Maintenance and Upgrade Procedures for the ASA 5500-X

This chapter includes the following sections:

Removing and Replacing the Chassis Cover

This section describes how to remove and replace the chassis cover. This section includes the following topics:

Removing the Chassis Cover

To remove the chassis cover, perform the following steps.

Prerequisites

Read the *Regulatory Compliance and Safety Information for the Cisco ASA 5500-X Series document.*

Detailed Steps

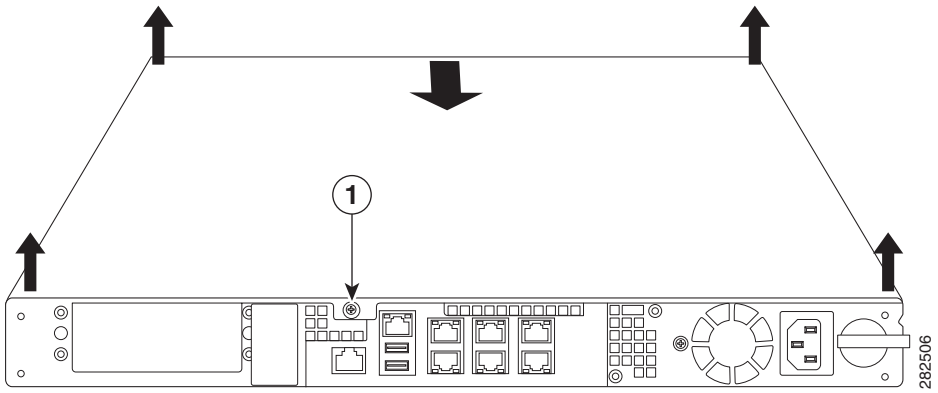
Step 1 Power off the chassis.

Warning **Before working on a system that has an On/Off switch, turn OFF the power and unplug the power cord.** Statement 1

Step 2 Turn the thumbscrew on the front of the chassis. See Figure 4-1. You may need to use a screwdriver if the screw is too tight.

Note Removing the chassis cover does not affect Cisco warranty. Upgrading the ASA does not require any special tools and does not create any radio frequency leaks.

Figure 4-1 Removing the Chassis Cover



1	Thumbscrew

Step 3 With the rear of the chassis facing you, pull the chassis cover forward then lift the cover up. (See Figure 4-1.)

Step 4 Place the cover in a safe place.

Replacing the Chassis Cover

Caution Do not operate the ASA without the chassis cover installed. The chassis cover protects the internal components, prevents electrical shorts, and provides proper air-flow for cooling the electronic components.

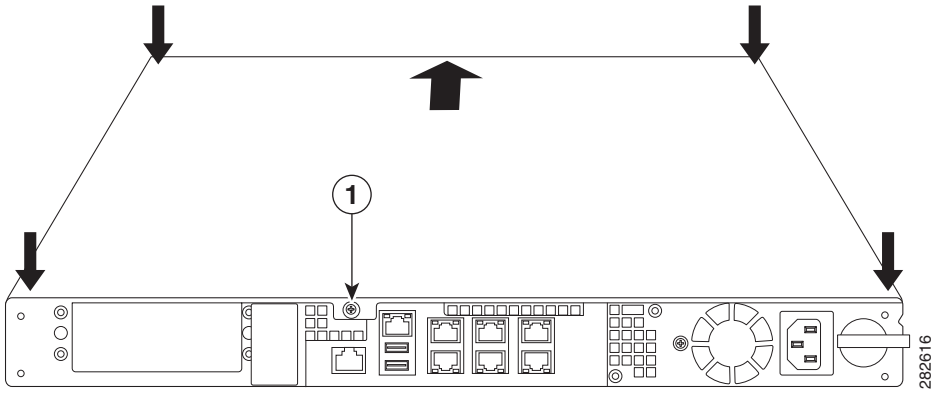
To replace the chassis cover, perform the following steps.

Detailed Steps

Step 1 Place the chassis on a secure surface with the front panel facing you.

Step 2 Lower the front of the chassis cover onto the chassis, slide it forward until it fits into place, and tighten the thumbscrew to secure the chassis cover. (See Figure 4-2.)

Figure 4-2 Replacing the Chassis Cover



1	Thumbscrew

Step 3 Reinstall the chassis on a rack.

Step 4 Reinstall the network interface cables.

Step 5 Power on the chassis.

Installing an I/O Card

Installing an I/O Card in the Cisco ASA 5512-X, 5515-X, and 5525-X Chassis

To remove an existing I/O card and install a new one, perform the following steps.

Detailed Steps

Step 1 Power off the chassis, remove the power cable from the chassis, and remove the chassis from the rack.

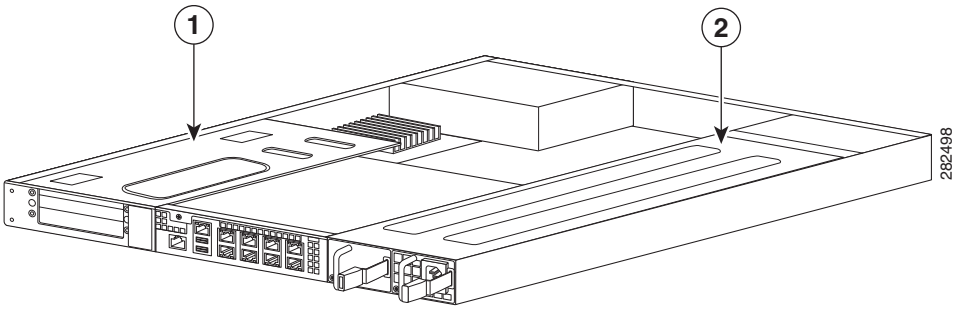
Step 2 Locate a grounding strap, and fasten it to your wrist so that it contacts bare skin. Attach the other end to the chassis. See the "Working in an ESD Environment" section on page 2-3 for more information.

Step 3 With a Phillips head screwdriver, loosen the captive installation screw on the rear of the chassis

Step 4 Remove the chassis cover by placing your hand on top of the chassis lid, pressing down firmly, and pushing the cover toward the rear of the chassis.

Step 5 Determine the location of the I/O card. (See Figure 4-3.)

Figure 4-3 I/O Card Location

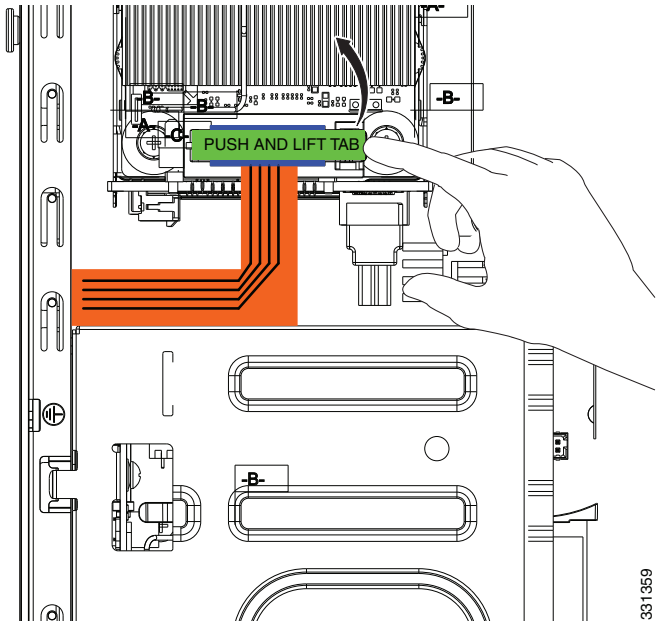


1	I/O Card holder
2	Power supply

Caution You must disconnect the blue Regex flexible circuit connector from the motherboard before removing the I/O card from the chassis. The copper-colored Regex flexible circuit can break during the I/O card removal or installation process, so handle it with care.

