



# Maintenance and Upgrade Procedures

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This chapter describes maintenance and upgrade procedures, and includes the following sections:

- [Removing and Installing SSPs, page 4-1](#)
- [Removing and Installing SSP Hard Disk Drives, page 4-4](#)
- [Installing and Removing Cisco ASA 5585-X Network I/O Modules, page 4-5](#)
- [Removing and Installing the Power Supply Module, page 4-11](#)
- [Removing and Installing the Fan Module, page 4-27](#)
- [Installing a Slide Rail Kit, page 4-29](#)
- [Installing and Removing a Slide-mounted Chassis, page 4-30](#)
- [Mounting the Chassis Using a Fixed Rack Mount, page 4-39](#)
- [Installing the Cable Management Brackets, page 4-41](#)
- [Troubleshooting Loose Connections, page 4-43](#)

## Removing and Installing SSPs

The ASA 5585-X comes with a core Security Services Processor (SSP) already installed (SSP-10, SSP-20, SSP-40, or SSP-60). You can install an additional SSP (core SSP, IPS SSP, ASA CX SSP, or FirePOWER SSP) in slot 1.

For a matrix describing which module configurations are allowed, see the [ASA Module Compatibility](#) table.



### Note

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Feature limitations may apply to dual SSPs. Refer to your configuration guide for more information.

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The add-on SSP will not run without the core SSP installed. The add-on SSP must be installed in the upper slot (slot 1), with the core SSP in the bottom slot (slot 0). You must power off the ASA 5585-X to remove and install SSPs; the SSPs are not hot-swappable.

To install and remove an add-on SSP in the ASA 5585-X, follow these steps:

- Step 1** If you are replacing an existing SSP, shut it down first by entering the following CLI command; otherwise continue with [Step 3](#):

```
asa# hw-module module 1 shutdown
Shutdown module in slot 1? [confirm]
```



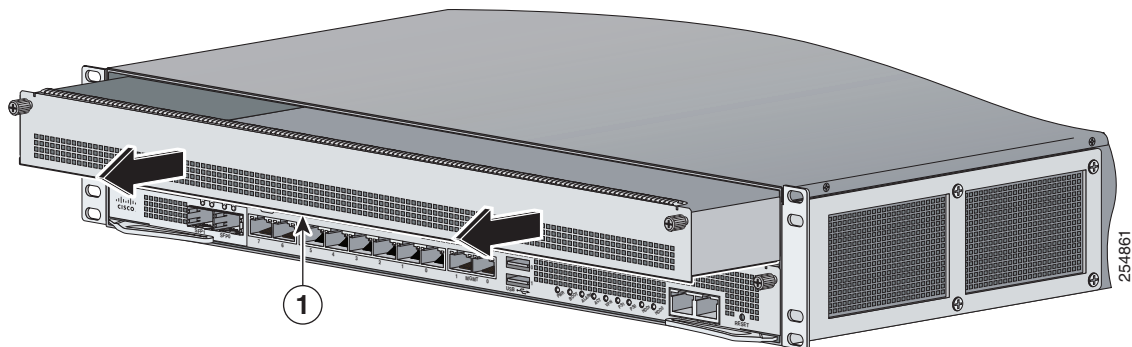
**Note** The core SSP resides in slot 0 (the bottom slot) while any additional SSP resides in slot 1 (the top slot).

- Step 2** Press **Enter** to confirm.
- Step 3** Save the running config before powering off the ASA 5585-X or the configuration will be lost. Enter the following CLI command:

```
asa# write memory
```

If you are using a management application such as ASDM or CSM to manage this ASA 5585-X, you also can use that application to save the configuration.

- Step 4** Power off the ASA 5585-X.
- Step 5** Remove the power cable from the ASA 5585-X.
- Step 6** If you are installing an add-on SSP for the first time, loosen the captive screws on the upper left and right of the slot tray (slot 1), and remove it. Store it in a safe place for future use. If you are replacing an existing SSP, continue with [Step 10](#).



<b>1</b>	Slot tray	
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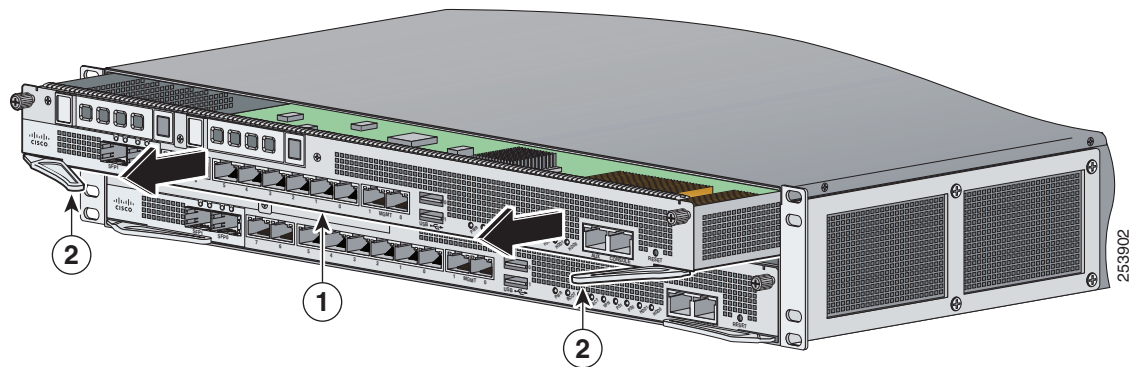


**Caution**

You must install slot trays in all empty slots to maintain the proper air flow. This also prevents EMI, which can disrupt other equipment.

- Step 7** On the front panel of the ASA 5585-X, loosen the captive screws from either the top slot (for the add-on SSP), or bottom slot (for the core SSP).

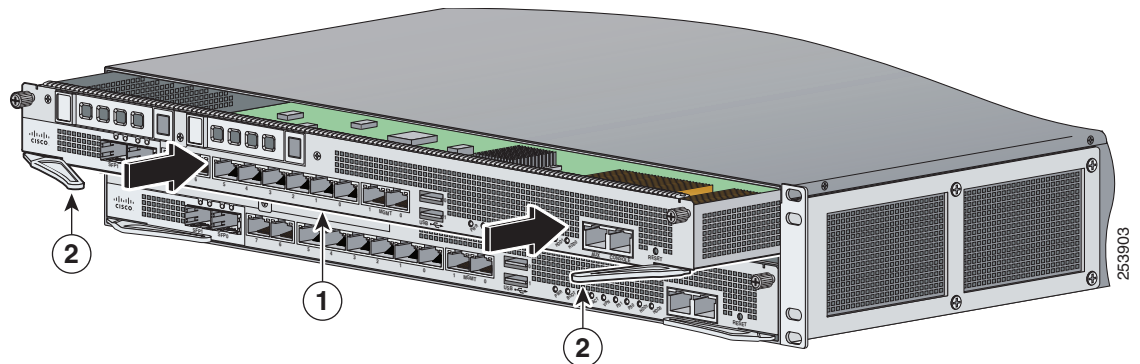
**Step 8** Grasp the ejection levers at the left and right bottom of the module slot and pull them out.



<b>1</b>	Module	<b>2</b>	Ejection levers
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**Step 9** Grasp the sides of the module and pull it all the way out of the chassis.

**Step 10** Install the new module by lining it up with the slot, first ensuring the ejection levers are extended.



<b>1</b>	Module	<b>2</b>	Ejection levers
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**Step 11** Slide the module into the slot until it is seated and then push the ejection levers into place.

**Step 12** Insert and tighten the captive screws.

**Step 13** Reconnect the power cable to the ASA 5585-X.

**Step 14** Power on the ASA 5585-X.

**Step 15** Press **Enter** to confirm.

**Step 16** Verify that the PWR indicator on the front panel is green.

# Removing and Installing SSP Hard Disk Drives

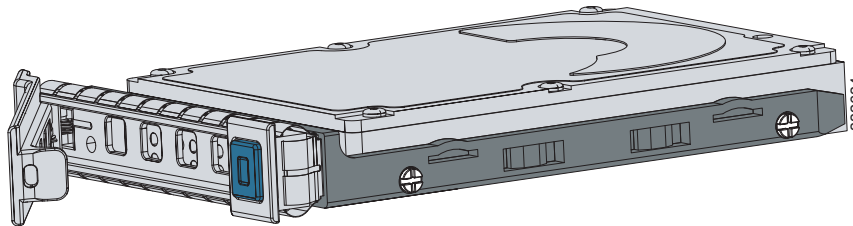
The CX or FirePOWER SSP resides in slot 1 (the top slot) of the Cisco ASA 5585-X. The SSP includes two hard disk drives in a RAID 1 configuration. If one of the hard disk drives fails, you can remove and install a replacement.


**Note**

Make sure that you replace the SSP hard disk drives with Cisco-approved hard disk drives.

Each hard disk drive is hot-swappable. The hard disk drive resides in a carrier, which you install into the SSP's hard disk drive bay. You can use the hard disk drive with an AC or DC power supply. Each hard disk drive is shipped in a carrier, as shown in [Figure 4-1](#).

