Prepare for Router installation

Before you install the Cisco 8100 Series Secure Routers, you must prepare your site for the installation. This chapter provides the preinstallation steps, such as recommendations and requirements that should be considered before installing your router.

- Ensure that the power and cabling requirements are in place at your installation site.
- Ensure that the equipment required to install the router is available.
- Ensure that your installation site meets the environmental conditions to maintain normal operation.

Before installing the router, you must consider power and cabling requirements that must be in place at your installation site, special equipment for installing the router, and the environmental conditions your installation site must meet to maintain normal operation.

The shipping package for the router is engineered to reduce the chances of product damage associated with routine material handling experienced during shipment:

- Router should always be transported or stored in its shipping package in the upright position.
- Keep the router in the shipping container until you have determined the installation site.

Note Inspect all items for shipping damage. If an item appears damaged, contact a Cisco customer service representative immediately.

Safety recommendations

Before you install, configure, or perform maintenance on the router, review the documentation for the procedure you are about to perform, paying special attention to the safety warnings. The following guidelines will help to ensure your own safety and protect your Cisco equipment.

- Cisco safety policy mandates that all its routers must conform to the requirements of IEC 62368-1 with appropriate national deviations, as a minimum. In addition, Cisco routers must also meet the requirements of any other normative documents, for example, standards, technical specifications, laws or regulations.
- Never attempt to lift an object that might be too heavy for you to lift by yourself.
- Always unplug the power cable before installing or removing a chassis.
- Keep the chassis area clear and dust free during and after installation.
- Keep tools and chassis components away from walk areas.
- Do not wear loose clothing, jewelry (including rings and chains), or other items that could get caught in the chassis. Fasten your tie or scarf and sleeves.
- The router operates safely when it is used in accordance with its marked electrical ratings and product-usage instructions.

Note Do not unpack the system until you are ready to install it. Keep the chassis in the shipping container to prevent accidental damage until you determine an installation site. Use the appropriate unpacking documentation included with the system.

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

Read the installation instructions in this document before you connect the system to its power source. Failure to read and follow these guidelines could lead to an unsuccessful installation and possibly damage the system and components.

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 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

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. Take note of the following general safety warnings:

Note **Statement 407**—Japanese Safety Instruction

You are strongly advised to read the safety instruction before using the product.

https://www.cisco.com/web/JP/techdoc/pldoc/pldoc.html

When installing the product, use the provided or designated connection cables/power cables/AC adapters.

〈製品使用における安全上の注意〉

www.cisco.com/web/JP/techdoc/index.html

接続ケーブル、電源コードセット、**AC**アダプタ、バッテリなどの部品は、必ず添付品または指定品をご使用ください。添付品・指定品以外をご使用になると故障や動作不良、火災の原因となります。また、電源コードセットは弊社が指定する製品以外の電気機器には使用できないためご注意ください。

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:

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 a sharp tool to remove, short the external contacts, or dispose of the battery in fire.
- Do not use if battery is warped or swollen.
- Do not store or use battery in a temperature > .
- Do not store or use battery in low air pressure environment < .

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.

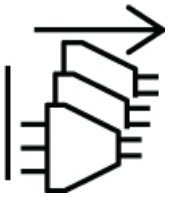
Warning **Statement 1024—**Ground Conductor

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 1046—Installing or Replacing the Unit

To reduce risk of electric shock, when installing or replacing the unit, the ground connection must always be made first and disconnected last.

If your unit has modules, secure them with the provided screws.

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 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

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 1098—**Lifting Requirement

people are required to lift the heavy parts of the product. To prevent injury, keep your back straight and lift with your legs, not your back.

Warning **Statement 9001—**Product Disposal

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

Site selection guidelines

The Cisco 8100 Series Secure Routers 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.

The Cisco 8100 Series Secure Routers are designed to meet the industry EMC, safety, and environmental standards described in the Regulatory Compliance and Safety Information for the Cisco 8100 Series Secure Routers document.

Rack requirements

For the Cisco 8100 Series Secure Routers, use brackets with a 19-inch rack.

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

- Allow clearance around the rack for maintenance.
- Allow at least one rack unit of vertical space between routers; more clearance is required when stacking multiple Cisco 8100 Series Secure Routers. Provide adequate heat removal mechanism to keep the surrounding air temperature well within the specified operating temperature condition.
- Ensure that the rack is level and stable before extending a component from the rack.
- Ensure that proper airflow is provided to the components in the rack.

Note More spacing may be required depending on the installation environment.

- Enclosed racks must have adequate ventilation. Ensure that the rack is not congested because each router generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air. The heat generated by the 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.

Safety with electricity

Follow these basic guidelines when you are working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before installing or removing a chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe. Never install equipment that appears damaged.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Power guidelines and requirements

Check the power at your site to ensure that you are receiving power that is free of spikes and noise. Install a power conditioner, if necessary.

Refer to the Power supply section that lists the power requirements for the Cisco 8100 Series Secure Routers.

Network cabling specifications

The following sections describe the cables, and the specifications required to install Cisco 8100 Series Secure Routers:

Console port considerations

The router includes a RJ45 console port.. The console ports provide access to the router using a console terminal connected to the console port. This section discusses important cabling information to consider before connecting the router to a console terminal or modem.

Console terminals send data at speeds slower than modems do; therefore, the console port is ideally suited for use with console terminals.

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. Only one port can be used at the same time. 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. For detailed information about installing a console terminal, see the Connecting to a Console Terminal or Modem section.

For cable and port pinouts, see the Cisco Modular Access Router Cable Specifications document located on Cisco.com.

Ethernet connections

The IEEE has established Ethernet as standard IEEE 802.3. The routers 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).

See the Cisco Modular Access Router Cable Specifications document at Cisco.com for information about Ethernet cables, connectors, and pinouts.

Required tools and equipment for installation and maintenance

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

- An ESD-preventive cord and a wrist strap.
- A number 2 Phillips screwdriver.
- Phillips screwdrivers: small, 3/16-in. (4 to 5 mm) and medium 1/4-in. (6 to 7 mm). You might need these when you install or remove modules.
- Screws that fit the rack.
- A wire crimper.
- A wire for connecting the chassis to an earth ground: AWG 14 (2 mm^2) or larger wire.
- An appropriate user-supplied UL or a CSA-certified ring terminal with an inner diameter of 1/4 in. (5 to 7 mm).