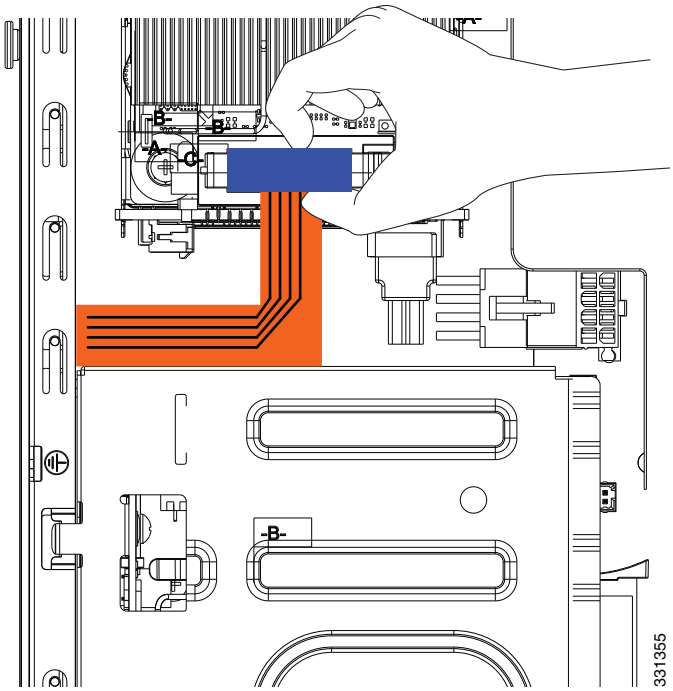
Step 6 To expose the blue connector of the Regex flexible circuit, push down on the center of the green connector clamp, and lift the right end of the clamp to release the lock. (See Figure 4-4.)

Figure 4-4 Removing the Connector Clamp



Step 7 Disconnect the blue Regex cable connector from the motherboard by lifting carefully but firmly. (See Figure 4-5.)

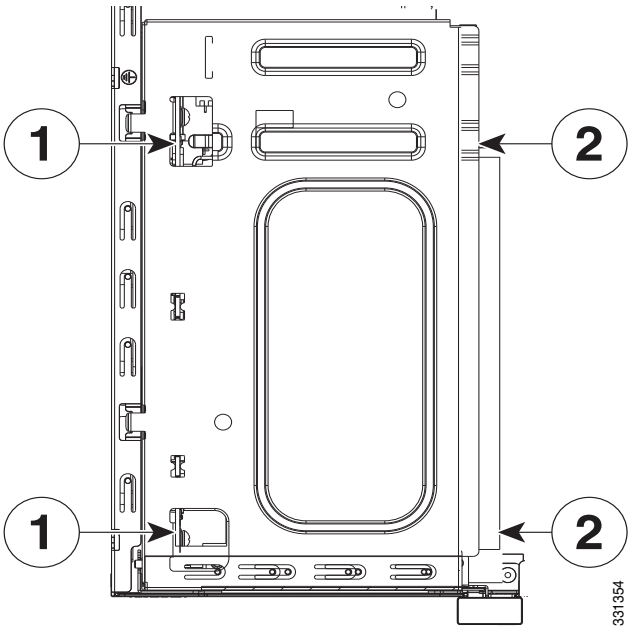
Figure 4-5 Removing the Regex Cable Connector



Step 8 Lift the I/O card out of the chassis with both hands by placing an index finger into each of the card cover vents and placing your thumbs on the edge of the card cover. (See Figure 4-6 on page 4-6.) Use firm upward pressure and a gentle rocking motion, as the card is firmly seated.

Caution Keep hands clear of all electronics underneath the card cover.

Figure 4-6 Lift the I/O Card Upward to Release it



1	Index finger placement
2	Thumb placement

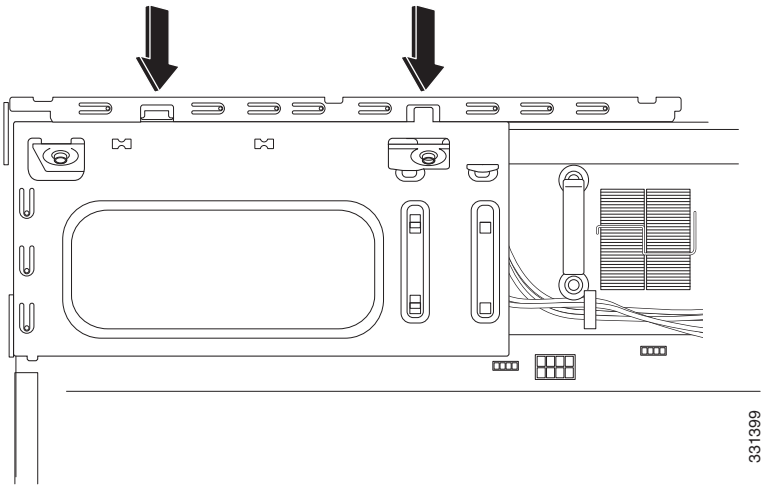
Step 9 Insert the new I/O card into the chassis. (See Figure 4-7.) The I/O card fits properly if the following criteria are met:

a. The PCIe bus is properly inserted on the motherboard

b. The small black plastic guide slides all the way into the chassis

c. The two hooks on the assembly plug into the two slots on the edge of the chassis

Figure 4-7 Installing the I/O Card



Step 10 Connect the blue connector end of the Regex ribbon cable to the motherboard, and close the green tab.

Step 11 Install the chassis cover, and replace the chassis in the rack.

Step 12 Install the power cable.

Step 13 For newer ASAs, the power turns on automatically when you plug in the power cable; do not press the power button on the front panel.

For earlier ASAs, press the power button.

The LEDs will blink when traffic begins to pass through.

Installing an I/O Card in the Cisco ASA 5545-X and 5555-X Chassis

To replace an I/O card in an ASA 5545-X or 5555-X chassis, follow these steps.

Detailed Steps

Step 1 Power off the chassis, remove the power cable from the chassis, and remove the chassis from the rack.

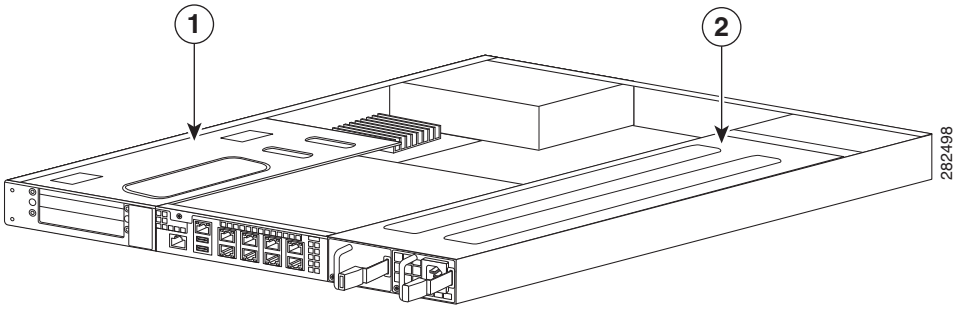
Step 2 Locate a grounding strap, and fasten it to your wrist so that it contacts bare skin. Attach the other end to the chassis. See the "Working in an ESD Environment" section on page 2-3 for more information.

