Install Cisco x90 Series Content Security Appliances

This chapter describes how to install Content Security Appliances, and includes the following sections:

- Unpack and Inspect Cisco x90 Series Content Security Appliances, page 1-2
- Prepare for Cisco x90 Series Content Security Appliances Installation, page 1-3
- Install Cisco x90 Series Content Security Appliances In a Rack, page 1-7

Caution Before you install, operate, or service an appliance, review the *Regulatory Compliance and Safety Information for 90-Series Cisco Content Security Appliances* for important safety information.

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. Statement 1071

Unpack and Inspect Cisco x90 Series Content Security Appliances

Caution When handling internal appliance components, wear an ESD strap and handle modules by the carrier edges only.

Tip Keep the shipping container in case the appliance requires shipping in the future.

Note The chassis is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

Step 1 Remove the appliance from its cardboard container and save all packaging material.

Step 2 Compare the shipment to the equipment list provided by your customer service representative. Verify that you have all items.

Step 3 Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see the packing slip)
- Model and serial number of the damaged unit
- Description of damage
- Effect of damage on the installation

Prepare for Cisco x90 Series Content Security Appliances Installation

This section provides information about preparing for installation, and includes the following topics:

- Installation Guidelines, page 1-3
- Safety Recommendations, page 1-4
- Maintain Safety with Electricity, page 1-5
- Prevent ESD Damage, page 1-5
- Site Environment, page 1-6
- Power Supply Considerations, page 1-6
- Rack Requirements, page 1-6
- Equipment Requirements, page 1-7
- Slide Rail Adjustment Range, page 1-7

Installation Guidelines

Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 35° C (95° F).**
Statement 1047

Warning **The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.**
Statement 1019

Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 15 A.**
Statement 1005

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

Caution To ensure proper airflow it is necessary to rack content security appliances using rail kits. Physically placing the units on top of one another or stacking without the use of the rail kits blocks the air vents on top of the appliances, which can result in overheating, higher fan speeds, and higher power consumption. We recommend that you mount your appliances in rail kits when you are installing them into the rack because these rails provide the minimal spacing required between the appliances. No additional spacing between the appliances is required when you mount them using rail kits.

Caution Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco Content Security Appliances, which can have substantial current draw fluctuations from fluctuating data traffic patterns.

When you are installing an appliance, use the following guidelines:

- Plan your site configuration and prepare the site before installing the appliance. See the Quick Start Guides for the Cisco x90 Series Content Security Appliances for the recommended site planning tasks.
- Ensure that there is adequate space around the appliance to allow for servicing the appliance and for adequate airflow. The airflow in the appliance is from front to back.
- Ensure that the air-conditioning meets the thermal requirements listed in the Appliance Specifications, page A-1.
- Ensure that the cabinet or rack meets the requirements listed in the "Rack Requirements" section on page 1-6.
- Ensure that the site power meets the power requirements listed in the Appliance Specifications, page A-1. If available, you can use an uninterruptible power supply (UPS) to protect against power failures.

Safety Recommendations

Use the information in the following sections to help ensure your safety and to protect the chassis. This information may not address all potentially hazardous situations in your working environment, so be alert and exercise good judgment at all times.

Observe these safety guidelines:

- Keep the area clear and dust-free before, during, and after installation.
- Keep tools away from walkways, where you and others might trip over them.
- Do not wear loose clothing or jewelry, such as earrings, bracelets, or chains that could get caught in the chassis.
- 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.
- Never attempt to lift an object that is too heavy for one person.

Maintain Safety with Electricity

Warning **Before working on a chassis, be sure the power cord is unplugged. Be sure to read the Regulatory and Compliance Safety Information document before installing the security appliance.**

Follow these guidelines when working on equipment powered by electricity:

- Before beginning procedures that require access to the interior of the chassis, 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.
- Do not work alone if potentially hazardous conditions exist anywhere in your work space.
- Never assume that power is disconnected; always check.
- 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:
  - Use caution; do not become a victim yourself.
  - Disconnect power from the system.
  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim, and then call for help.
  - Determine whether the person needs rescue breathing or external cardiac compressions; then take appropriate action.
- Use the chassis within its marked electrical ratings and product usage instructions.
- The appliances are equipped with an AC-input power supply, which is shipped with a three-wire electrical cord with a grounding-type plug that fits into a grounding-type power outlet only. Do not circumvent this safety feature. Equipment grounding should comply with local and national electrical codes.

Prevent ESD Damage

ESD occurs when electronic components are improperly handled, and it can damage equipment and impair electrical circuitry, resulting in intermittent or complete failure.