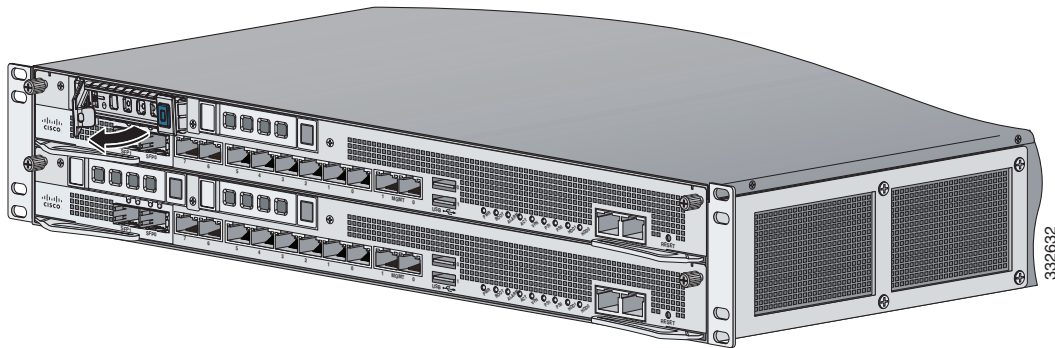
**Figure 4-1** SSP Hard Disk Drive in Carrier


**Caution**

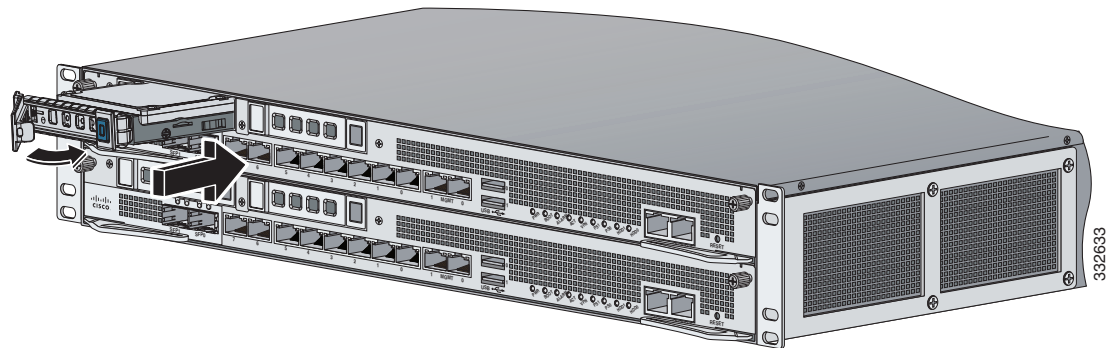
Make sure that you replace the failed hard disk drive as soon as possible; otherwise, if the remaining hard disk drive fails, all data is lost.

To remove and install a hard disk drive in the SSP, follow these steps:

- Step 1** From the front panel of the SSP, remove the hard disk drive by pressing the button on the right side of the bay until the locking lever is released. Pull out the hard disk drive.



- Step 2** On the front panel of the SSP, line up the hard disk drive carrier with the hard disk drive bay and push it in until it is seated. Push the locking lever into place.



- Step 3** On the front panel of the SSP, ensure the HDD1 (left hard disk drive) and HDD0 (right hard disk drive) indicators are flashing green to indicate that the drives are active.

## Installing and Removing Cisco ASA 5585-X Network I/O Modules

The ASA 5585-X comes with a core Security Services Processor (SSP-10, SSP-20, SSP-40, or SSP-60) already installed in slot 0. You can install one or two of the following optional network I/O modules in slot 1, which you divide into two slots using the accompanying slot divider:

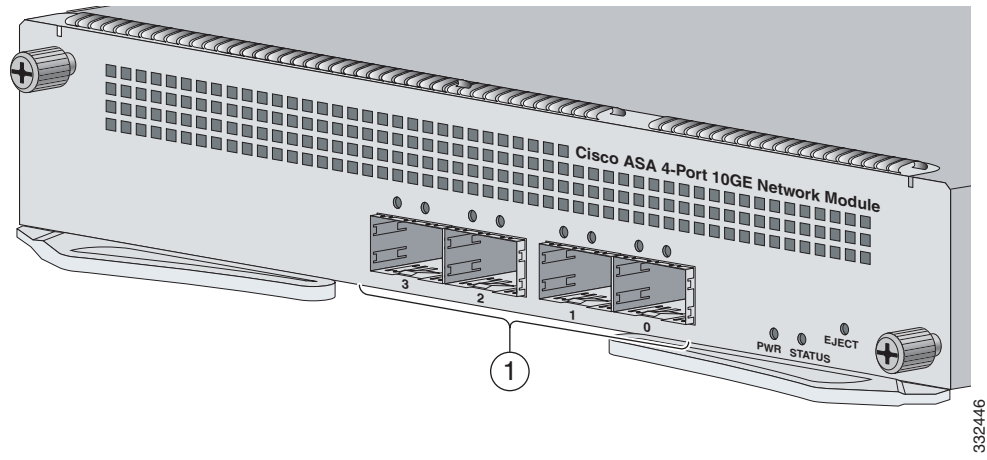
- Cisco ASA 5585-X 4-port 10-G Network I/O Module
- Cisco ASA 5585-X 8-port 10-G Network I/O Module
- Cisco ASA 5585-X 20-port 1-G Network I/O Module

The network I/O module is not hot-swappable, so you must power off the ASA 5585-X before installing or removing the module. You must have a Phillips head screwdriver to install the slot divider that divides slot 1 into two bays.

The ports are numbered right to left, with port 0 being the far right port and the far left port is either port 3, 7, or 19 depending on whether you have a 4-, 8-, or 20-port module. The 20-port numbers go from top to bottom, and right to left. For slot 1 (top right slot), the interface is named TenGigabitEthernet 1/0 through TenGigabitEthernet 1/3. For slot 2 (top left slot) the interface is named TenGigabitEthernet 2/0 through TenGigabitEthernet 2/7.

Figure 4-2 shows the port numbering for the 4-port network I/O module.

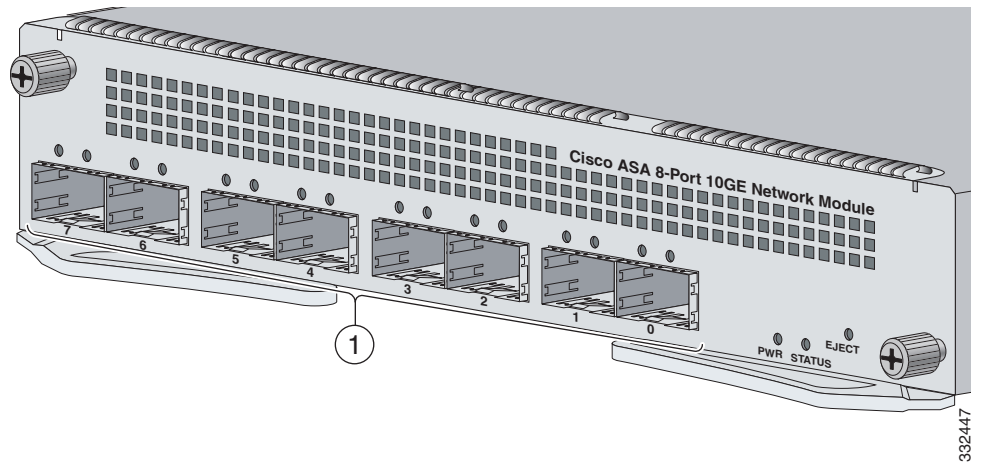
**Figure 4-2 4-Port Network I/O Module Port Numbering**



1	TenGigabitEthernet 00 through 03	
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Figure 4-3 shows the port numbering for the 8-port network I/O module.

**Figure 4-3 8-Port Network I/O Module Port Numbering**

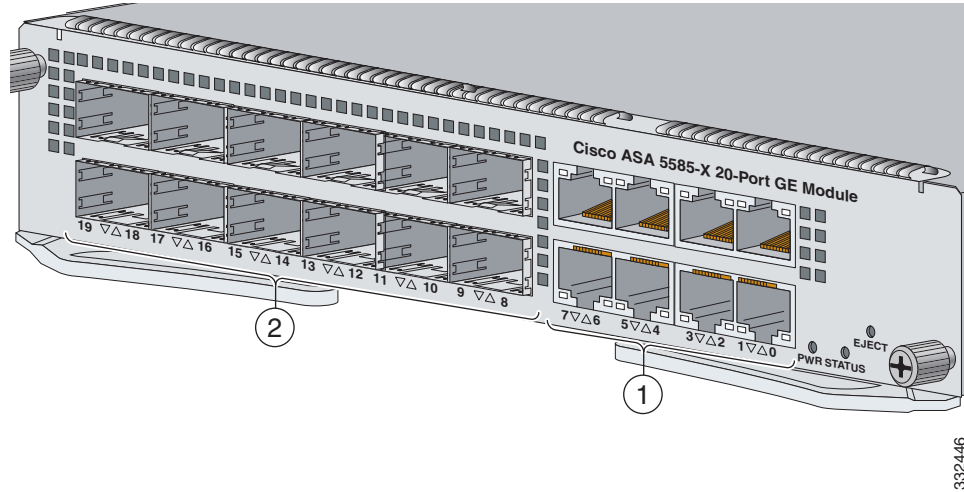


1	TenGigabitEthernet 00 through 07	
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Figure 4-4 shows the port numbering for the 20-port network I/O module. For slot 0, the interface is named GigabitEthernet 0/0 through GigabitEthernet 0/19.

**Figure 4-4 20-Port Network I/O Module Port Numbering**



<b>1</b> GigabitEthernet 00 through 07	<b>2</b> GigabitEthernet 08 through 19
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**Caution**

Be sure the ASA software version installed on your ASA 5585-X supports the network I/O modules and the accompanying SFP/SFP+ transceivers. Refer to [Cisco ASA Compatibility](#) for more information.

Table 4-1 lists the SFP/SFP+ transceiver modules supported by the ASA 5585-X.