Step 3 With your fingers, loosen the captive installation screw on the rear of the chassis.

Step 4 Remove the chassis cover by placing your hand on top of the chassis lid, pressing down firmly, and pushing the cover toward the rear of the chassis.

Step 5 Determine the location of the I/O card. (See Figure 4-8.)

Figure 4-8 I/O Card Location

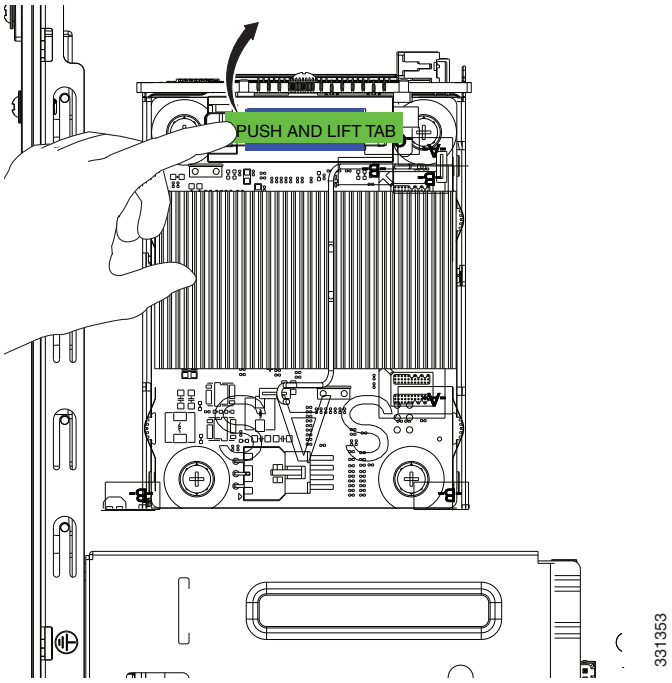


1	I/O Card holder
2	Power supply

Note You must disconnect the blue Regex flexible circuit connector from the motherboard before removing the I/O card from the chassis. The copper-colored Regex flexible circuit can break during the I/O card removal or installation process, so handle it with care.

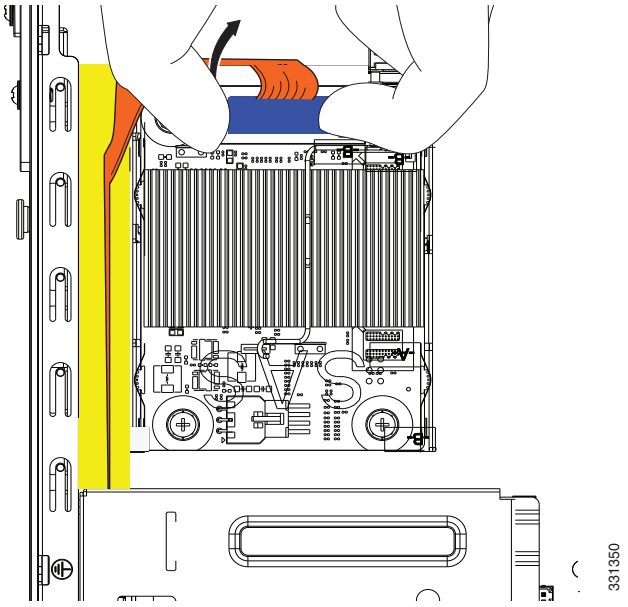
Step 6 To expose the blue connector on the end of the Regex flexible circuit, push down on the center of the green connector clamp, and lift the end of the clamp to release the lock. (See Figure 4-9.)

Figure 4-9 Removing the Connector Clamp



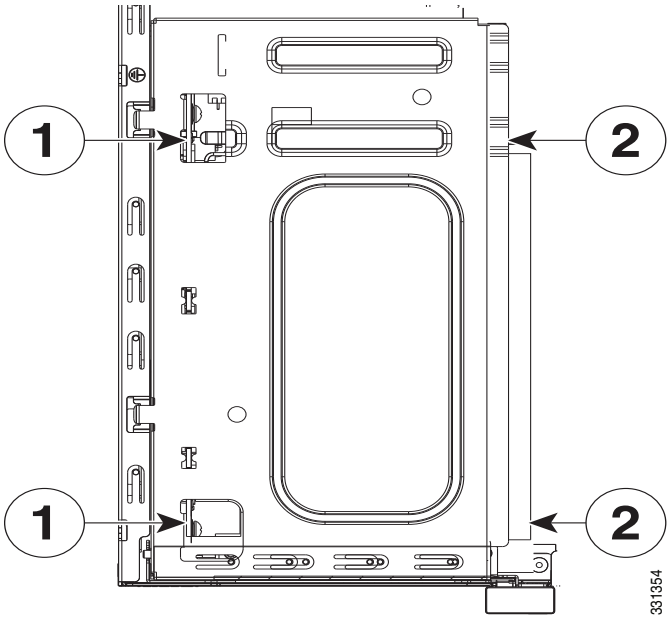
Step 7 Disconnect the blue connector from the board by lifting carefully but firmly. (See Figure 4-10.)

Figure 4-10 Removing the Regex Cable Connector



Step 8 Lift the I/O card out of the chassis with both hands by placing an index finger into each of the card cover vents and placing a thumb on the edge of the card cover. (See Figure 4-11.) Use firm upward pressure and a gentle rocking motion, as the card is firmly seated.

Figure 4-11 Lift the I/O Card Upward to Release it



1	Index finger placement
2	Thumb placement

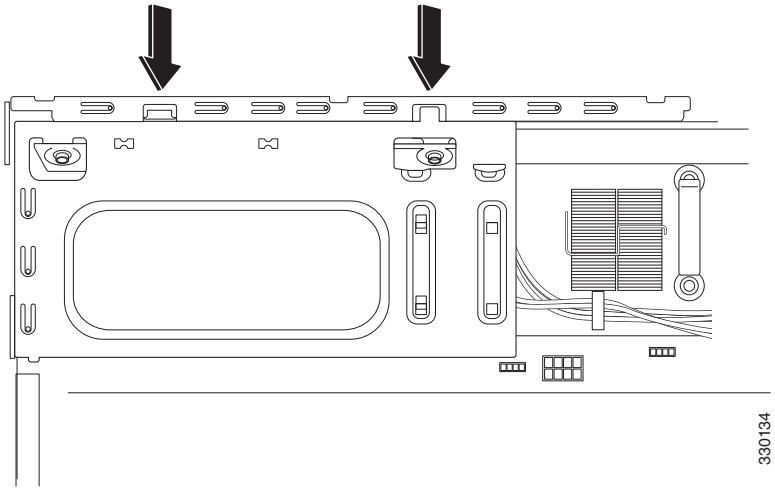
Step 9 Insert the new I/O card into the chassis. (See Figure 4-12.)
The I/O card holder fits properly if the following criteria are met:

a. The PCIe bus is properly inserted on the motherboard.

b. The small black plastic guide slides all the way into the chassis.

