



Preparing Your Site for Installation

This chapter contains important safety information you should know before working with the controller, and guides you through the process of preparing your site for wireless controller installation.

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Prerequisites and Preparation

Before you perform the procedures in this guide, we recommend that you:

- Read the safety guidelines in the next section and review the electrical safety and ESD-prevention guidelines in this guide.
- Ensure that you have all of the necessary tools and equipment (see the **Tools and Equipment** section).
- Ensure that you have access to the *Cisco Catalyst 9800 Wireless Controller Software Configuration Guide* (an online document that is available for viewing or download at [Cisco.com](https://www.cisco.com)) during the installation.
- Ensure that the power and cabling requirements are in place at your installation site.
- Ensure that the equipment required to install the controller is available.
- Ensure that your installation site meets the environmental conditions to maintain normal operation.

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

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

- Controller should always be transported or stored in its shipping package in the upright position.
- Keep the controller 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.

Site Planning Checklist

Use the following checklist to perform and account for all the site-planning tasks described in this chapter:

- The site air conditioning system can compensate for the heat dissipation of the controller.
- Electrical service to the site complies with the requirements.
- The electrical circuit servicing the controller complies with the requirements.
- Consideration has been given to console port wiring and limitations of the cabling involved, according to TIA/EIA-232F.
- The Ethernet cabling distances are within limitations.
- The equipment rack in which you plan to install the controller chassis complies with requirements. Careful consideration has been given for safety, ease of maintenance, and proper airflow in selecting the location of the rack.

Safety Guidelines

Before you begin the installation or replacement procedure, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment.



Note This section contains guidelines, and do not include every potentially hazardous situation. When you install a controller, always use common sense and caution.

Safety Warnings

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, might harm you. A warning symbol precedes each warning statement.

Before you install, configure, or perform maintenance on the controller, review the documentation for the procedure you are about to perform, paying special attention to the safety warnings.



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.

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.

Safety Recommendations

The following guidelines will help to ensure your own safety and protect your Cisco equipment. This list does not cover all potentially hazardous situations, so be alert.

- 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.
- Keep tools and chassis components away from walk areas.
- Review the safety warnings listed in Regulatory Compliance and Safety Information - *Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers* (available online at cisco.com) before installing, configuring, or maintaining the controller.
- Always turn all power supplies off and unplug all power cables before opening the chassis.
- Always unplug the power cable before installing or removing a chassis.
- 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 controller operates safely when it is used in accordance with its marked electrical ratings and product-usage instructions.

Standard Warning Statements



Note The English warnings in this document are preceded by a statement number. To see the translations of a warning in other languages, look up its statement number in the *Regulatory Compliance and Safety Information - Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers*.

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

**Warning** **IMPORTANT SAFETY INSTRUCTIONS**

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.

SAVE THESE INSTRUCTIONS. Statement 1071

General Safety Warnings



Warning 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.



Statement 1071



Note 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

《製品仕様における安全上の注意》
www.cisco.com/web/JP/techdoc/index.html

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Statement 407



Warning To reduce risk of electric shock or personal injury, disconnect DC power before removing or replacing components or performing upgrades.

Statement 1003



Warning Class 1 Laser.

Statement 1008



Warning Pluggable optical modules comply with IEC 60825-1 Ed. 3 and 21 CFR 1040.10 and 1040.11 with or without exception for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated May 8, 2019.

Statement 1255



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

Statement 1040



Warning Warning – Invisible Laser Radiation. Do not expose users of telescopic optics. Class 1/1M Laser Products.

Statement 1055



Warning No user-serviceable parts inside. Do not open.

Statement 1073



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

Statement 1074



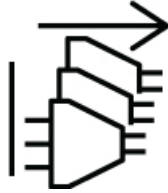
Warning Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Statement 1030



Warning This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

Statement 1028



Warning This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

Statement 1017



Warning Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

Statement 1034



Warning 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.