**Table 4-1 SFP/SFP+ Transceiver Modules**

<b>1G SFP Module</b>	
GLC-SX-MM	1000 Base-SX SFP module
GLC-SX-MMD	1000BASE-SX short wavelength, with DOM
GLC-LH-SM	1000 Base-LX/LH SFP module
GLC-LH-SMD	1000BASE-LX/LH long-wavelength, with DOM
GLC-EX-SMD	1000 Base-EX SFP module, SMF, 1310nm, DOM
GLC-T	1000BASE-T standard
<b>10G SFP+ Module</b>	
SFP-10G-ER	10G ER SFP+ module
SFP-10G-SR	10G SR SFP+ module
SFP-10G-LRM	10G LRM SFP+ module
SFP-10G-LR	10G LR SFP+ module
SFP-H10GB-ACU7M	10GBASE-CU SFP+ Cable 7 Meter, active
SFP-H10GB-ACU10M	10GBASE-CU SFP+ Cable 10 Meter, active

Table 4-1 SFP/SFP+ Transceiver Modules (continued)

1G SFP Module	
SFP-H10GB-CU1M	10GBASE-CU SFP+ cable 1 meter, passive
SFP-H10GB-CU3M	10GBASE-CU SFP+ cable 3 meter, passive
SFP-H10GB-CU5M	10GBASE-CU SFP+ cable 5 meter, passive

**Note**

These SFP+ modules require ASA 8.2.5 or later: SFP-10G-LRM, SFP-10G-LR, SFP-H10GB-CU1M, SFP-H10GB-CU3M, and SFP-H10GB-CU5M.

**Note**

Only SFP/SFP+ transceiver modules certified by Cisco are supported on the ASA 5585-X.

**Caution**

Protect your SFP/SFP+ transceivers by inserting clean dust plugs into the SFP/SFP+ modules after extracting cables from them. Be sure to clean the surfaces of the fiber-optic cables before you plug them back into the optical bores of another SFP/SFP+ module. Avoid getting dust and other contaminants into the optical bores of your SFP/SFP+ modules. The cables 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

To install a 4-, 8-, or 20-port network I/O module and related SFP/SFP+ transceivers into the ASA 5585-X:

**Step 1** Power off the security appliance.

**Caution**

Network I/O modules are not hot-swappable.

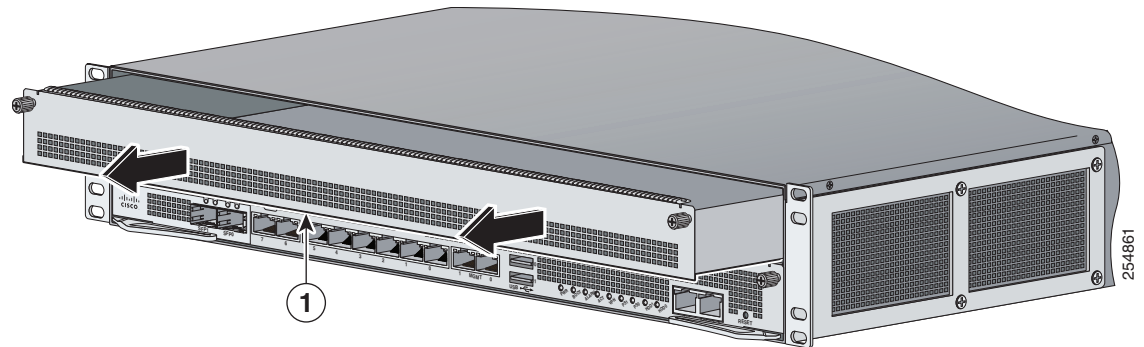
**Step 2** Locate a grounding strap, and fasten it to your wrist so that it contacts bare skin. Attach the other end to the chassis.

**Step 3** Loosen the captive screws on the upper left and right of the top slot tray (slot 1), and remove it (Figure 4-5). Store it in a safe place for future use.

**Caution**

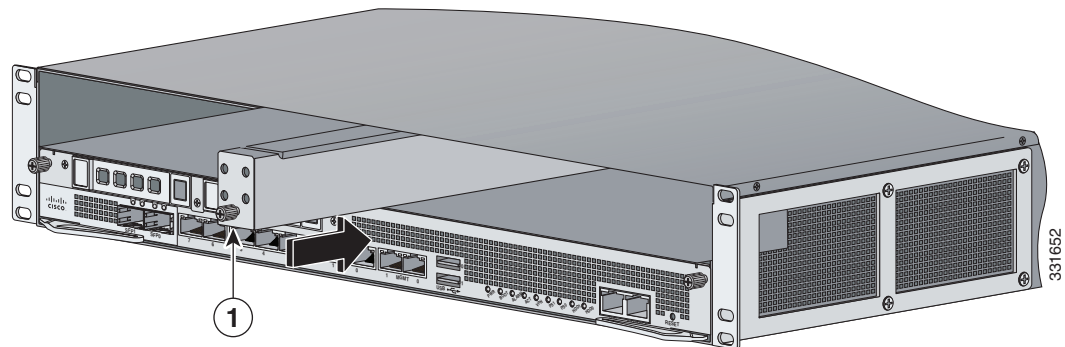
You must install slot covers on all empty slots to maintain the proper air flow. This also prevents EMI, which can disrupt other equipment.



**Figure 4-5** Removing the Empty Slot Tray

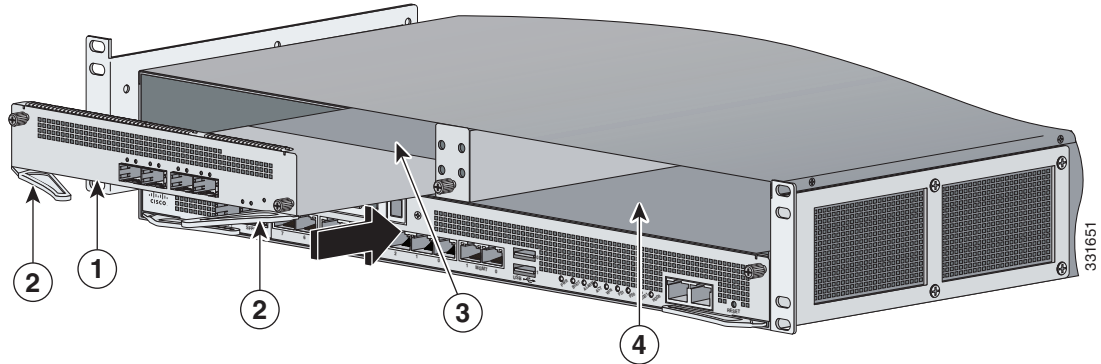
<b>1</b>	Empty slot tray		
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- Step 4** Install the slot divider in the middle of slot 1 by lining up the groove on the top of the slot divider with the inside track on the top of the security appliance and sliding it in until it is seated. Tighten the captive screw with a Phillips head screwdriver ([Figure 4-6](#)).

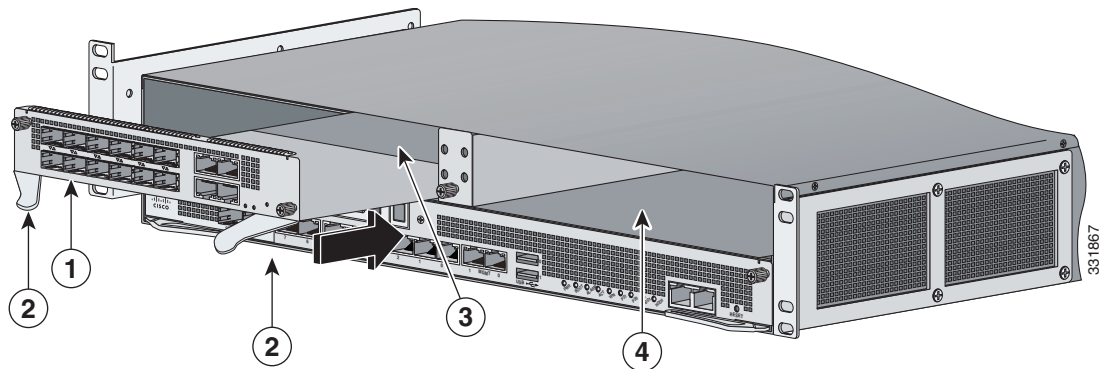
**Figure 4-6** Installing the Slot Divider

<b>1</b>	Slot divider with captive screw		
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- Step 5** Install a network I/O module by lining it up with either the left or the right bay of slot 1, making sure the ejection levers are extended ([Figure 4-7](#) and [Figure 4-8](#) on page 4-10).

**Figure 4-7** Installing a 4- or 8-Port 10-G Network I/O Module

<b>1</b>	4- or 8-port 10-G network module	<b>2</b>	Ejection levers
<b>3</b>	Slot 2 left bay	<b>4</b>	Slot 1 right bay

**Figure 4-8** Installing a 20-Port 1-G Network I/O Module

<b>1</b>	20-port 1-G network I/O module	<b>2</b>	Ejection levers
<b>3</b>	Slot 2 left bay	<b>4</b>	Slot 1 right bay

- Step 6** Slide the network module into the slot until it is seated and push the ejection levers back into place.
- Step 7** With your fingers, tighten the captive thumb screws.
- Step 8** If you are installing only one network I/O module, install a slot cover on the empty slot bay to protect it.