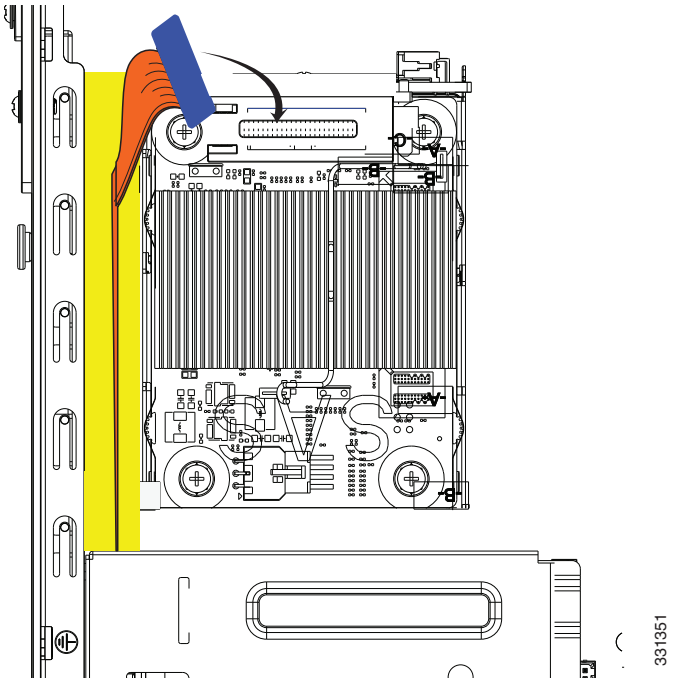
c. The two hooks on the assembly plug into the two slots on the edge of the chassis.

Figure 4-12 Inserting a New I/O Card



Step 10 Carefully feed the flexible Regex circuit into the yellow channel on the chassis side (see Figure 4-13), and reconnect the blue Regex cable connector end to the motherboard.

Figure 4-13 Feeding Regex Flexible Circuit through Channel and Reconnecting



Step 11 Close the green connector clamp.

Step 12 Install the chassis cover, and replace the chassis in the rack.

Step 13 Install the power cable, and restore power to the chassis. The LEDs will blink when traffic begins to pass through.

Installing and Removing the SFP Modules

The SFP module is a hot-swappable input/output device that plugs into the SFP ports. This section describes how to install and remove the SFP modules in the ASA to provide optical Gigabit Ethernet connectivity, and it includes the following topics:

Caution Protect your SFP modules by inserting clean dust plugs into the SFPs after the cables are extracted from them. Be sure to clean the optic surfaces of the fiber cables before you plug them back into the optical bores of another SFP module. Avoid getting dust and other contaminants into the optical bores of your SFP modules. The optics do not operate correctly when obstructed with dust.

Warning **Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.** Statement 70

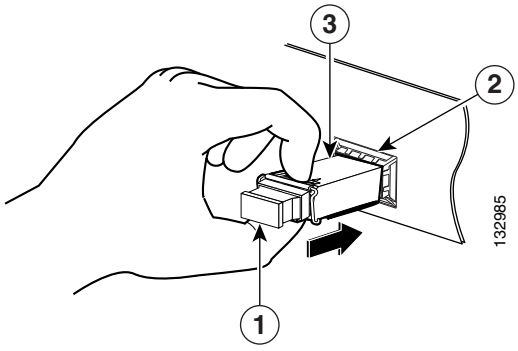
Installing the SFP Module

To install the SFP module, perform the following steps.

Detailed Steps

Step 1 Align the SFP module with the port, and slide the SFP module into the port slot until it locks into position, as shown in Figure 4-14.

Figure 4-14 Installing an SFP Module



1	Optical port plug	**2**	SFP port slot
3	SFP module		

Caution Do not remove the optical port plugs from the SFP until you are ready to connect the cabling.

Step 2 Remove the optical port plug, and then connect the network cable to the SFP module.

Step 3 Connect the other end of the cable to your network.

Removing the SFP Module

SFP modules use various latch designs to secure the SFP modules in the SFP ports. The following list includes the different module design types:

- Mylar Tab Module
- Actuator/Button SFP Module
- Bale-Clasp SFP Module
- Plastic Collar Module

Note Latch designs are not linked to SFP model or technology types. For information about SFP models and technology types, see the label on the side of your SFP.

To remove the SFP module, perform the following steps.

Detailed Steps

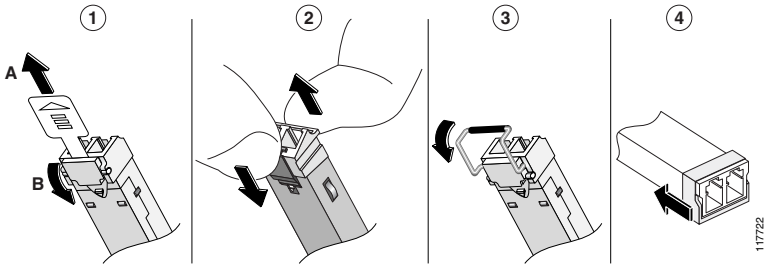
Step 1 Disconnect all cables from the SFP.

Warning **Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.** Statement 70

Caution Do not pull on the cabling in an attempt to remove the SFP.

Step 2 Disconnect your particular SFP latch, as shown in Figure 4-15.

Figure 4-15 Disconnecting SFP Latch Mechanisms



1	Mylar tab	**2**	Actuator/Button
3	Bale-clasp	**4**	Plastic collar

Step 3 Grasp the SFP on both sides, and remove it from the port.

Removing and Installing the Power Supply

Removing and Installing the AC Power Supply

Caution If you remove a power supply, replace it immediately to prevent disruption of service.

Caution If the appliance is subjected to environmental overheating, it shuts down and you must manually power cycle it to turn it on again.

Warning **This unit has more than one power supply connection; all connections must be removed completely to completely remove power from the unit.** Statement 102

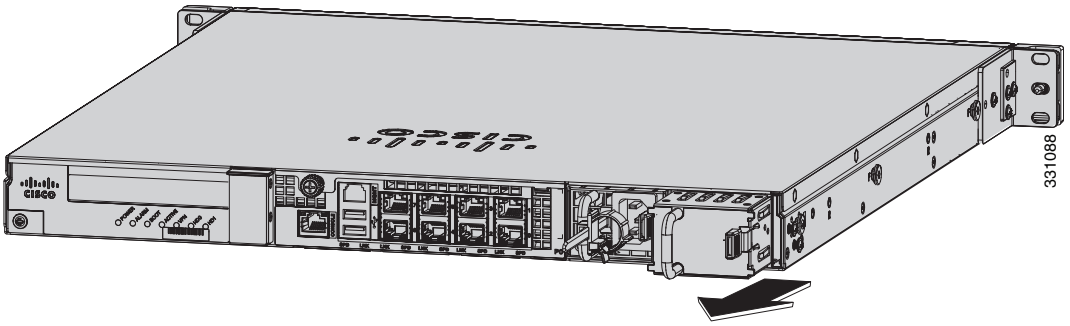
Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 120 VAC, 20A U.S. (240 VAC, 10A international). Statement 1005**

Note This procedure applies only to the appliances with a removable AC power supply (ASA 5545-X and ASA 5555-X). If only one power supply is installed, make sure that it is installed in slot 0 (left slot) and that slot 1 (right slot) is covered with a slot cover.

To remove and install the AC power supply, follow these steps:

Step 1 If you are adding an additional power supply, from the back of the appliance, push the lever on the slot cover to the left to release it, grasp the handle of the slot cover and pull it away from the chassis. (See Figure 4-16.) Save the slot cover for future use. Continue with Step 3.