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

For safety, periodically check the resistance value of the antistatic strap, which should be between one and 10 megohms.

Site Environment

When planning the site layout and equipment locations, consider the information in the next section to help avoid equipment failures and reduce the possibility of environmentally caused shutdowns. If you are currently experiencing shutdowns or unusually high error rates with your existing equipment, these considerations may help you isolate the cause of failures and prevent future problems.

Power Supply Considerations

See the "Power Specifications" section on page A-3 for more detailed information about the power supplies.

When installing the chassis, consider the following:

- Check the power at the site before installing the chassis to ensure that it is free of spikes and noise. Install a power conditioner, if necessary, to ensure proper voltages and power levels in the appliance-input voltage.
- Install proper grounding for the site to avoid damage from lightning and power surges.
- The chassis does not have a user-selectable operating range. Refer to the label on the chassis for the correct appliance input-power requirement.
- Several styles of AC-input power supply cords are available for the appliance; make sure that you have the correct style for your site.
- If you are using dual redundant (1+1) power supplies, we recommend that you use independent electrical circuits for each power supply.
- Install an uninterruptible power source for your site, if possible.

Rack Requirements

This section provides the requirements for the standard open racks.

- The rack must be of the following type:
  - A standard 19-in. (48.3-cm) wide, 4-post EIA rack, with mounting posts that conform to English universal hole spacing, per section 1 of ANSI/EIA-310-D-1992.
  - The rack post holes can be square 0.38-in. (9.6 mm), round 0.28-in. (7.1 mm), #12-24 UNC, or #10-32 UNC when you use the supplied slide rails.
  - For the Cisco C190, M190, S190, C390, M390, and S390 appliances, the minimum vertical rack space per appliance must be 1 RU, equal to 1.75 in. (44.45 mm).
  - For the Cisco C690, M690, and S690 appliances, the minimum vertical rack space per appliance must be 2 RUs, equal to 3.5 in. (88.9 mm).
- If you are mounting a chassis in an open rack, make sure that the rack frame does not block the intake or exhaust ports.
- Be sure enclosed racks have adequate ventilation. Make sure that the rack is not overly congested as each chassis generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air.
- In an enclosed rack with a ventilation fan in the top, heat generated by equipment near the bottom of the rack can be drawn upward and into the intake ports of the equipment above it in the rack. Ensure that you provide adequate ventilation for equipment at the bottom of the rack.

- Baffles can help to isolate exhaust air from intake air, which also helps to draw cooling air through the chassis. The best placement of the baffles depends on the airflow patterns in the rack. Experiment with different arrangements to position the baffles effectively

Equipment Requirements

The slide rails supplied by Cisco Systems for the appliance do not require tools for installation if you install them in a rack that has square 0.38-in. (9.6 mm), round 0.28-in. (7.1 mm), or #12-24 UNC threaded holes.

Slide Rail Adjustment Range

For 1-RU appliances, the slide rails for the appliance have an adjustment range of 24 to 36 in. (610 to 914 mm).

For 2-RU appliances, the slide rails for the appliance have an adjustment range of 26 to 36 in. (660 to 914 mm).

Install Cisco x90 Series Content Security Appliances In a Rack

This section contains the following topics:

- Use the Rack Kit to Install Cisco x90 Series Content Security Appliances, page 1-7
- Install the Cable Management Arm (Optional), page 1-10
- Reverse the Cable Management Arm (Optional), page 1-11

Use the Rack Kit to Install Cisco x90 Series Content Security Appliances

This section describes how to install Cisco x90 Series Content Security Appliances in a rack using the rack kits that are sold by Cisco.

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

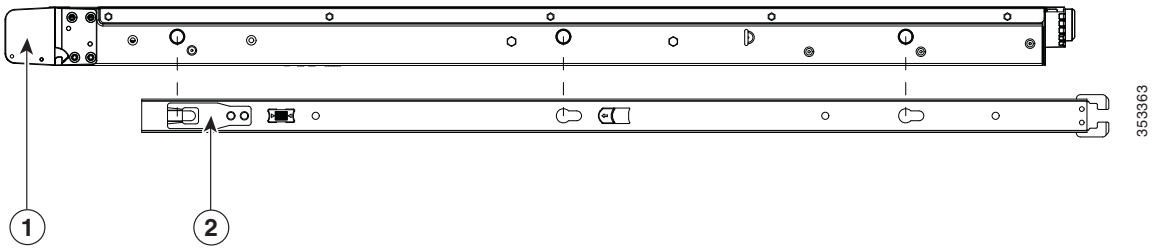
Step 1 Attach the inner rails to the sides of the appliance:

a. Align an inner rail with one side of the appliance so that the 3 keyed slots in the rail align with the 3 pegs on the side of the appliance (see Figure 1-1 and Figure 1-2).

b. Set the keyed slots over the pegs, and then slide the rail toward the front to lock it in place on the pegs. The front slot has a metal clip that locks over the front peg.