Statement 1056

Fiber type and Core diameter (µm)	Wavelength (nm)	Max. Power (mW)	Beam Divergence (rad)
SM 11	1200-1400	39-50	0.1-0.11
MM 62.5	1200-1400	150	0.18 NA
MM 50	1200-1400	135	0.17 NA
SM 11	1200-1600	112-145	0.11-0.13

**Warning**

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; 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

Statement 1029

**Warning**

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.

Statement 1089

**Warning**

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.

Statement 1091

Site Planning

This section contains site-planning information, and will help you plan for the installation of the controller.

General Precautions

Observe the following general precautions when using and working with the controller:

- 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 so can cause fire or electric shock by shorting out interior components.
- Position system cables and power supply cable carefully. Route system cables and power supply cable and plug such 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 site modifications. 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

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers requires specific environmental operating conditions. Temperature, humidity, altitude, and vibration can affect the performance and reliability of the controller. The following sections provide specific information to help you plan for a proper operating environment.

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers are designed to meet the industry EMC, safety, and environmental standards described in the *Regulatory Compliance and Safety Information - Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers* document.

Site Environmental Requirements

Environmental monitoring 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, make sure the site maintains the environmental characteristics, as shown in the following table.

The following table lists the environmental tolerance for the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers.

Table 1: Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers Environmental Tolerance

Environmental Characteristic	Minimum	Maximum
Operating temperature (nominal)	41° F (5° C)	104° F (40° C) (40° C up to 10,000 feet)
Operating temperature (short term)	41° F (5° C)	122° F (50° C)
Storage temperature	-4° F (-20° C)	158° F (70° C)
Operative humidity (nominal) (relative humidity)	5%	85%
Operative humidity (short term)	5%	90%
Storage humidity (relative humidity)	5%	95%
Altitude, operating: 0 feet (0 meters) to 10,000 feet (3000 meters)	0 feet (0 meters)	10,000 feet (3000 meters)
Altitude, nonoperating: over allowable temperature range	-1000 feet (-304.8 meters)	50,000 feet (15240 meters)
Thermal shock nonoperating with change over time of 3 minutes	-13° F (-25° C)	158° F (70° C)

Environmental Characteristic	Minimum	Maximum
Thermal Shock - Operating at 2.5° C per minute	32° F (0° C)	122° F (50° C)

Physical Characteristics

Be familiar with the physical characteristics of the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers to assist you in placing the system at a proper location.



Note For information regarding rack widths supported for the controller, see the following sections:

- **General Rack-Selection Guidelines**
- **Guidelines for 23-in. (Telco) Racks**

The following table shows the weight and dimensions of both the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers:

Table 2: Physical Characteristics of the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers

Characteristic	Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers
Height	Height—1.73 in. (43.94 mm)—1RU; rack-mount per EIA RS-310
Width	Width—17.5 in. (444.5 mm)
Depth	Depth—24.02 in. (610.11 mm) including card handles, cable-management brackets, and power supply handles.
Weight	23 lb (10.45 kg) fully loaded

The following list describes additional characteristics:

- Chassis height meets EIA-310 rack spacing, universal rack mount
 - Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers—1RU (1.73 in or 43.94 mm)
- Chassis width meets EIA-310 19 in. (17.5 in. or 444.5 mm) wide with rack brackets
- Cable-management brackets allow a bend radius of 1.5 in. (38.1 mm) for cables
- Ships with forward rack-mount brackets installed and an extra set included in the accessory kit

Site Power Guidelines

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers have specific power and electrical wiring requirements. Adhering to these requirements ensures reliable operation of the system. Follow these precautions and recommendations when planning your site for the controller:

- The redundant power option provides a second, identical power supply to ensure that power to the chassis continues uninterrupted if one power supply fails or input power on one line fails.
- In systems configured with the redundant power option, connect each of the two power supplies to a separate input power source. If you fail to do this, your system might be susceptible to total power failure due to a fault in the external wiring or a tripped circuit breaker.
- To prevent a loss of input power, be sure the total maximum load on each circuit supplying the power supplies is within the current ratings of the wiring and breakers.
- Check the power at your site before installation, and periodically after installation, to ensure that you are receiving clean power. Install a power conditioner if necessary.
- Provide proper grounding to avoid personal injury and damage to the equipment due to lightning striking power lines or due to power surges. The chassis ground must be attached to a central office or other interior ground system.