Figure 4-16 Removing the Slot Cover



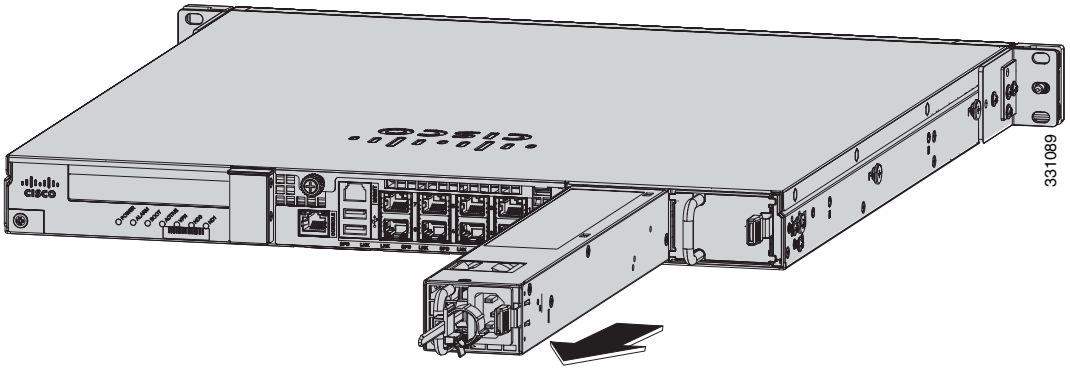
Step 2 If you are replacing a power supply, follow these steps:

a. Power off the appliance.

b. From the back panel of the appliance, unplug the power supply cable.

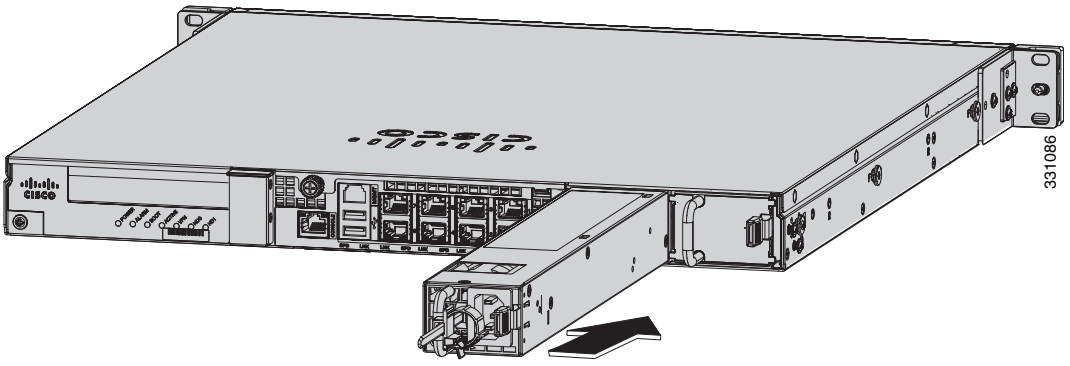
c. Push the lever on the power supply to the left and remove the power supply by grasping the handle and then pulling the power supply away from the chassis while supporting it from beneath with the other hand. (See Figure 4-17.) Continue with Step 3.

Figure 4-17 Removing the AC Power Supply



Step 3 Install the new power supply by aligning it with the power supply bay and pushing it into place until it is seated while supporting it from beneath with the other hand. (See Figure 4-18.)

Figure 4-18 Installing the AC Power Supply

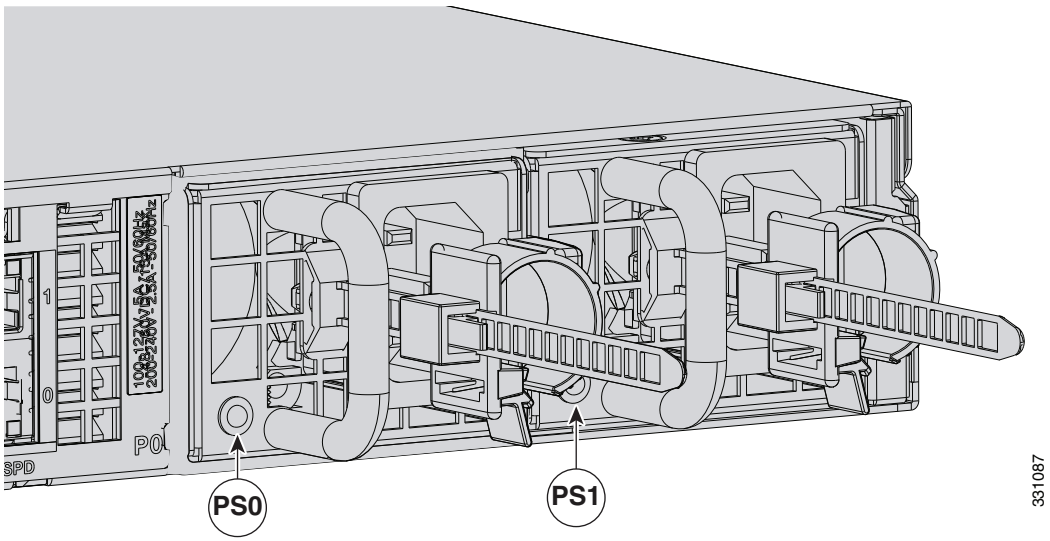


Step 4 Connect the power cable. If you are installing two power supplies for a redundant configuration, plug each one into a power source (we recommend a UPS).

Step 5 Power on the appliance if you powered it off to replace the only power supply.

Step 6 Check the PS0 and PS1 indicators on the front panel to make sure they are green. On the back panel of the appliance, make sure the power supply indicator on the bottom of each installed power supply is green. (See Figure 4-19.)

Figure 4-19 Back Power Supply Indicators



Installing the DC Input Power

Warning **The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed.** Statement 1077

Warning **When you install the unit, the ground connection must always be made first and disconnected last.** Statement 1046

Warning **Before performing any of the following procedures, ensure that power is removed from the DC circuit.** Statement 1003

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

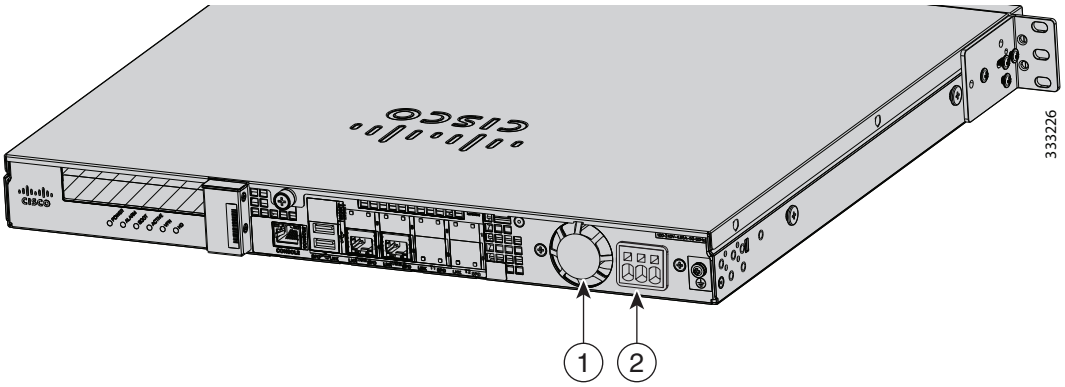
Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 80 VAC, 20A.** Statement 1005

The DC power supply is shipped installed in the chassis, either one or two power supplies depending on which configuration you ordered. You must connect the power supply wires. This section describes how to install the DC power supply ground leads and input power leads to the appliance DC input power supply. Before you begin, read these important notices:

- The color coding of the DC input power supply leads depends on the color coding of the DC power source at your site. Typically, green or green/yellow is used for ground (GND), black is used for –48 V on the negative (–) terminal, and red is used for RTN on the positive (+) terminal. Ensure that the lead color coding you choose for the DC input power supply matches the lead color coding used at the DC power source.
- Make sure that the chassis ground is connected on the chassis before you begin installing the DC power supply. See "Working in an ESD Environment" section on page 2-3 for more information.

