



# Preparing to Install the Cisco AS5350XM Universal Gateway

This chapter describes the tasks you must perform before you begin to install the Cisco AS5350XM universal gateway and includes the following sections:

- [Safety Recommendations, page 2-1](#)
- [Required Tools and Equipment, page 2-3](#)
- [Preparing to Connect to a Network, page 2-3](#)

## Safety Recommendations

Any device that uses electricity must be handled carefully; follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Put the removed chassis cover in a safe place.
- Keep tools away from walk areas where you and others could fall over them.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- 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.



**Warning**

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

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## Maintaining Safety with Electricity



**Warning**

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**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.** Statement 43

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Follow these guidelines when you work on equipment powered by electricity.

- 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.
- Before working on the system, unplug the power cord.
- Disconnect all power before doing the following:
  - Installing or removing a chassis
  - Working near power supplies



Warning

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**When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

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



Warning

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**Read the installation instructions before connecting the system to the power source.** Statement 1004

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- 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, proceed as follows:
  - Use caution; do not become a victim yourself.
  - Turn OFF power to the system.
  - 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.



Warning

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**This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).** Statement 13

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## Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Always follow ESD-prevention procedures when you remove and replace components. Ensure that the chassis is electrically connected to 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 unwanted ESD voltages. To guard against ESD damage and shocks, the wrist strap and cord must operate properly. If no wrist strap is available, ground yourself by touching the metal part of the chassis.



Caution

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For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohm (Mohm).

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## Required Tools and Equipment

The following items are included with the universal gateway:

- 19- (48.26-) and 24-inch (60.96-cm) rack-mount kits
- Rubber feet for desktop installation
- RJ-45-to-DB-9 female DTE adapter (labeled TERMINAL)
- RJ-45-to-DB-25 female DTE adapter (labeled TERMINAL)
- RJ-45-to-DB-25 male DCE adapter (labeled MODEM)
- RJ-45-to-RJ-45 rollover console cable
- ESD-preventive wrist strap
- Nylon cable tie
- Cable tie holder
- Grounding lug

You might need the following equipment, which is not included:

- Straight-through RJ-45-to-RJ-45 cable for an Ethernet connection



### Caution

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To comply with the intra-building lightning surge requirements of GR-1089-CORE, Issue III, October 2002, you must use a shielded cable when connecting to either of the Cisco AS5350XM universal gateway Ethernet ports. The cable must consist of shielded cable terminated by shielded connectors on both ends, with the cable shield material tied to both connectors.

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- Straight-through RJ-45-to-RJ-45 cables for T1 connections (one for each connection)
- E1 cables for E1 connections (one for each connection)
- Ethernet hub or PC with a network interface card for Ethernet LAN connections
- PC running terminal emulation software for local administrative access
- Modem for remote administrative access

## Preparing to Connect to a Network

When you set up your universal gateway, consider distance limitations and potential electromagnetic interference (EMI) as defined by the Electronic Industries Association (EIA).



### Warning

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**Hazardous network voltages are present in WAN ports regardless of whether power to the router is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the router first.** Statement 77

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**Warning**

**The ISDN connection is regarded as a source of voltage that should be inaccessible to user contact. Do not attempt to tamper with or open any public telephone operator (PTO)-provided equipment or connection hardware. Any hardwired connection (other than by a nonremovable, connect-one-time-only plug) must be made only by PTO staff or suitably trained engineers.**

Statement 23

## Ethernet Connections

Two Gigabit Ethernet (GE) RJ-45 ports are located on the rear panel of the universal gateway: GE0 and GE1 (selectable). To configure the Ethernet ports, see the *Cisco AS5350XM and Cisco AS5400XM Universal Gateways Software Configuration Guide*. Both ports use unshielded twisted-pair (UTP) cable and require Category 5 cable. The maximum segment distance is 328 feet (100 meters).

**Note**

UTP cables look like the cables used for ordinary telephones; however, UTP cables meet certain electrical standards that telephone cables do not. Cables are not included.

## Console and Auxiliary Ports

The Cisco AS5350XM universal gateway includes an asynchronous serial console port and an auxiliary port. The console and auxiliary ports provide access to the universal gateway either locally (with a console terminal) or remotely (with a modem). This section discusses important cabling information to consider before connecting a console terminal (an ASCII terminal or PC running terminal emulation software) to the console port, or a modem to the auxiliary port.