Electrical Circuit Requirements

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers require a dedicated electrical circuit. If you equip it with dual-power feeds, you must provide a separate circuit for each power supply to avoid compromising the power redundancy feature.

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers can be powered by an AC or DC source. Ensure that equipment grounding is present and observe power-strip ratings. Make sure that the total ampere rating of all the products plugged into the power strip does not exceed 80 percent of the rating.

AC Power Supplies



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

AC: 20A U.S. maximum

Statement 1005

DC Power Supplies



Warning A readily accessible two-poled disconnect device must be incorporated in the fixed wiring

Statement 1022



Warning This product requires short-circuit (overcurrent) protection to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

Statement 1045

The following table lists the power supply system rating requirements for both the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers:

Table 3: AC and DC Power Supply System Rating Specifications

Description	Specification
Power supply declared ratings	<ul style="list-style-type: none"> • AC = +100 to +240 VAC • DC = - 40.5 to -72 VDC
Line frequency rating	50/60 Hz for AC power supplies

Site Cabling Guidelines

This section contains guidelines for wiring and cabling at your site. When preparing your site for network connections to the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers, consider the type of cable required for each component, and the cable limitations. Consider the distance limitations for signaling, EMI, and connector compatibility. Possible cable types are fiber, thick or thin coaxial, foil twisted-pair cabling, or unshielded twisted-pair cabling.

Also consider any additional interface equipment you need, such as transceivers, hubs, switches, modems, channel service units (CSUs), or data service units (DSUs).

Before you install the controller, have all the additional external equipment and cables at hand. For ordering information, contact a Cisco customer service representative.

The extent of your network and the distances between network interface connections depend in part on the following factors:

- Signal type
- Signal speed
- Transmission medium

The distance and rate limits referenced in the following sections are the IEEE-recommended maximum speeds and distances for signaling purposes. Use this information as guidelines when planning your network connections prior to installing the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers.

If wires exceed recommended distances, or if wires pass between buildings, give special consideration to the effect of a lightning strike in your vicinity. The electromagnetic pulse caused by lightning or other high-energy phenomena can easily couple enough energy into unshielded conductors to destroy electronic devices. If you have had problems of this sort in the past, you may want to consult experts in electrical surge suppression and shielding.



Note If you are using a copper cable to connect the Redundancy Ports (RPs) back-to-back, the maximum length of the cable can be 30 meters. If you want to use a longer cable, you will need to switchover to fiber optic cables.

Console Port Connections

The Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers provides console ports to connect a terminal or computer for local console access.

The RJ-45 connector support RS-232 asynchronous data, and have distance recommendations specified in the IEEE RS-232 standard.

USB Serial Console

The USB serial console port connects directly to the USB connector of a PC using any USB form type to 5-pin USB Type-B cable. The USB Console supports full speed (12Mbps) operation. The console port does not support hardware flow control.



-
- Note**
- Always use shielded USB cables with a properly terminated shield. The USB serial console interface cable must not exceed 3 meters in length.
 - Only one console port can be active at a time. When a cable is plugged into the USB console port, the RJ-45 port becomes inactive. Conversely, when the USB cable is removed from the USB port, the RJ-45 port becomes active.
 - 4-pin USB Type-B connectors are easily confused with 5-pin USB Type-B connectors. Only 5-pin USB Type-B is supported.
-

Interference Considerations

When wires are run for a significant distance, there is a risk that stray signals will be induced on the wires as interference. If interference signals are strong, they can cause data errors or damage to the equipment.

The following sections describe sources of interference and how to minimize its effects on the controller.

Electromagnetic Interference

All the equipment powered by AC current can propagate electrical energy that can cause electromagnetic interference (EMI) and possibly affect the operation of other equipment. The typical sources of EMI are equipment power cords and power service cables from electric utility companies.