Figure 4-20 shows the back panel of the ASA 5512-X, ASA 5515-X, and ASA 5525-X with the DC power supply.

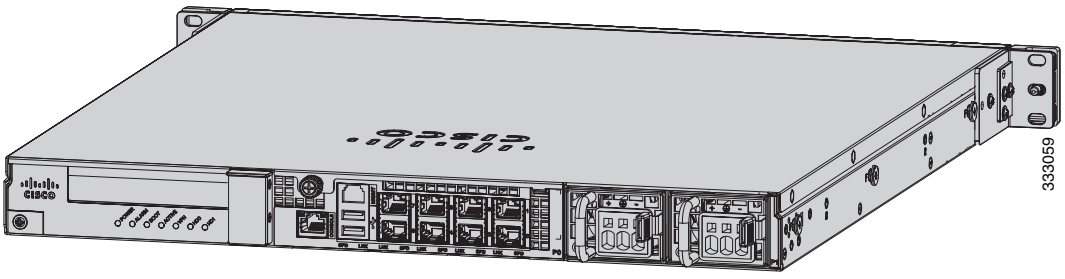
Figure 4-20 ASA 5512-X, ASA 5515-X, and ASA 5525-X Back Panel



1	Fixed fan	**2**	Fixed DC power supply

Figure 4-21 shows the back panel of the ASA 5545-X and ASA 5555-X with two DC power supplies.

Figure 4-21 ASA 5545-X and ASA 5555-X Back Panel



Note If only one power supply is installed, make sure that it is installed in slot 0 (left slot) and that slot 1 (right slot) is covered with a slot cover.

To connect the DC power supply on the appliance, follow these steps:

Step 1 Make sure that the chassis ground is connected on the chassis before you begin installing the DC power supply.

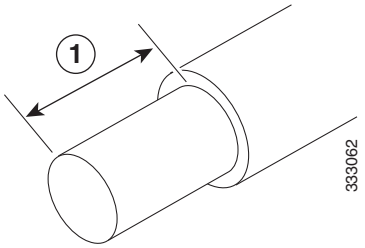
Step 2 Turn off the circuit breaker to the power supply.

Step 3 From the front of the appliance, verify that the power switch is in the Standby position.

Step 4 Move the circuit-breaker switch handle to the Off position, and apply tape to hold it in the Off position.

Step 5 Use a 10 gauge wire-stripping tool to strip each of the three wires coming from the DC input power source. Strip the wires to 0.27 inch (7 mm) ± 0.02 inch (0.5 mm). Do not strip more than the recommended length of wire because doing so could leave the wire exposed from the DC power supply connection. (See Figure 4-22.)

Figure 4-22 Stripping the DC Input Power Source Wire



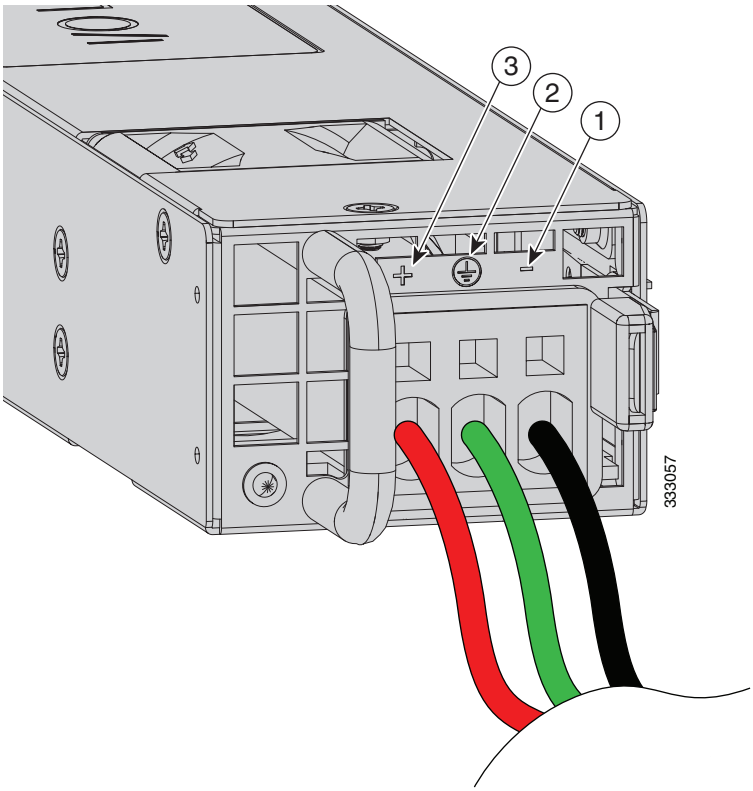
1	We recommend that you strip the wire to 0.27 inch (7 mm).

Warning **An exposed wire lead from a DC input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC input power source wire extends from the terminal block plug.** Statement 122

Step 6 Identify the positive, negative, and ground feed positions for the DC power supply connection. The recommended wiring sequence is as follows (see Figure 4-23 on page 4-18):

- Ground lead wire (middle)
- Positive (+) lead wire (left)
- Negative (–) lead wire (right)

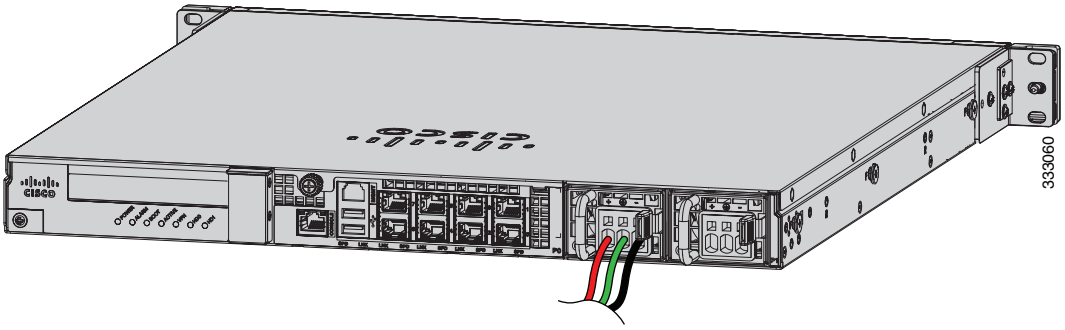
Figure 4-23 Ground Wires



1	Negative (–) lead wire	**2**	Ground lead wire
3	Positive (+) lead wire		

Figure 4-24 shows the DC power supply with lead wires.