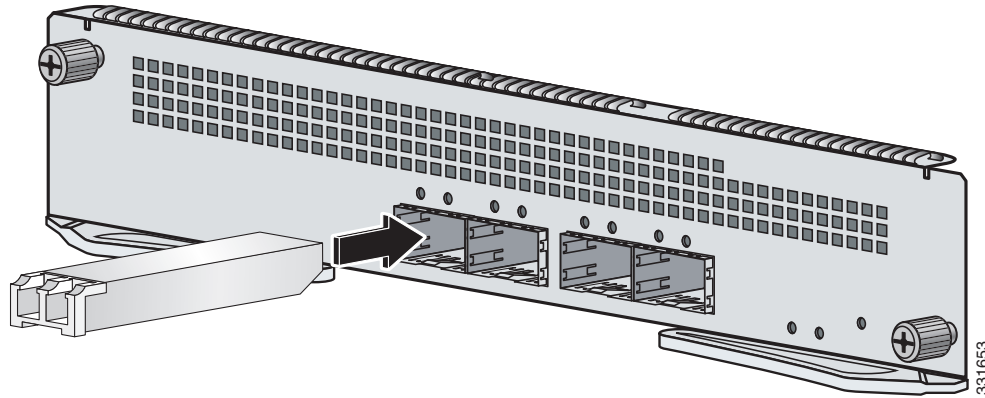
**Caution**

You must install slot covers on all empty slots to maintain the proper air flow. This also prevents EMI, which can disrupt other equipment.

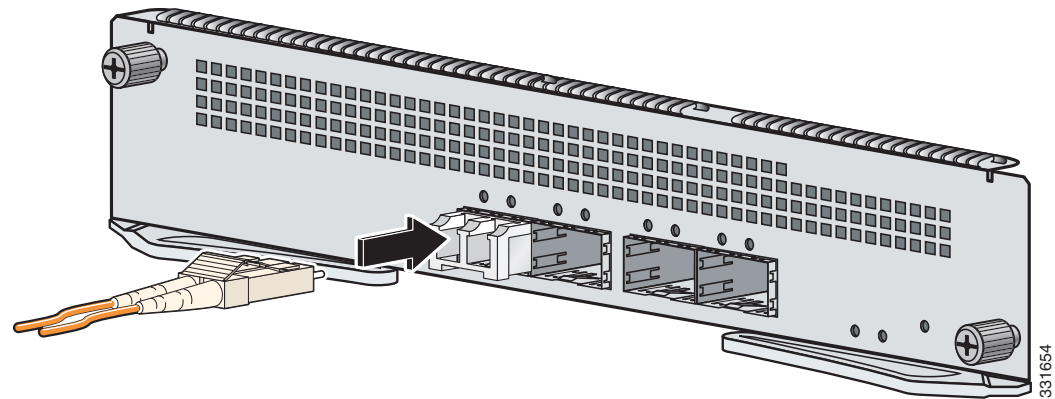
- Step 9** Install a SFP/SFP+ transceiver by aligning it with the I/O module port and sliding it into the port slot until it locks into position (Figure 4-9).

**Caution**

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

**Figure 4-9** Installing the SFP/SFP+ Transceiver

- Step 10** Remove the optical port plug, and then connect one end of an LC cable to the SFP/SFP+ transceiver module (Figure 4-10).

**Figure 4-10** Connecting the LC Cable

- Step 11** Connect the other end of the LC cable to a network device, such as a router or a switch.
- Step 12** After connecting all necessary cables, power on the security appliance.
- Step 13** Verify that the PWR indicator on the front panel is green.

## Removing and Installing the Power Supply Module

This section describes how to remove and install power supply modules in the ASA 5585-X, and includes the following topics:

- [AC/DC Power Supply Module Configurations, page 4-12](#)
- [AC Power Supply Module, page 4-12](#)
- [Removing and Installing an AC Power Supply Module, page 4-13](#)
- [DC Power Supply Module, page 4-16](#)
- [Installing the DC Power Supply Module, page 4-17](#)

- [Connecting DC Power to the ASA 5585-X](#), page 4-19
- [Removing the DC Power Supply Module](#), page 4-24

## AC/DC Power Supply Module Configurations

Table 4-2 lists the AD/DC power supply module configurations for the ASA 5585-X.

**Table 4-2 ASA 5585-X AC/DC Power Supply Module Configurations**

Model	AC Configuration		DC Configuration
	Option 1	Option 2	Only Option
SSP-10	Two AC power supply modules	One AC power supply module One fan module	Two DC power supply modules
SSP-20	Two AC power supply modules	One AC power supply module One fan module	Two DC power supply modules
SSP-40	Two AC power supply modules	One AC power supply module One fan module	Two DC power supply modules
SSP-60	Two AC power supply modules	N/A	Two DC power supply modules

## AC Power Supply Module

The ASA 5585-X ships with one AC power supply module and one fan module installed, except for the ASA 5585-X with SSP-60, which ships with two AC power supply modules installed in a load balancing/sharing configuration. The load balancing/sharing configuration ensures that if one power supply module fails, the other power supply module assumes the full load until the failed power supply module is replaced. To maintain airflow, both bays must be populated by either an AC power supply module and a fan module, or two AC power supply modules.

You can replace the fan module with a second AC power supply module in any of these models to create a redundant power-supply configuration. If you already have two AC power supply modules installed, you can install or replace either power supply module without powering off the appliance, as long as one power supply module is active and functioning correctly.

If only one power supply module is installed, do not remove the power supply module unless the appliance has been powered off. Removing the only operational power supply module causes an immediate power loss.



### Note

Only the ASA 5585-X with SSP-60 supports either two AC or two DC power supply modules. Do not mix AC and DC power supply modules in the same chassis.

Figure 4-11 shows the AC power-supply module indicator lights.

**Figure 4-11 AC Power Supply Module Indicator Lights**

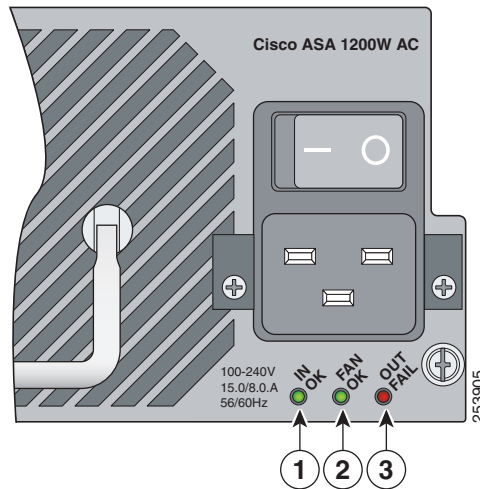


Table 4-3 describes the AC power supply module indicators.

**Table 4-3 AC Power Supply Module Indicators**

Figure Label	Indicator	Description
1	IN OK	Status of the power supply module: <ul style="list-style-type: none"> <li>Off—No AC power cord connected, or AC power switch is off.</li> <li>Green—AC power cord connected and AC power switch is on.</li> </ul>
2	FAN OK	Status of the fan module <ul style="list-style-type: none"> <li>Off—Fan module failure, or AC power switch is off.</li> <li>Green—AC power cord connected, AC power switch is on, and internal fan is running.</li> </ul>
3	OUT FAIL	<ul style="list-style-type: none"> <li>Red—Output voltage failure<sup>1</sup></li> </ul>

1. The power supply module has three output voltages—3.3V, 12V, and 50V.

## Removing and Installing an AC Power Supply Module



**Caution**

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



**Caution**

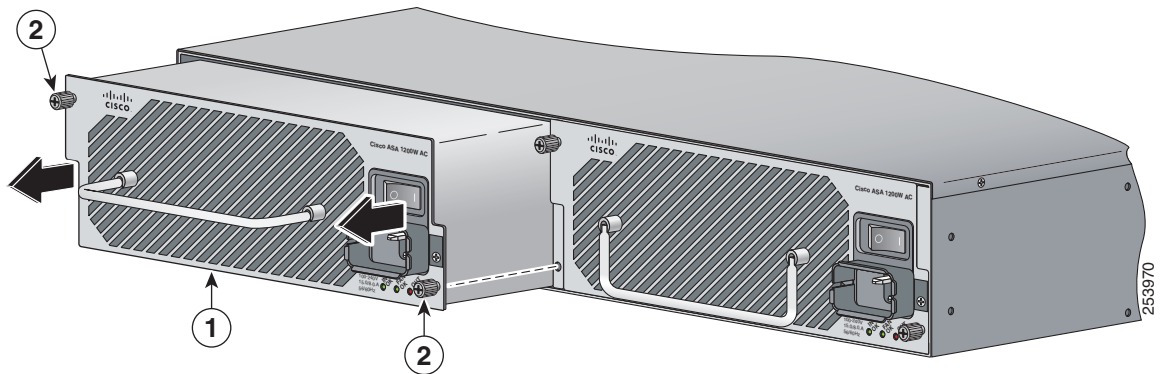
If the appliance is subjected to environmental overheating, it shuts down and you must manually power cycle it to turn it on again.

**Caution**

To remove and install a power supply module, follow these steps:

- Step 1** If you are removing the only power supply module, power off the security appliance.
- Step 2** From the back panel of the security appliance, unplug the power supply module cable.
- Step 3** On the back of the security appliance, loosen the captive screws from the power supply module (Figure 4-12).