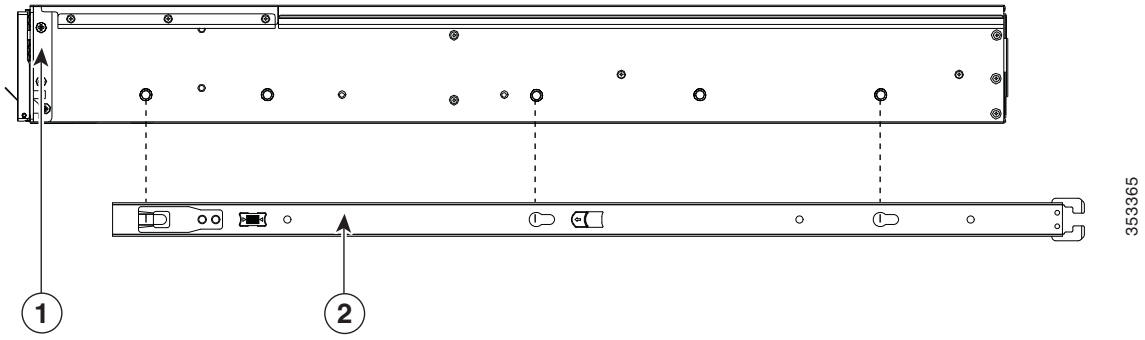
c. Install the second inner rail to the opposite side of the appliance.

Figure 1-1 Attach the Inner Rail to Side of 1-RU Appliances



1	Front of appliance	**2**	Locking clip on inner rail

Figure 1-2 Attach the Inner Rail to Side of 2-RU Appliances

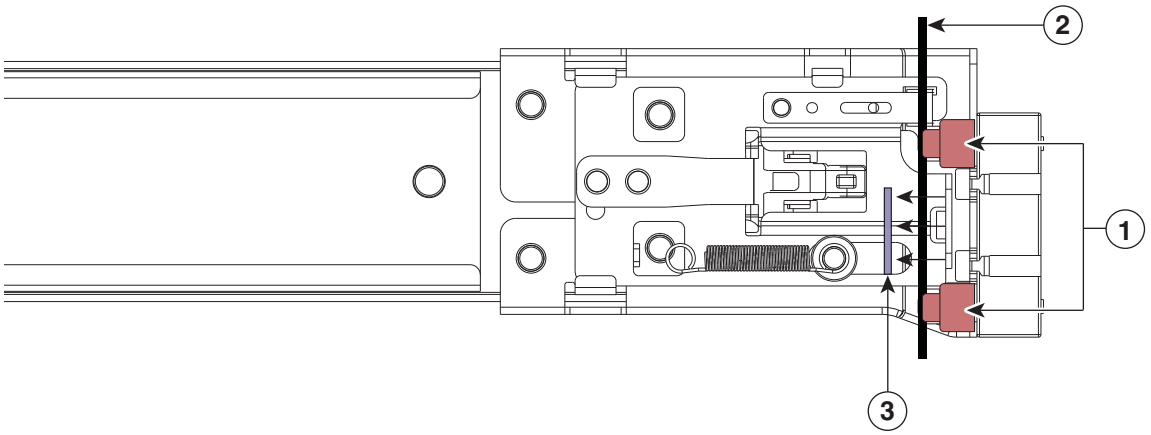


1	Front of appliance	**2**	Locking clip on inner rail

Step 2 Open the front securing plate on both slide-rail assemblies. The front end of the slide-rail assembly has a spring-loaded securing plate that must be open before you can insert the mounting pegs into the rack-post holes (see Figure 1-3).

On the outside of the assembly, push the green arrow button toward the rear to open the securing plate.

Figure 1-3 Front Securing Mechanism, Inside of Front End



1	Front mounting pegs	**3**	Securing plate shown pulled back to open position
2	Rack post		

Step 3 Install the slide rails into the rack:

a. Align one slide-rail assembly front end with the front rack-post holes that you want to use.

