require specific environmental operating conditions. Temperature, humidity, altitude, and vibration can affect the performance and reliability of the router. The following sections provide specific information to help you plan for the proper operating environment.

Site Environmental Requirements

Environmental monitoring in the router protects the system and components from damage caused by excessive voltage and temperature conditions. To ensure normal operation and avoid unnecessary maintenance, plan and prepare your site configuration before installation. After installation, ensure the site maintains the required environmental characteristics.

Table 1: Router Environmental Tolerances

Environmental Characteristic	Minimum	Maximum
Steady State Operating	0° C	40° C (40° C at 10,000 feet)
Storage	-20° C	+70° C
Humidity operating (noncondensing)	10%	90%
Humidity nonoperating (noncondensing)	5%	95%
Altitude operating: over allowable temperature range (0 to 40° C)	–500 feet	13,000 feet
Altitude, nonoperating: over allowable temperature range	–500 feet	15,000 feet

Physical Characteristics

Be familiar with the physical characteristics of the Cisco Catalyst 8200 Series Edge Platforms to assist you in placing the system in the proper location.

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	17.25 inches (43.815 cm)
Depth	11.8 inches (29.972cm)
Weight	10.80 lbs. (4.9 kg)

For more information on the physical characteristics of Cisco Catalyst 8200 Series Edge Platforms, refer to the datasheet for the Cisco Catalyst 8200 Series Edge Platforms.

Rack Requirements

The Cisco Catalyst 8200 Series Edge Platforms is designed for use with a 19-inch rack.

The following information can help you plan your equipment rack configuration:

- Allow clearance around the rack for maintenance.
- 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 at the bottom of the rack can be drawn upward into the intake ports of the equipment above it.

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 includes the following features:

- Autoselects either 110 V or 220 V operation.
- All units include a 6-foot (1.8-meter) electrical power cord. (A label near the power inlet indicates the correct voltage, frequency [only AC-powered systems], current draw, and power dissipation for the unit.)

For additional information on the power requirements, refer to the Cisco Catalyst 8200 Series Edge Platforms datasheet.

Network Cabling Specifications

The following sections describe the cables required to install your Cisco Catalyst 8200 Series Edge Platforms:

Console Port Considerations

This device includes an asynchronous serial console port. You access to the device locally using a console terminal connected to the console port. This section discusses important cabling information that you must consider before connecting the device to a console terminal.

Flow control paces the transmission of data between a sending and a receiving device. Flow control ensures that the receiving device can absorb the data sent to it before the sending device sends more data. When the buffers on the receiving device are full, a message is sent to the sending device to suspend transmission until the data in the buffers is processed. Console terminals send data at speeds slower than the speeds modems do; therefore, the console port is ideally suited for use with console terminals.

Note Cisco Catalyst 8200 Series Edge Platforms have both EIA/TIA-232 asynchronous (RJ-45) and USB 5-pin mini Type B, 2.0 compliant serial console ports. Shielded USB cables with properly terminated shields are recommended.

EIA/TIA-232

Depending on the cable and the adapter used, this port appears as a DTE or DCE device at the end of the cable. At a time, only one port can be used.

The default parameters for the console port are 9600 baud, 8 data bits, 1 stop bit, and no parity. The console port does not support hardware flow control.

Prepare for Network Connections

When setting up your device, consider distance limitations and potential electromagnetic interference (EMI) as defined by the applicable local and international regulations.

Ethernet Connections

The IEEE has established the Ethernet IEEE 802.3 Standards. The devices support the following Ethernet implementations:

- 1000BASE-T—1000 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).
- 100BASE-T—100 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).
- 10BASE-T—10 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).

Required Tools and Equipment for Installation and Maintenance

Warning **Statement 1089—**Instructed and Skilled Person Definitions

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Warning **Statement 1091—**Installation by an Instructed Person

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There are no serviceable parts inside. To avoid risk of electric shock, do not open.

You need the following tools and equipment to install and upgrade the router and its components:

- ESD-preventive cord and wrist strap
- Number 2 Phillips screwdriver
- Phillips screwdrivers: small, 3/16-in. (4 to 5 mm) and medium, 1/4-in. (6 to 7 mm)
  - To install or remove modules
  - To remove the cover, if you are upgrading memory or other components
- Screws that fit your rack
- Wire crimper
- Wire for connecting the chassis to an earth ground:
  - AWG 6 (13 mm²) wire for NEBS-compliant chassis grounding
  - AWG 14 (2 mm²) or larger wire for NEC-compliant chassis grounding
  - AWG 18 (1 mm²) or larger wire for EN/IEC 60950-compliant chassis grounding
- For NEC-compliant grounding, an appropriate user-supplied ring terminal, with an inner diameter of 1/4 in. (5 to 7 mm)

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 configuration)
- Ethernet hub or PC with a network interface card for connection to an Ethernet (LAN) port.
- Console terminal (an ASCII terminal or a PC running HyperTerminal or similar terminal emulation software) configured for 9600 baud, 8 data bits, 1 stop bit, no flow control, and no parity.
- Modem for connection to the auxiliary port for remote administrative access (optional).
- Data service unit (DSU) or channel service unit/data service unit (CSU/DSU) as appropriate for serial interfaces.

- External CSU for any CT1/PRI modules without a built-in CSU.