**Figure 4-12** Removing the AC Power Supply Module

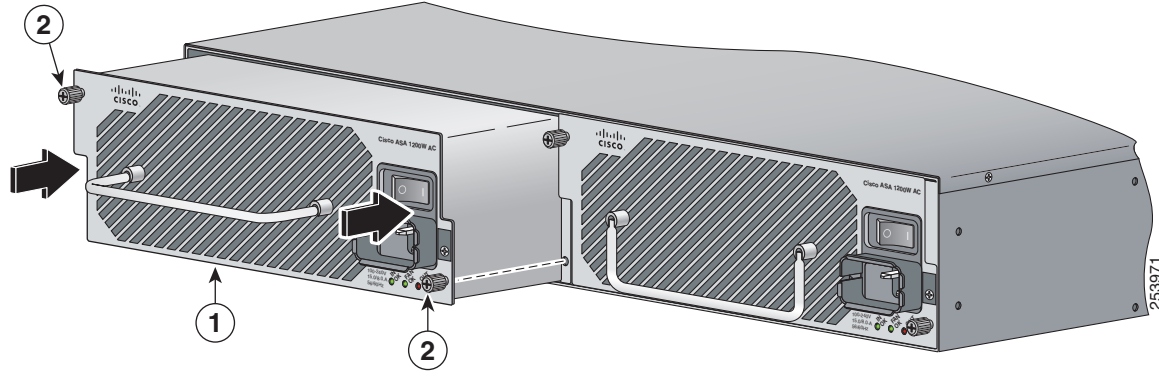


<b>1</b>	Power supply module and power supply module handle	<b>2</b>	Power supply module screws
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- Step 4** Remove the power supply module by grasping the handle and pulling the power supply module away from the chassis.

**Step 5** Install the new power supply module by aligning it with the power supply module bay and pushing it into place until it is seated (Figure 4-13).

**Figure 4-13** Installing the AC Power Supply Module

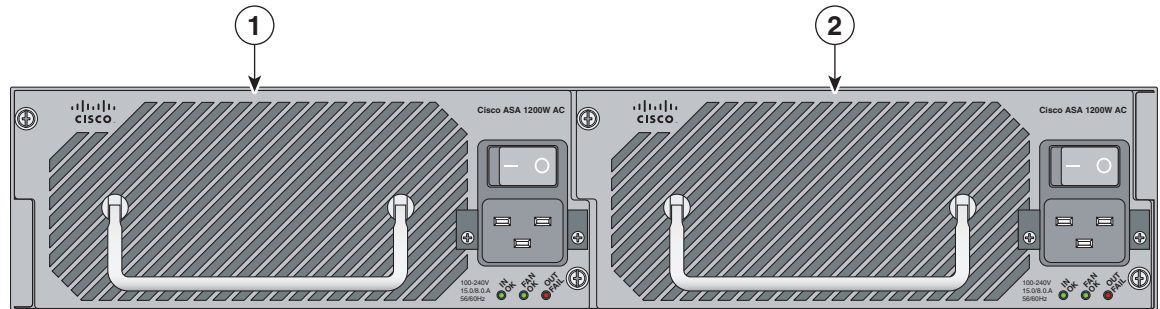


<b>1</b>	Power supply module and power supply module handle	<b>2</b>	Power supply module screws
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**Step 6** Tighten the captive screws.

**Step 7** Reconnect the power cable. If you are installing two power supply modules for a redundant configuration (Figure 4-14), plug each one into a power source—we recommend a UPS.

**Figure 4-14** PS0 and PS1



<b>1</b>	Power supply module (PS0)	<b>2</b>	Power supply module (PS1)
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**Step 8** If you had to power off the security appliance because you are removing and replacing the only power supply module, power it back on.

**Step 9** Check the PS0 and PS1 indicators on the front panel to make sure they are green. On the back panel of the security appliance, make sure the IN OK and the FAN OK indicators are green and the OUT FAIL indicator is off (see Figure 4-11 and Table 4-3).



## DC Power Supply Module

The ASA 5585-X ships with two DC power-supply modules installed in a load balancing/sharing configuration. This is the only supported DC power-supply module configuration. The load balancing/sharing configuration ensures that if one DC power supply module fails, the other DC power supply module assumes the full load until the failed power-supply module is replaced. To maintain air flow, both bays must be populated by two DC power-supply modules.

You can install or replace either power-supply module without powering off the appliance, as long as one power-supply module is active and functioning correctly.


**Note**

Only the ASA 5585-X SSP-60 supports either two AC or two DC power-supply modules. Do not mix AC and DC power-supply modules in the same chassis.

Figure 4-15 shows the DC power-supply module indicator lights and power-switch labels.

**Figure 4-15** DC Power Supply Module Indicator Lights and Power Switch Labels

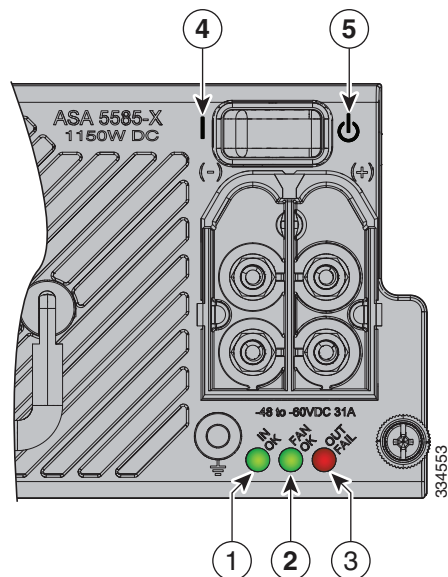


Table 4-4 describes the DC power-supply module indicators and power-switch position labels.

**Table 4-4 DC Power Supply Module Indicators**

Figure Label	Indicator	Description
1	IN OK	Status of power-supply module: <ul style="list-style-type: none"> <li>• Unlit—No DC power cables connected, or DC power switch is off.</li> <li>• Green—DC power cables connected and DC power switch is on.</li> </ul>
2	FAN OK	Indicates status of fan module <ul style="list-style-type: none"> <li>• Unlit—Fan module failure, or DC power switch is off.</li> <li>• Green—DC power cables connected, DC power switch is on, and internal fan is running.</li> </ul>
3	OUT FAIL	<ul style="list-style-type: none"> <li>• Red—Output voltage failure<sup>1</sup></li> </ul>
4	ON	<ul style="list-style-type: none"> <li>• When this side of power switch is depressed, power is on.</li> </ul>
5	STANDBY	<ul style="list-style-type: none"> <li>• When this side of power switch is depressed, device is in stand-by mode.</li> </ul>

1. The power-supply module has three output voltages—3.35 V, 12.5 V, and 50 V.

## Installing the DC Power Supply Module

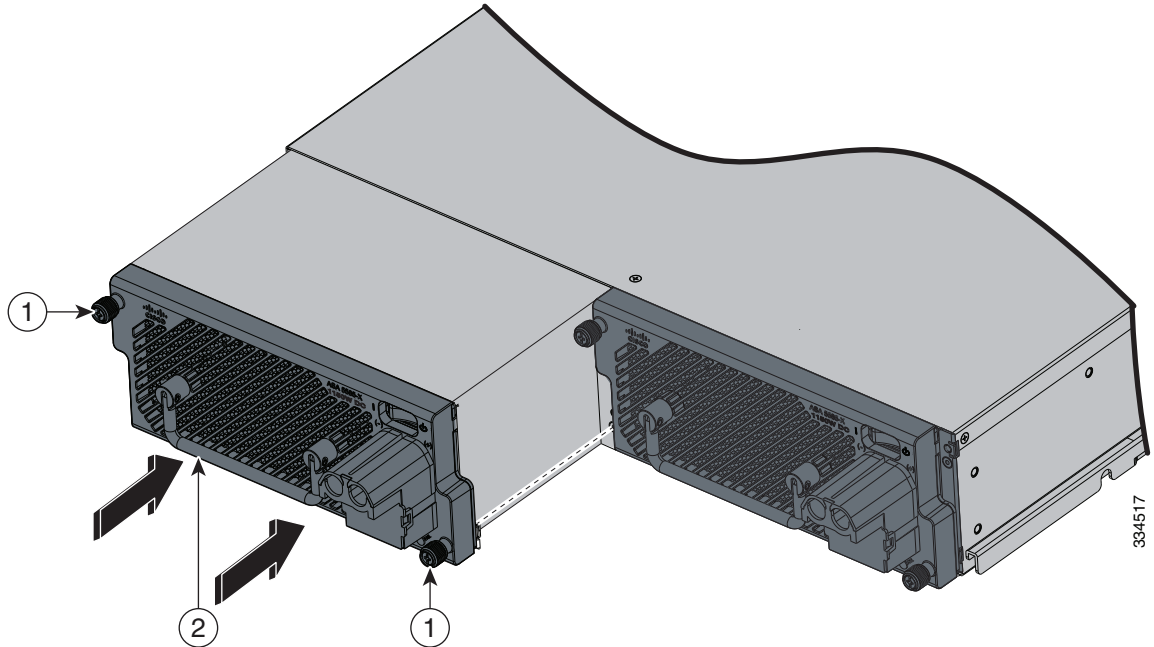
The DC power-supply module has a 1150-W output with three DC voltage outputs of 50 V, 12.25 V, and 3.35 V. The module operates between -40.5 to -72 VDC. The power-supply module shares current on the 50V and 12.25 V outputs, and can only be used in a dual (redundant) hot-pluggable configuration. The DC power-supply module operates from a single 40 A DC input circuit with at full output load of 1150 W, -40.5 VDC input, and does not exceed 33 A.

To install a DC power-supply module in the ASA 5585-X, follow these steps:

- Step 1** Remove existing modules from the appliance:
- a. If you are replacing AC power with DC power, remove both modules from the appliance (fan module and power supply module, or both power supply modules) as shown in Step 1 through Step 4 in [Removing and Installing an AC Power Supply Module, page 4-13](#). Continue with Step 2.
  - b. If you are replacing a failed DC power-supply module with a new DC power-supply module, follow the steps in [Removing the DC Power Supply Module, page 4-24](#), and then continue with Step 2.

- Step 2** Install the new power-supply module by aligning it with the power-supply module bay and pushing it into place until it is seated (Figure 4-16).