Figure 4-24 DC Power Supply with Lead Wires

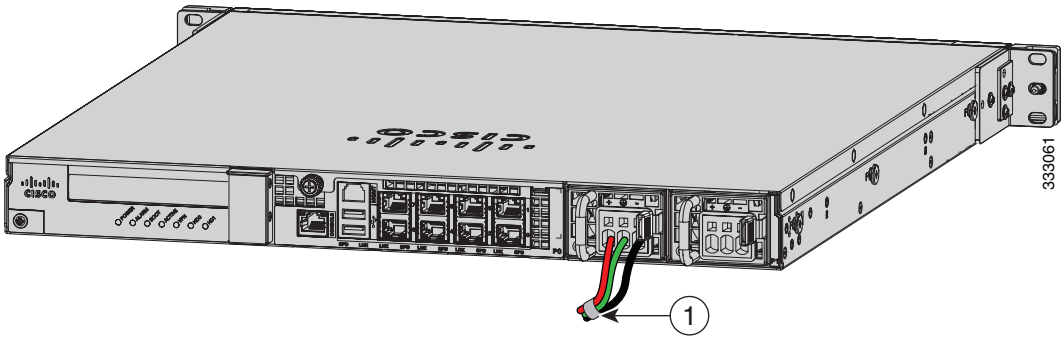


Step 7 Insert the exposed end of one of the ground wires into the inlet on the DC power supply. After you push in the wires, they are held in place with a spring, which makes the physical contact. Make sure that you cannot see any wire lead. Only wires *with insulation* should extend from the DC power supply.

Step 8 Repeat Step 5 through Step 7 for the remaining two DC input power source wires, the positive lead wire and the negative lead wire.

Step 9 Use a tie wrap to secure the wires coming from the power supply to the rack so that the wires cannot be pulled from the power supply by casual contact. Make sure the tie wrap allows for some slack in the ground wire. Figure 4-25 shows the DC power supply with the wires inserted and the tie wrap secured.

Figure 4-25 Complete DC Secure Tie Wrap



1	Lead wires secured with a tie wrap		

Step 10 Remove the tape (if any) from the circuit breaker switch handle, and move the circuit breaker switch handle to the On position. The power supply indicators light up when power is supplied to the appliance.

Removing and Installing the DC Power Supply

Note This procedure applies only to the appliances with a removable DC power supply (ASA 5545-X and ASA 5555-X).

To remove and install a DC power supply, perform the following steps:

Step 1 Make sure that the chassis ground is connected on the chassis before you begin installing the DC power supply, as described in "Working in an ESD Environment" section on page 2-3.

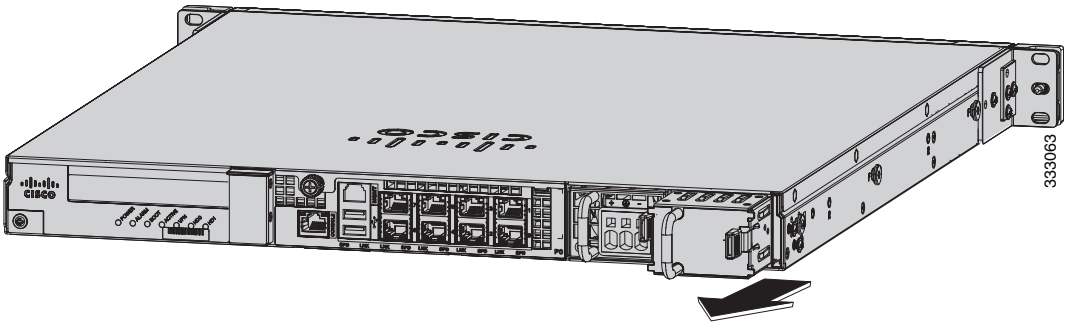
Step 2 Turn off the circuit breaker to the power supply.

Step 3 At the back of the appliance, place the Standby switch into the Standby position.

Step 4 Move the circuit-breaker switch handle to the Off position, and apply tape to hold it in the Off position.

Step 5 If you are adding an additional power supply, from the back of the appliance, push the lever on the slot cover to the left to release it, grasp the handle of the slot cover, and pull it away from the chassis. (See Figure 4-26.) Save the slot cover for future use. Continue with Step 7.

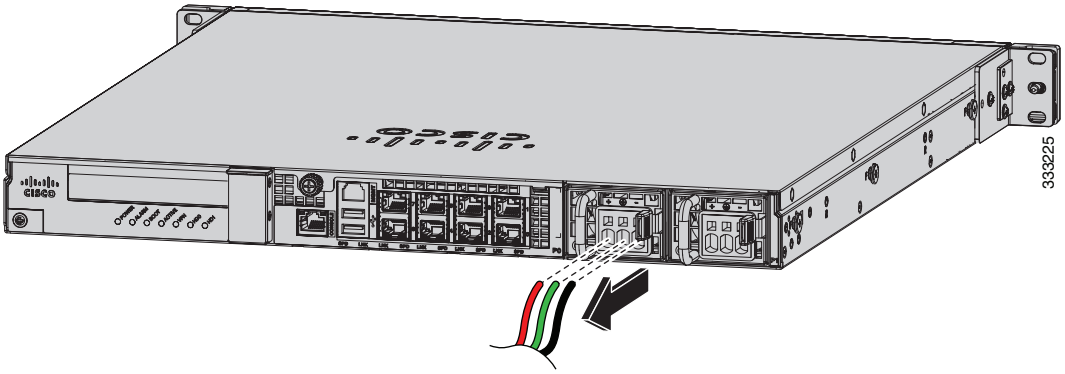
Figure 4-26 Removing the Slot Cover



Step 6 If you are replacing a power supply, follow these steps:

a. Remove the wires from the DC power supply by inserting a small flat-head screwdriver into the square hole above the wire to relieve the spring pressure. (See Figure 4-27.)

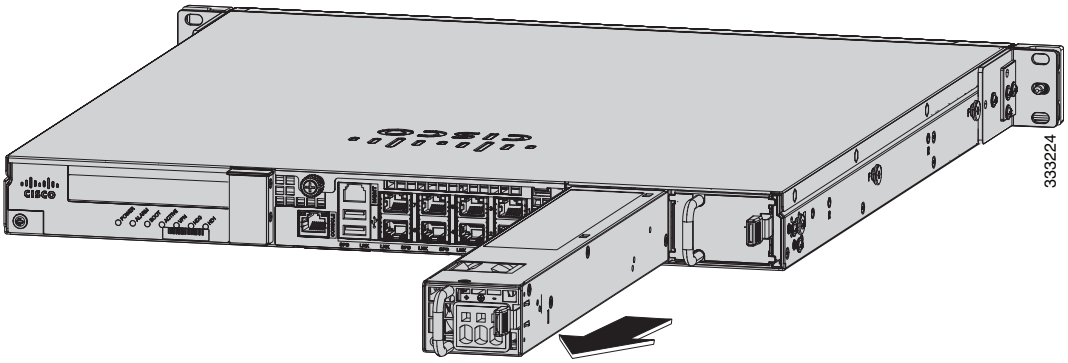
Figure 4-27 Removing the Wires from the DC Power Supply



b. Gently pull the wires out of the power supply.

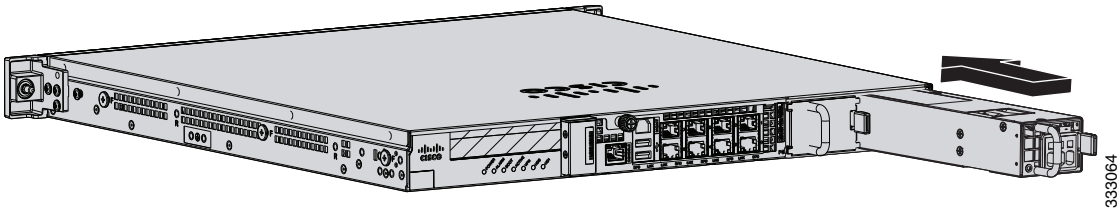
c. Push the lever on the power supply to the left and remove the power supply by grasping the handle and then pulling the power supply out of the chassis while supporting it from beneath with the other hand. (See Figure 4-28.)