### Console Port

The Cisco AS5350XM universal gateway includes an EIA/TIA-232 asynchronous serial console port (RJ-45). Depending on the cable and the adapter used, this port will appear as a data terminal equipment (DTE) or data communications equipment (DCE) device at the end of the cable. Your universal gateway arrives with cables and adapters to connect a console terminal (an ASCII terminal or PC running terminal emulation software) to the console port. To connect an ASCII terminal to the console port, use the RJ-45 rollover cable with the female RJ-45-to-DB-25 adapter (labeled TERMINAL).

To connect a PC running terminal emulation software to the console port, use the RJ-45 rollover cable with the female RJ-45-to-DB-9 adapter (labeled TERMINAL). The default parameters for the console port are 9600 baud, 8 data bits, no parity, and 2 stop bits. The console port does not support hardware flow control.

For detailed information about installing a console terminal, see [Chapter 3, “Installing the Cisco AS5350XM Universal Gateway.”](#) See [Appendix C, “Cabling Specifications,”](#) for cable and port pinouts.

## Auxiliary Port

The Cisco AS5350XM universal gateway includes an EIA/TIA-232 asynchronous serial auxiliary port (RJ-45) that supports flow control. Depending on the cable and the adapter used, this port will appear as a DTE or DCE device at the end of the cable. Your universal gateway arrives with a cable and an adapter to connect a modem to the auxiliary port. To connect a modem to the auxiliary port, use the RJ-45 rollover cable with the male RJ-45-to-DB-25 adapter (labeled MODEM).

For detailed information about connecting devices to the auxiliary port, see [Chapter 3, “Installing the Cisco AS5350XM Universal Gateway.”](#) See [Appendix C, “Cabling Specifications,”](#) for cable and port pinouts.

## 2T Serial Ports

Two high-speed 12-in-1 serial ports on the rear panel of the Cisco AS5350XM universal gateway provide backhaul WAN and IP support.

The following types of serial interface standards (in DTE or DCE devices) are supported:

- EIA/TIA-232
- EIA/TIA-449
- EIA/TIA-530
- EIA/TIA-530A
- EIA/TIA-X.21
- ITU-T V.35

Each interface supports up to 8 Mbps.

## Alarm Port

The three pins on the alarm port are connected to the output of a relay. This relay is controlled by system software. To configure the alarm port, see the *Cisco AS5350XM and Cisco AS5400XM Universal Gateways Software Configuration Guide*. This document is available on Cisco.com. (See the [“Obtaining Documentation” section on page xiv.](#))

With the alarm port connected and configured, Cisco IOS software polls the universal gateway every one second to detect the failure events that occur and turns on the alarm when it detects any failure event. See [Appendix C, “Cabling Specifications,”](#) for pinouts and cable specifications.

## BITS Port

The BITS port is a coaxial interface that provides external synchronized clocking through a timing signal generator (TSG). To configure the BITS port, see the *Cisco AS5350XM and Cisco AS5400XM Universal Gateways Software Configuration Guide*. This document is available on Cisco.com. (See the [“Obtaining Documentation” section on page xiv.](#)) See [Appendix C, “Cabling Specifications,”](#) for pinouts and cable specifications.

## Power Supply Considerations

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.



**Warning**

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**The device is designed to work with TN power systems.** Statement 19

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**Warning**

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**This product relies on the building’s installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).** Statement 13

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The universal gateway AC power supply includes the following features:

- The full range of operation is—100 to 240 VAC.
- All units include a 6-foot (1.8-m) electrical power cord. (A label near the power inlet indicates the correct voltage, frequency, and current draw for the unit.)



**Note**

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The redundant AC power supply has a non-standard connector. Use the electrical power cord that came with your universal gateway.

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The universal gateway DC power supply includes the following features:

- 150-W output.
- Dual input connections for power source redundancy.
- Removable DC connector. (A label near the power inlets indicates the correct voltage, current draw, and power dissipation for the unit.)
- Double-hole grounding lug for reliable grounding to the chassis.