**Figure 4-16** Installing the DC Power Supply Module



<b>1</b>	Power-supply module screws	<b>2</b>	Power-supply module and module handle
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- Step 3** Tighten the captive screws.
- Step 4** Repeat Steps 2 and 3 to install the second power-supply module.



**Note** You must have two DC power-supply modules installed at all times.

- Step 5** Connect DC power source by following the steps in [Connecting DC Power to the ASA 5585-X](#), page 4-19.

## Connecting DC Power to the ASA 5585-X

This section describes how to connect DC power to the Cisco ASA 5585-X, and contains the following topics:

- [Prerequisites, page 4-19](#)
- [Connecting the DC Power Supply, page 4-20](#)

### Prerequisites



#### Caution

Before you connect the power supply module to a power source, be sure the chassis is properly grounded.

Use the following tools and parts to connect the DC power-supply module:

- 5/16-inch nut-driver
- M4 nut-driver
- Source DC cable lugs with the following requirements:
  - Two holes with  $0.62\pm 0.02$ -inch spacing between the hole centers to accommodate the power-supply terminal posts.
  - A 90-degree bend in the barrel to allow the source DC cables to exit the terminal block.
- Source DC ground wire lugs with the following requirements:
  - A single hole that can accommodate the 4-mm ground post.
  - Either a straight or bent barrel.



#### Note

The source DC cable and the terminal block lugs should be sized according to local and national installation requirements and electrical codes. Use only copper wire. We recommend FCI Burndy type YA4CL-2TC10-90 and Panduit type LCD10-10AF-L dual-hole 90 degree lugs, or the equivalent.



#### Note

These parts and tools are not supplied as part of the chassis accessory kit or the DC power-supply module kit. You must purchase them separately.

Table 4-5 shows the source DC cable and ground cable-lug tightening torque ratings.

**Table 4-5** Lug Torque Ratings

Lug	Maximum Torque	Recommended Torque
Source DC cable lugs	4.07Nm	2.5Nm
Source DC ground cable lugs	2.5Nm	2Nm



#### Warning

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

**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**

**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

**Warning**

**Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.** Statement 1075

**More Information**

For the procedure for connecting the system ground, see [Establishing the System Ground, page 3-1](#).

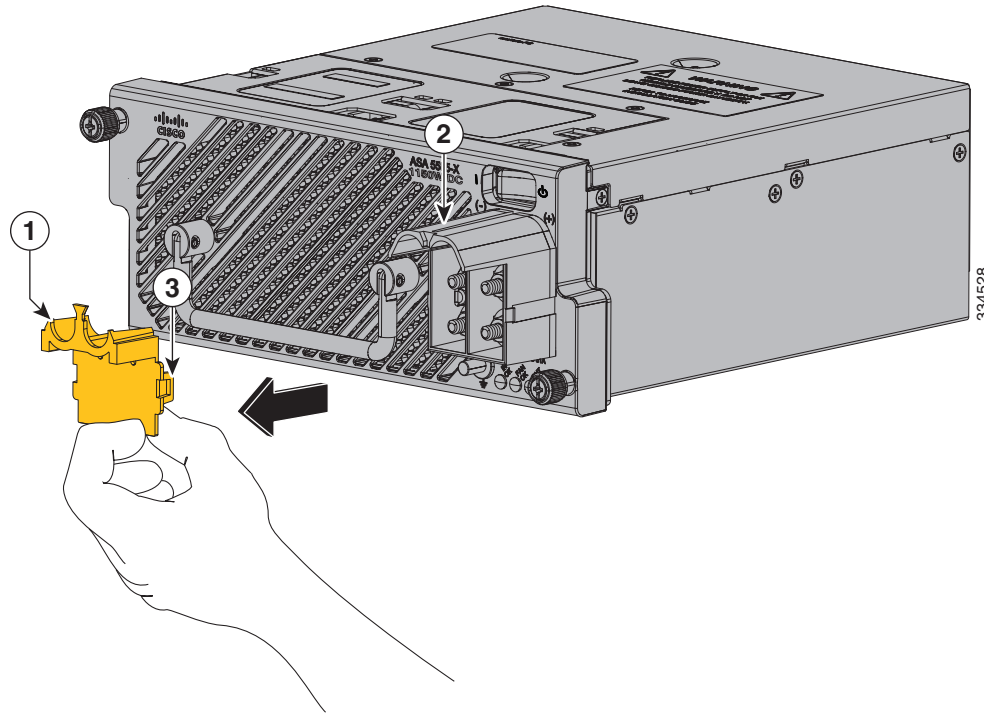
## Connecting the DC Power Supply

To connect source DC to the DC-input power supply, follow these steps:

- 
- Step 1** Set the power switch or circuit breaker to the off (0) position on the source DC circuit that feeds the power supply you are installing.
- As an added precaution, place the appropriate safety flag and lock-out devices at the source-power circuit breaker, or place a piece of adhesive tape over the circuit breaker handle to prevent accidental power restoration while you are working on the circuit.
- Step 2** Verify that the power switch on the power supply you are installing is in the STANDBY ( ⚡ ) position.

- Step 3** Remove the terminal block cover by simultaneously squeezing the left and right sides of the terminal block, and at the same time pulling the cover off the terminal block; set the cover aside (Figure 4-17).

**Figure 4-17** Removing the Terminal Block Cover



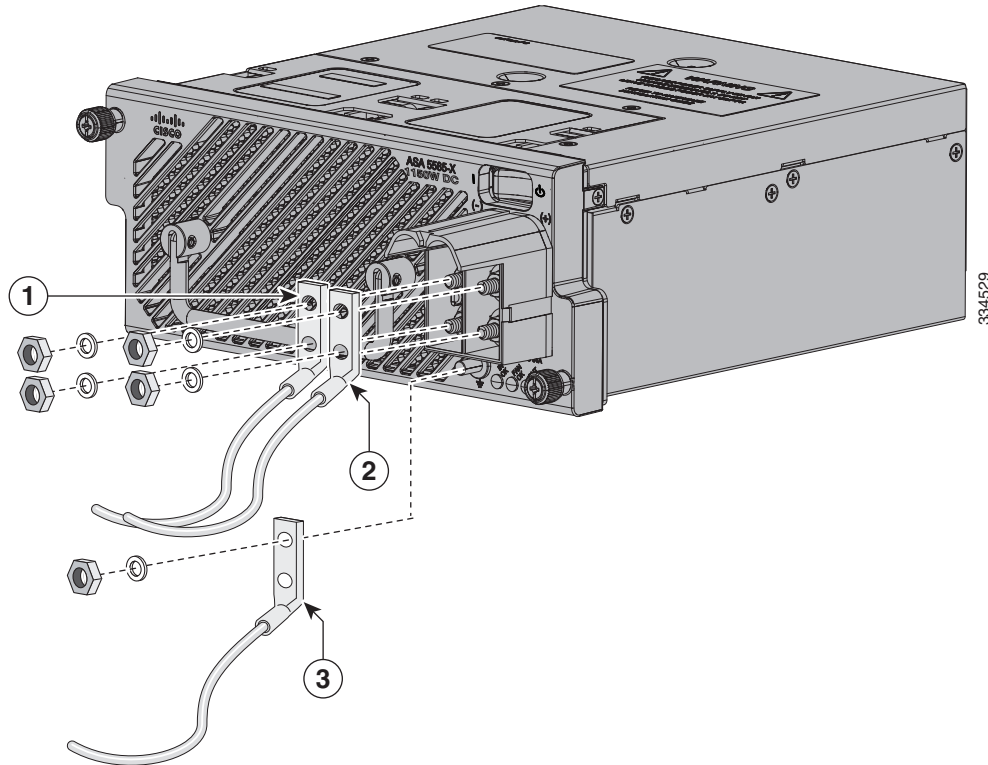
<b>1</b>	Terminal block cover	<b>2</b>	Terminal block
<b>3</b>	Terminal block cover clip		

- Step 4** Using a 5/16-inch nut-driver, loosen and remove the four nut and lock-washer pairs on the terminal block posts. Set the nuts and lock-washers aside.
- Step 5** Using an M4 nut-driver, loosen and remove the nut and lock-washer from the power supply ground terminal.
- Step 6** Attach the source DC power cable lugs to the source DC cables.
- Step 7** Attach the source DC ground wire lug to the source DC ground wire.
- Step 8** Connect the source DC cables to the terminal block in this order (Figure 4-18 on page 4-22):
- Position the ground cable lug on the power supply ground terminal post. Slide the lock-washer over the ground post and tighten the nut to secure the source DC ground wire. Do not over-tighten the nut (see Table 4-5).
  - Position the negative (–) source DC cable lug on the power-supply negative (–) terminal posts. Slide the lock-washers over the terminal posts and tighten the nuts to secure the source lug to the posts. Do not over-tighten the nuts (see Table 4-5).
  - Position the positive (+) source DC cable lug on the power supply positive (+) terminal posts. Slide the lock-washers over the terminal posts and tighten the nuts to secure the source lug to the posts. Do not over-tighten the nuts (see Table 4-5).

**Note**

The terminal block on the 1150 W DC-input power supply is labeled negative (–)—that is, the two left-side posts—and positive (+)—the two right side posts. The ground post is located on the DC-input power supply faceplate, separate from the terminal block.