Strong EMI can destroy the signal drivers and receivers in the controller and even create an electrical hazard by causing power surges through power lines into installed equipment. These problems are rare, but could be catastrophic.

To resolve these problems, you need specialized knowledge and equipment, which could consume substantial time and money. However, you should ensure that you have a properly grounded and shielded electrical environment, paying special attention to the need for electrical surge suppression.

The following table lists electrode magnetic compliance standards for the controller.

Table 4: EMC and Safety Standards

<p>EMC Standards</p>	<ul style="list-style-type: none"> • FCC 47 CFR • Part 15 Class A • VCCI Class A • AS/NSZ Class A • ICES-003 Class A • EN55022/CISPR 22 Information Technology Equipment (Emissions) • EN55024/CISPR 24 Information Technology Equipment (Immunity) • EN300 386 Telecommunications Network Equipment (EMC) • EN50082-1/EN61000-6-1 Generic Immunity Standard
<p>Safety Standards</p>	<ul style="list-style-type: none"> • UL60950-1 • CSA C22.2 No. 60950-1 • EN 60825-1:2014 • EN 60950-1 • IEC 60825-1:2014 • IEC 60950-1 • AS/NZS 60950.1 • UL 62368-1 • CSA C22.2 No 62368-1 • IEC 62368-1 • EN 62368-1

Radio Frequency Interference

When electromagnetic fields act over a long distance, radio frequency interference (RFI) can be propagated. Building wiring can often act as an antenna, receiving the RFI signals and creating more EMI on the wiring.

If you use twisted-pair cable in your plant wiring with a good distribution of grounding conductors, the plant wiring is unlikely to emit radio interference. If you exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal.

Lightning and AC Power Fault Interference

As this product is safety certified for indoor connection only, if signal wires exceed recommended cabling distances, you should consider the effect that a lightning strike in your vicinity might have on the controller.

The electromagnetic pulse (EMP) generated by lightning or other high-energy phenomena can couple enough energy into unshielded conductors to damage or destroy electronic equipment. If you have previously experienced such problems, you should consult with RFI/EMI experts to ensure that you have adequate electrical surge suppression and shielding of signal cables in your controller operating environment.

Rack-Mounting Guidelines

This section describes guidelines on rack-mounting.

Precautions for Rack-Mounting

The following rack-mounting guidelines are provided to ensure your safety:



Warning To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Statement 1006

- Do not move large racks by yourself. Due to the height and weight of a rack, a minimum of two people are required to accomplish this task.
- 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.
- Do not step or stand on any component or system when servicing other systems or components in a rack.

General Rack-Selection Guidelines

The Cisco Catalyst CW9800H1 Wireless Controller and Cisco Catalyst CW9800H2 Wireless Controller can be mounted in most two-post or four-post, 19-in. equipment racks that comply with the Electronics Industries Association (EIA) standard for equipment racks (EIA-310-D 19-in.). The rack must have at least two posts with mounting flanges to mount the chassis.



Warning To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104°F (40°C).

Statement 1047

The distance between the center lines of the mounting holes on the two mounting posts must be 18.31 in. ± 0.06 in. (46.50 cm ± 0.15 cm). The rack-mounting hardware included with the chassis is suitable for most 19-in. (48.3-cm) equipment racks.

Consider installing the controller in a rack with the following features:

- EIA or ETSI hole patterns in the mounting rails. Required mounting hardware is shipped with the controller. If the rack that you plan to install the system in has metric-threaded rails, you must provide your own metric-mounting hardware.
- Perforated top and open bottom for ventilation to prevent overheating.
- Leveling feet for stability.



Note The controller must not be installed in an enclosed rack because the chassis requires an unobstructed flow of cooling air to maintain acceptable operating temperatures for its internal components. Installing the controller in any type of enclosed rack—even with the front and back doors removed—could disrupt the air flow, trap heat next to the chassis, and cause an over temperature condition inside the controller. If you use an enclosed rack, make certain that there are air vents on all sides of the rack and there is proper ventilation.