The slide rail front-end wraps around the outside of the rack post and the mounting pegs enter the rack-post holes from the outside-front (see Figure 1-3).

Note The rack post must be between the mounting pegs and the open securing plate.

b. Push the mounting pegs into the rack-post holes from the front of the outside.

c. Press the securing plate release button, marked “PUSH.” The spring-loaded securing plate closes to lock the pegs in place.

d. Adjust the slide-rail length, and then push the rear mounting pegs into the corresponding rear rack-post holes. The slide rail must be level front-to-rear.

The rear mounting pegs enter the rear rack-post holes from the inside of the rack post.

e. Attach the second slide-rail assembly to the opposite side of the rack. Ensure that the two slide-rail assemblies are at the same height with each other and are level front-to-back.

f. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.

Step 4 Insert the appliance into the slide rails:

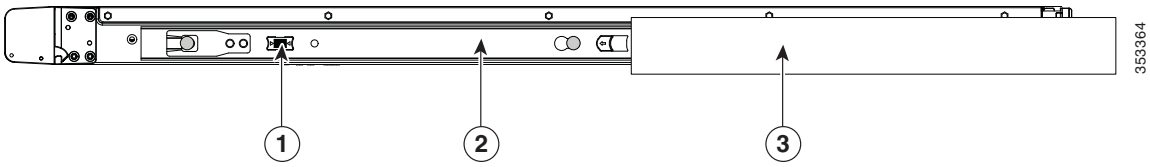
Caution The appliance can weigh up to 67 pounds (59 kilograms) when fully loaded with components. We recommend that you use a minimum of two people or a mechanical lift when lifting the appliance. Attempting this procedure alone could result in personal injury or equipment damage.

a. Align the rear of the inner rails that are attached to the appliance sides with the front ends of the empty slide rails on the rack.

b. Push the inner rails into the slide rails on the rack until they stop at the internal stops.

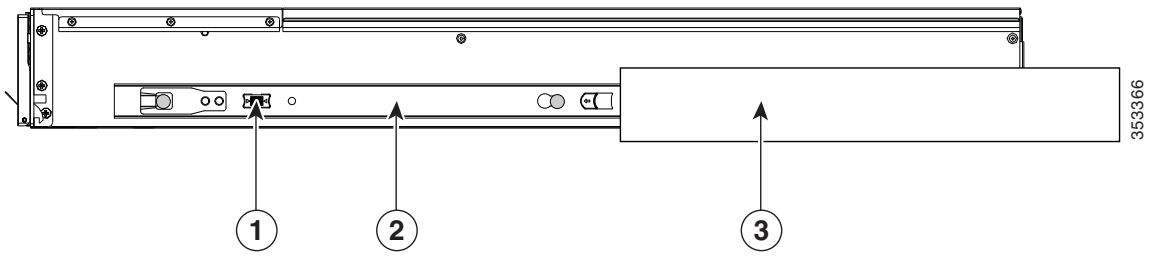
c. Slide the release clip toward the rear on both inner rails (Figure 1-4 and Figure 1-5), and then continue pushing the appliance into the rack until its front slam latches engage with the rack posts.

Figure 1-4 Inner Rail Release Clip for 1-RU Appliances



1	Inner rail release clip	**3**	Outer rail attached to rack post
2	Inner rail attached to appliance and inserted into outer rail		

Figure 1-5 Inner Rail Release Clip for 2-RU Appliances



1	Inner rail release clip	**3**	Outer rail attached to rack post
2	Inner rail attached to appliance		

Step 5 (Optional) Secure the appliance in the rack more permanently by using the two screws that are provided with the slide rails. Perform this step if you plan to move the rack with appliances installed.

With the appliance fully pushed into the slide rails, open a hinged slam latch lever on the front of the appliance and insert the screw through the hole that is under the lever. The screw threads into the static part of the rail on the rack post and prevents the appliance from being pulled out. Repeat for the opposite slam latch.

Install the Cable Management Arm (Optional)

Note The Cable Management Arm (CMA) is reversible left to right. To reverse the CMA, see Reverse the Cable Management Arm (Optional), page 1-11 before installation.

Step 1 With the appliance pushed fully into the rack, slide the CMA tab of the CMA arm that is farthest from the appliance onto the end of the stationary slide rail that is attached to the rack post (see Figure 1-6). Slide the tab over the end of the rail until it clicks and locks.