**Figure 4-18 Attaching the Source DC Cables to the Power Supply Module**



<b>1</b>	Source DC negative (–) cable	<b>2</b>	Source DC positive (+) cable
<b>3</b>	Source DC ground cable		

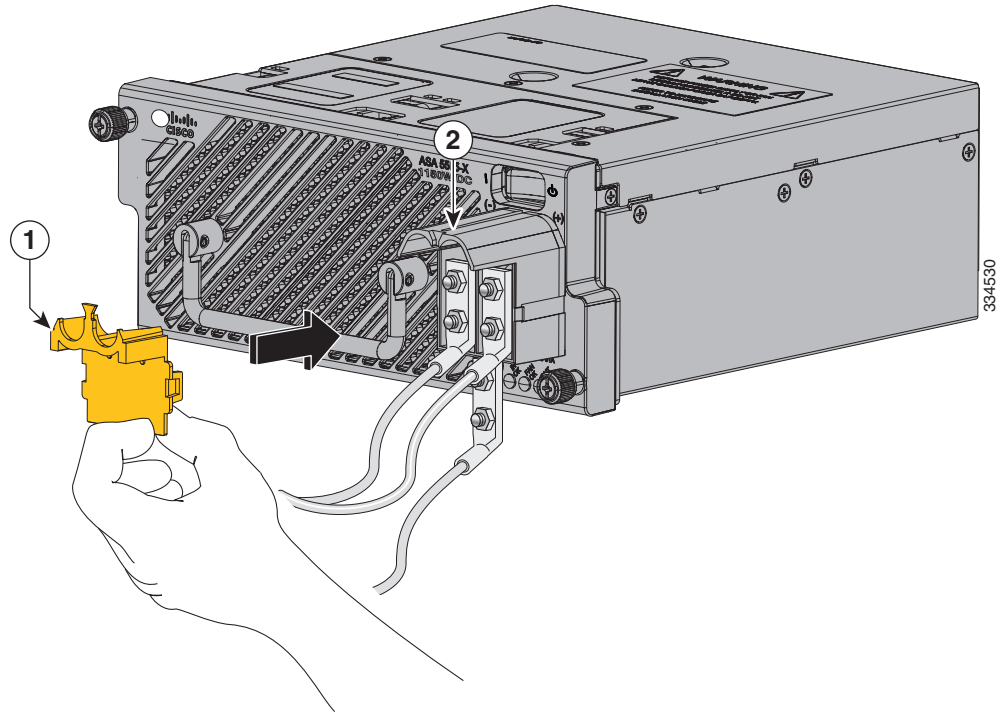
- Step 9** Route the two source DC cables out of the terminal block, position the terminal block cover over the terminal block, and snap the cover into place (Figure 4-19 on page 4-23). Make sure that both the top and the bottom clips on the terminal block cover have fully engaged the tabs on the terminal block.

**Caution**

To prevent short circuit or shock hazard after wiring the DC-input power supply, you must re-install the terminal block cover.



Figure 4-19 Reinstalling the Terminal Block Cover



1 Terminal block cover	2 Terminal block
------------------------	------------------

**Step 10** Repeat Steps 2 through 9 to connect power to the second power-supply module.



**Note** You must have two DC power-supply modules installed at all times.

**Step 11** Remove any safety flag and lockout devices, or any tape, from the source DC circuit breaker switch handle.

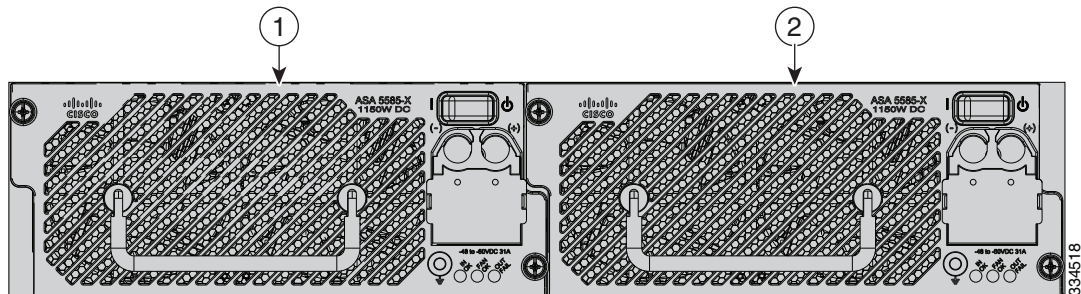
**Step 12** Verify that the power cable ends at the power source are connected.

**Step 13** Restart power by moving the circuit breaker switch handle to the on (!) position.

**Step 14** If you powered off the appliance because you are removing and replacing both power supply modules, power it back on. If you replaced only one power supply module, the power source is already on. You can hot swap the module you are replacing and then turn its power back on.

- Step 15** 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 IN OK and the FAN OK indicators are green and the OUT FAIL indicator is off (see [Figure 4-20](#) and [Table 4-4](#) on page 4-17).

**Figure 4-20** PS0 and PS1



1	Power supply module (PS0)	2	Power supply module (PS1)
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## Removing the DC Power Supply Module

Use the following tools and parts to disconnect the DC power supply module:

- 5/16-inch nut-driver
- M4 nut-driver



**Warning**

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



**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**

**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



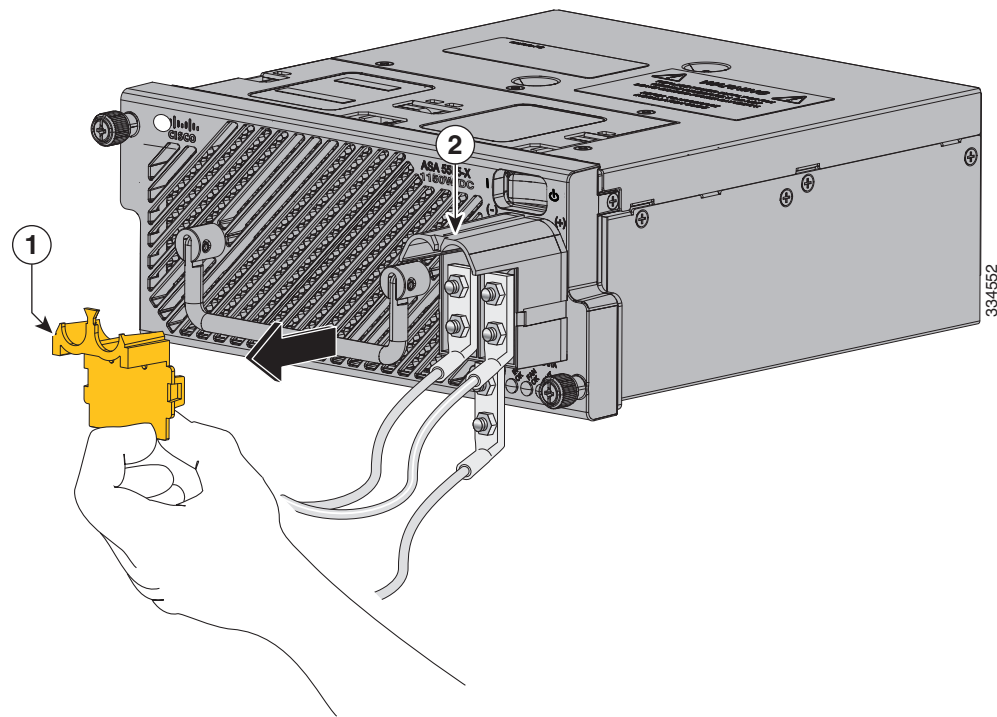
**Warning**

**Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.** Statement 1075

Follow these steps to disconnect the source DC to the DC-input power supply and remove the DC power-supply module:

- Step 1** Set the power switch or circuit breaker to the off (0) position on the source DC circuit that feeds the power supply that you are installing.
- As an added precaution, place the appropriate safety flag and lockout devices at the source power circuit breaker, or place a piece of adhesive tape over the circuit breaker handle to prevent accidental power restoration while you are working on the circuit.
- Step 2** Verify that the power switch on the power supply you are removing is in the STANDBY ( Ⓛ ) position.
- Step 3** Remove the terminal block cover by simultaneously squeezing the left and right sides of the terminal block, and at the same time pull the cover off the terminal block; set the cover aside (Figure 4-21).

**Figure 4-21** Removing the Terminal Block Cover

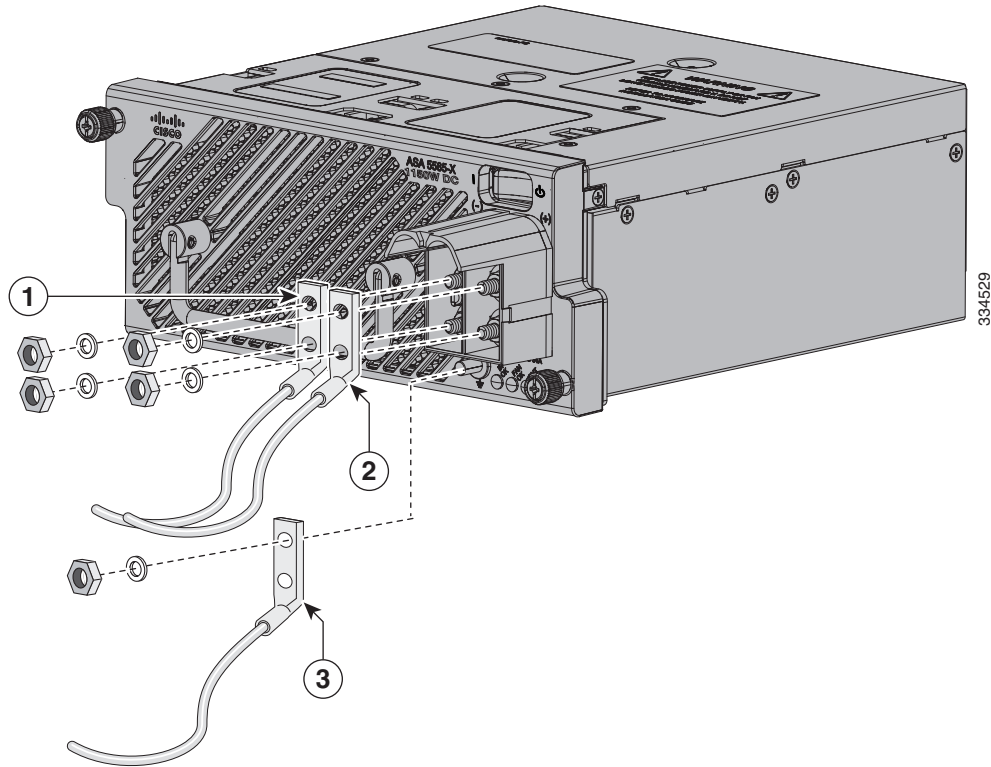


<b>1</b>	Terminal block cover	<b>2</b>	Terminal block
<b>3</b>	Terminal block cover clip		

- Step 4** Using a 5/16-inch nut-driver, loosen and remove the four nut and lock-washer pairs from the DC power lugs. Set the nuts and lock-washers aside (Figure 4-22 on page 4-26).