Figure 4-28 Removing the DC Power Supply



Step 7 Install the new power supply by lining it up with the power supply bay and pushing it into place until it is seated while supporting it from beneath with the other hand. (See Figure 4-29.)

Figure 4-29 Installing the DC Power Supply



Step 8 To connect the DC input power source wires, see Step 5 though Step 10 in Installing the DC Input Power, page 4-15.

Installing and Removing the Solid State Drive for the ASA CX SSP

This section describes how to install and remove the Solid State Drive (SSD) in the ASA 5500-X series security appliances, and contains the following topics:

Installation Scenarios

Caution Make sure that you replace a failed SSD as soon as possible to avoid data loss. Removal of all SSDs shuts down the ASA CX service.

You may need to install, remove, or replace a SSD in your ASA 5500-X series ASA under the following conditions:

- If you are adding the ASA CX SSP to an existing ASA for the first time, after you have installed the SSD in the ASA, you must reload the ASA and then reimage the ASA CX SSP.
- If the drive fails in the single-drive models or both drives fail simultaneously in the dual-drive models, you need to replace the drives. ASA CX SSP shuts down when this happens, so CX features are not available as part of the recovery process. You must reload the ASA and then reimage the ASA CX SSP.
- If a single drive fails in the dual-drive model, you can hot-swap the failed drive. In this case, ASA CX SSP does not shut down and you do not need to reload the ASA.
- If you want to replace a drive that is still functioning. Back up and gracefully shut down the ASA CX SSP before replacing the drive. You must reload the ASA and then reimage the ASA CX SSP.

Installing and Removing SSDs

To install and remove SSDs in the ASA 5500-X series, follow these steps.

Detailed Steps

Step 1 If you need to remove an old drive, from the front panel of the ASA, remove the SSD by pressing the button on the right side of the bay until the lever is released. Pull out the SSD.

Figure 4-30 shows the ASA 5512/5515/5525-X models with one SSD. Figure 4-31 shows the ASA 5545/5555-X with two SSDs.

Figure 4-30 Removing the SSD from the ASA 5512/5515/5525-X

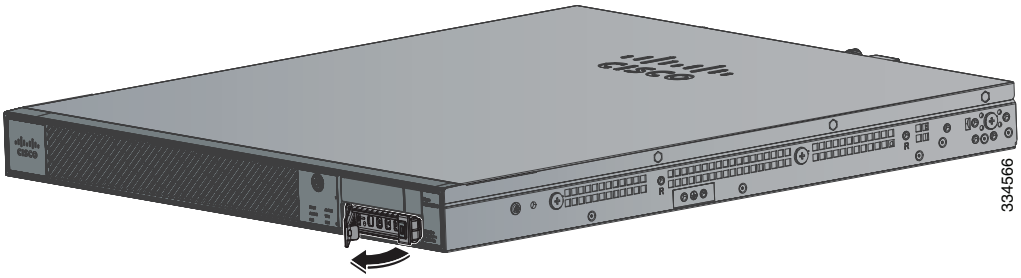
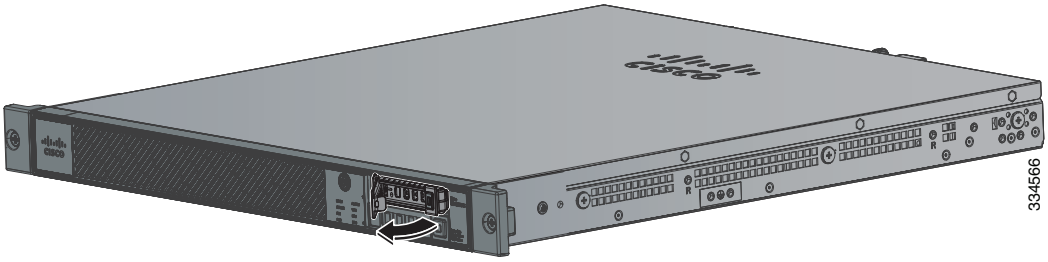


Figure 4-31 Removing the SSD from the ASA 5545-X and ASA 5555-X



Step 2 On the front panel of the appliance, line up the SSD carrier with the SSD bay and push it in until it is seated. Push the lever into place.

Figure 4-32 shows the ASA 5512/5515/5525-X models. Figure 4-33 shows the ASA 5545/5555-X models.

Figure 4-32 Installing the SSD in the ASA 5512/5515/5525-X

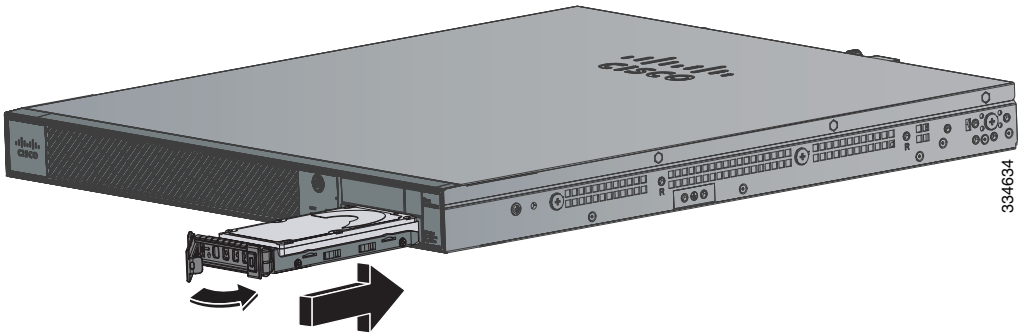
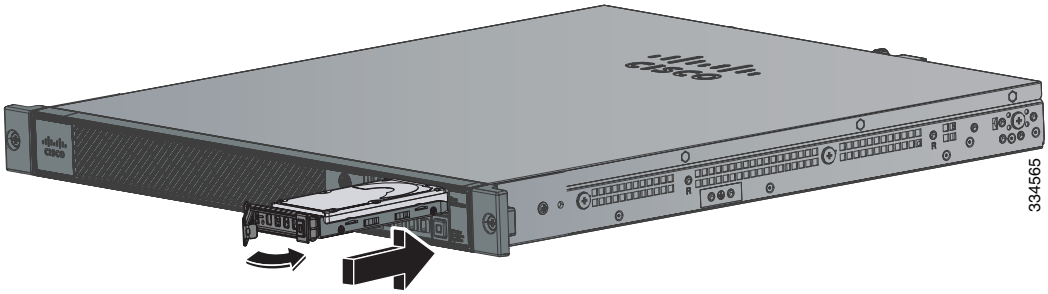


Figure 4-33 Installing the SSD in the ASA 5545-X and ASA 5555-X



Step 3 On the front panel of the ASA, make sure the HDD1(top SSD) and HDD0 (bottom SSD) indicators are solid green to indicate that the SSDs are now active.

Step 4 If you replaced the drive in the ASA 5512-X, ASA 5515-X, or ASA 5525-X, you need to reinstall the ASA CX using the ASA CX boot image. For more information refer to *Cisco ASA CX Module Quick Start Guide* found at this URL:
http://www.cisco.com/en/US/docs/security/asa/quick_start/cx/cx_qsg.html

If you replaced the drives in the ASA 5545-X and ASA 5555-X, the ASA rebuilds the data on the SSD because it is configured to be in RAID1.