Guidelines for 23-in. (Telco) Racks

If needed, you can also install the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers in 23-in. (Telco) racks. For information on the adapters needed for 23 in. racks, contact the Newton Instrument Company:

<http://www.eneutron.com>
111 East A Street, Butner NC, USA, 27509
919 575-6426

Equipment Rack Guidelines

The placement of racks can affect personnel safety, system maintenance, and the system's ability to operate within the environmental characteristics described in **Table: Cisco Catalyst CW9800H1 Wireless Controller and Cisco Catalyst CW9800H2 Wireless Controller Environmental Tolerance**. Choose a proper location for the controller by following the guidelines below.

Locating for Safety

If the Cisco Catalyst CW9800H1 Wireless Controller or the Cisco Catalyst CW9800H2 Wireless Controller is the heaviest or the only piece of equipment in the rack, consider installing it at or near the bottom to ensure that the rack's center of gravity is as low as possible.

Locating for Easy Maintenance

Keep at least 3 feet of clear space in front of and behind the rack. This space ensures that you can remove the controller components and perform routine maintenance and upgrades easily.

Avoid installing the controller in a congested rack and consider how the routing of cables from other pieces of equipment in the same rack might affect access to the controller's cards.

The front and top of the chassis must remain unobstructed to ensure adequate airflow and prevent overheating inside the chassis.

Allow the following clearances for normal system maintenance:

- At the top of the chassis—At least 3 in. (7.6 cm)
- In front of the chassis—3 to 4 ft (91.44 cm to 121.92 cm)

To avoid problems during installation and ongoing operation, follow these general precautions when you plan the equipment locations and connections:

- Use the **show environment all** and the **show facility-alarm status** commands regularly to check the internal system status. The environmental monitor continually checks the interior chassis environment; it provides warnings for high temperature and creates reports on any occurrences. If warning messages are displayed, take immediate action to identify the cause and correct the problem. For more information on these commands, see the **Environmental Monitoring and Reporting Functions** section.
- Keep the controller off the floor and out of the areas that collect dust.
- Follow ESD-prevention procedures to avoid damage to equipment. Damage from static discharge can cause immediate or intermittent equipment failure.

Locating for Proper Airflow

Ensure that the location of the controller has enough airflow to keep the system operating within the environmental characteristics, and the air temperature is sufficient to compensate for the heat dissipated by the system.

Avoid locating the controller in a location in which the chassis air intake vents could draw in the exhaust air from adjacent equipment. Consider how the air flows through the controller. The airflow direction is front to back with ambient air drawn in from the venting located on the chassis' front sides.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage occurs when electronic cards or components are improperly handled resulting in complete or intermittent failures. Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of your system components, such as a microprocessor. As you continue to work on your system, periodically touch an unpainted metal surface on the computer chassis.

The following are guidelines for preventing ESD damage:

- Always use an ESD-preventive wrist or ankle strap and ensure that it makes good skin contact. Before removing a card from the chassis, connect the equipment end of the strap to the ESD plug at the bottom of the chassis below the power entry modules.

- Handle line cards by faceplates and carrier edges only; avoid touching the card components or connector pins.
- When removing a module, place the removed module component-side-up on an antistatic surface or in a static-shielding bag. If the module is to be returned to the factory, immediately place it in a static-shielding bag.
- Avoid contact between the modules and clothing. The wrist strap protects the card from ESD voltages only on the body; ESD voltages on clothing can still cause damage.
- When transporting a sensitive component, place it in an antistatic container or packaging.
- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.

**Caution**

For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 ohms.

**Caution**

Always tighten the captive installation screws on all the system components when you are installing them. These screws prevent accidental removal of the module, provide proper grounding for the system, and help ensure that the bus connectors are properly seated in the backplane.

Electrical Safety

All the system components are hot-swappable. They are designed to be removed and replaced while the system is operating, without presenting an electrical hazard or damage to the system.

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.
- 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.

Chassis-Lifting Guidelines

The chassis is not intended to be moved frequently. Before you install the system, ensure that your site is properly prepared so that you can avoid having to move the chassis later to accommodate power sources and network connections.