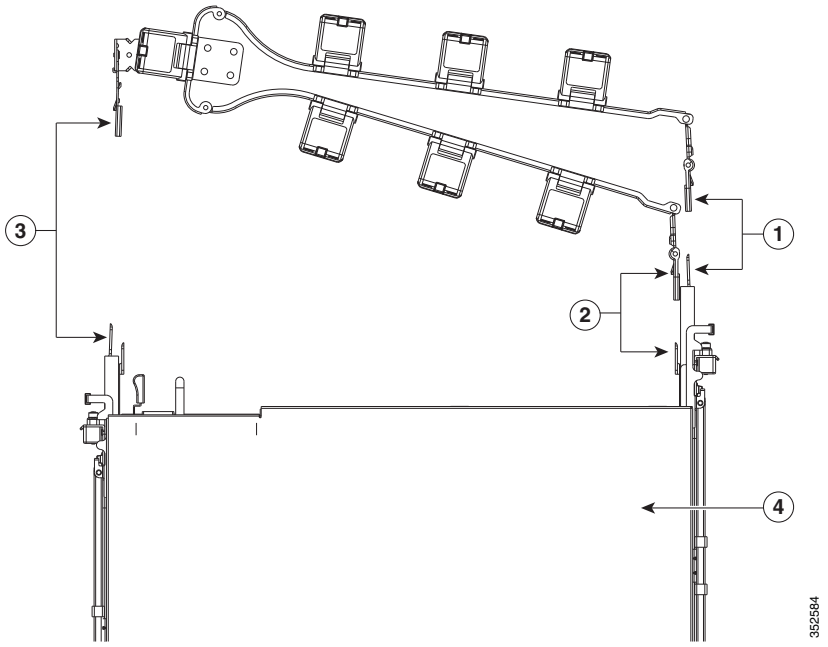
Step 2 Slide the CMA tab that is closest to the appliance over the end of the inner rail that is attached to the appliance (see Figure 1-6). Slide the tab over the end of the rail until it clicks and locks.

Step 3 Pull out the width-adjustment slider that is at the opposite end of the CMA assembly until it matches the width of your rack (see Figure 1-6).

Step 4 Slide the CMA tab that is at the end of the width-adjustment slider onto the end of the stationary slide rail that is attached to the rack post (see Figure 1-6). Slide the tab over the end of the rail until it clicks and locks.

Step 5 Open the hinged flap at the top of each plastic cable guide and route your cables through the cable guides as desired.

Figure 1-6 Attach the Cable Management Arm to the Rear of the Slide Rails



1	CMA tab on arm farthest from the appliance and end of stationary outer slide rail	**3**	CMA tab on width-adjustment slider and end of stationary outer slide rail
2	CMA tab on arm closest to the appliance and end of inner slide rail attached to the appliance	**4**	Rear of the appliance

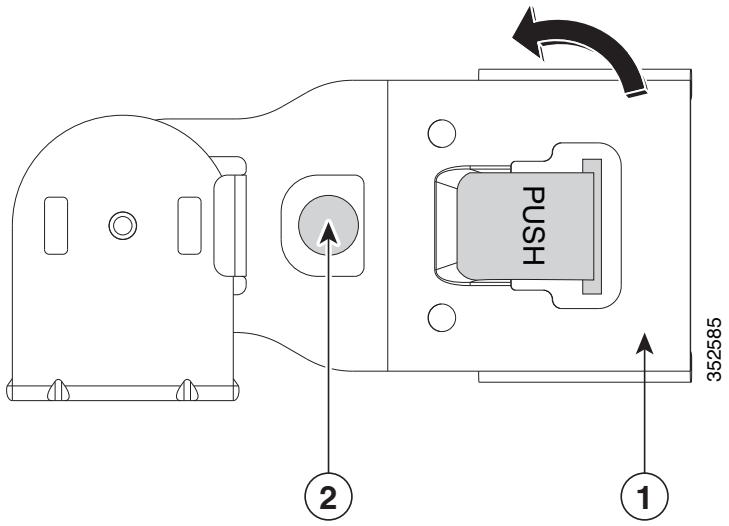
Reverse the Cable Management Arm (Optional)

Step 1 Rotate the entire CMA assembly 180 degrees. The plastic cable guides must remain pointing upward.

Step 2 Flip the tabs at the end of each CMA arm so that they point toward the rear of the appliance.

Step 3 Pivot the tab that is at the end of the width-adjustment slider. Depress and hold the metal button on the outside of the tab and pivot the tab 180 degrees so that it points toward the rear of the appliance.

Figure 1-7 Reversing the CMA



1	CMA tab on end of width-adjustment slider	**2**	Metal button for rotating