Warning 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.

Statement 1032

Each time you lift the chassis or any heavy object, follow these guidelines:

- Ensure that your footing is solid, and balance the weight of the chassis between your feet.
- Lift the chassis slowly; never move suddenly or twist your body as you lift.
- Keep your back straight and lift with your legs, not your back. If you must bend down to lift the chassis, bend at the knees, not at the waist, to reduce the strain on your back muscles.
- Do not remove installed components from the chassis.
- Always disconnect all external cables before lifting or moving the chassis.

Tools and Equipment

The following tools and equipment are recommended as the minimum necessary equipment to install the Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers. You may need additional tools and equipment to install associated equipment and cables. You may also require test equipment to check electronic and optical signal levels, power levels, and communications links.

- Philips hand screwdriver
- 3.5-mm flat-blade screwdriver
- Tape measure (optional)
- Level (optional)
- 8-gauge wire
- Rack-mount brackets
- Cable-management brackets

Unpacking and Verifying Shipping Contents

When you receive your chassis, perform the following steps and use the shipping contents checklist in the following section.

-
- Step 1** Inspect the box for any shipping damage. (If there is damage, contact your Cisco service representative).
- Step 2** Unpack the controller.
- Step 3** Perform a visual inspection of the chassis.

Step 4 After you have unpacked the system, verify that you have received all of the required components, including all the accessory items. Using the packing list as a guide, verify that you have received all the equipment listed in your order, and ensure that the configuration matches the packing list.

Checking the Shipping Container Contents

Use the components list shown in the following table to check the contents of the Cisco Catalyst CW9800H1 Wireless Controller or the Cisco Catalyst CW9800H2 Wireless Controller shipping container. Do not discard the shipping container. You need the container, if you move or have to ship the controller in the future.

Table 5: Cisco Catalyst CW9800H1 and CW9800H2 Wireless Controllers Shipping Container Contents

Component	Description
Chassis	Cisco Catalyst CW9800H1 Wireless Controller or the Cisco Catalyst CW9800H2 Wireless Controllers are configured with dual AC or DC power supplies and an EPA.
Accessories Kit	Front 19-inch rack-mount brackets. Note Rear rack-mount brackets are not included. Rear spare PID (C8500-4PT-KIT=) contains the rear rack-mount bracket to secure the rear side of the chassis. Note You can order the PID as a spare only.
	Three sets of screws, one each for: <ul style="list-style-type: none"> • Front rack-mount brackets (use the black screws) • Cable-management brackets (use the package with the 4 screws)
	One cable-management bracket with U-feature design devices attached.
Documentation	Pointer Doc
Optional Equipment	Powercord if an AC power supply was shipped. There are none for the DC power supply units.



Note You must order the Accessories Kit separately if you order the Cisco Catalyst CW9800H1 Wireless Controller or the Cisco Catalyst CW9800H2 Wireless Controller chassis as a spare.

Installation Checklist

To assist you with your installation and to provide a historical record of what was done by whom, print or photocopy the installation checklist below. Use this to record when each procedure or verification is completed. When the checklist is completed, place it in your site log along with the other records for your new controller.

Table 6: Installation Checklist

Task	Verified By	Date
Date chassis received		
Chassis and all accessories unpacked		
Types and numbers of interfaces verified		
Safety recommendations and guidelines reviewed		
Installation Checklist copied		
Site log established and background information entered		
Site power voltages verified		
Site environmental specifications verified		
Required passwords, IP addresses, device names, and so on, available		
Required tools available		
Network connection equipment available		
Cable-management brackets installed (optional, but recommended)		
AC power cable(s) connected to AC source(s) and controller		
DC power cable(s) connected to DC source(s) and controller		
Network interface cables and devices connected		
System power turned on		
System boot complete (STATUS LED is on)		

Task	Verified By	Date
Ethernet port adapters and NIMs (where applicable) are operational		
Correct hardware configuration displayed after system banner appears		
Correct licenses installed on the controller		