- Step 5** Using an M4 nut-driver, loosen and remove the nut and lock-washer from the power-supply ground wire lug (Figure 4-22).

**Figure 4-22** Removing the Source DC Cables from the Power Supply Module

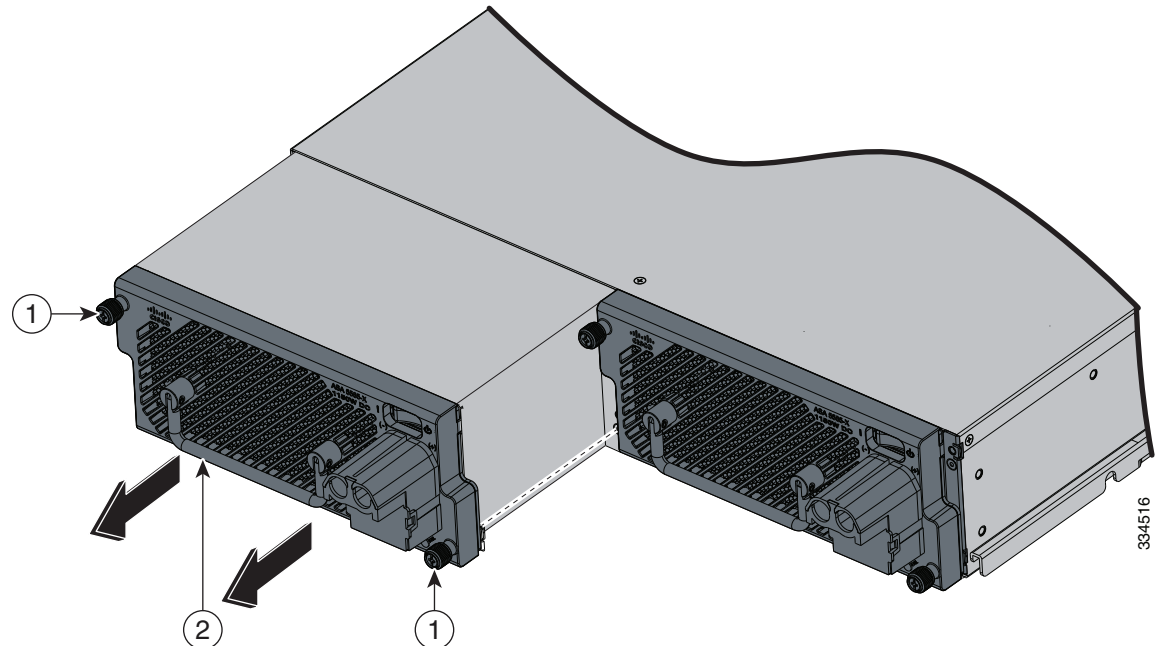


<b>1</b>	Source DC negative (-) cable	<b>2</b>	Source DC positive (+) cable
<b>3</b>	Source DC ground cable		

- Step 6** Remove the DC negative, positive, and ground cables.

- Step 7** On the back of the security appliance, loosen the captive screws from the power supply module (Figure 4-23).

**Figure 4-23** Removing the DC Power Supply Module



<b>1</b>	Power supply module screws	<b>2</b>	Power supply module and module handle
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- Step 8** Remove the power-supply module by grasping the handle and pulling the module out of the chassis.

## Removing and Installing the Fan Module

The ASA 5585-X ships with one fan module and one power-supply module installed, except for the ASA 5585-X SSP-60, which ships with two power-supply modules. You can replace the fan module in the ASA 5585-X if necessary. The fan module is hot-pluggable. You can install or replace the fan module without powering down the ASA 5585-X, as long as the power-supply module is active and functioning correctly. To maintain airflow, both bays must be populated by either a power-supply module and a fan module, or two power-supply modules.



**Note**

A power-supply module is required for the system to operate.

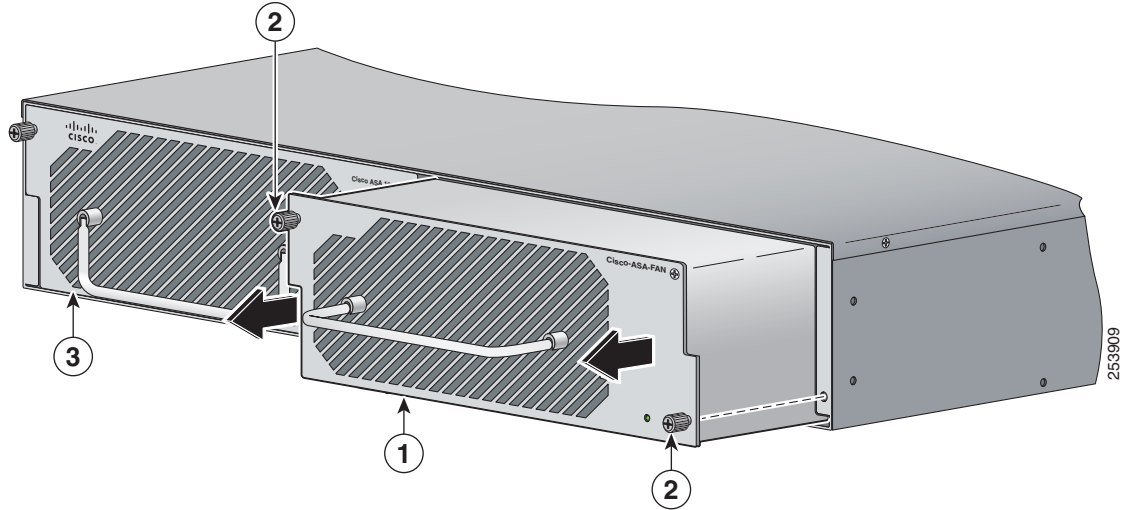


**Caution**

If you remove a power-supply or fan module, replace it immediately to prevent service disruption.

To remove and install a fan module, follow these steps:

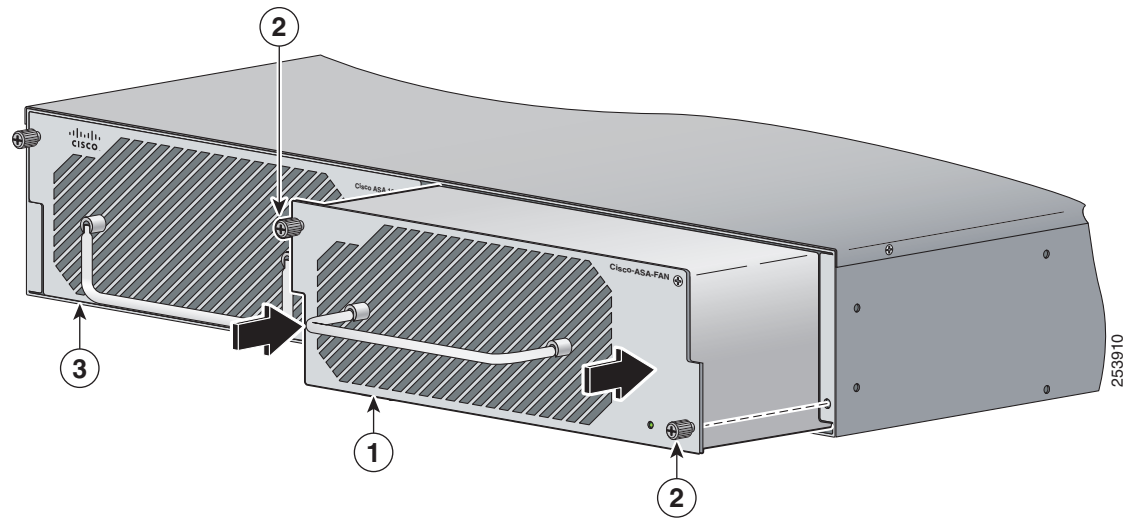
- Step 1** From the right-hand side of the back panel of the ASA 5585-X loosen the captive fan-module screws until they release.



<b>1</b>	Fan module and module handle	<b>2</b>	Fan module screws
<b>3</b>	Power supply module		

- Step 2** Remove the fan module by grasping the handle and pulling the fan module away from the chassis.

- Step 3** Install the new fan module by aligning it with the fan module bay and pushing it into place until it is seated.



1	Fan module and module handle	2	Fan module screw
3	Power supply module		

- Step 4** Tighten the captive screws.
- Step 5** Verify that the fan indicator on the lower right-hand of the back panel is green.

## Installing a Slide Rail Kit

Before installing the appliance in a rack-mount slide rail, you must install the slide rail kit hardware.



### Note

The slide rail kit hardware ships with the ASA 5585-X.

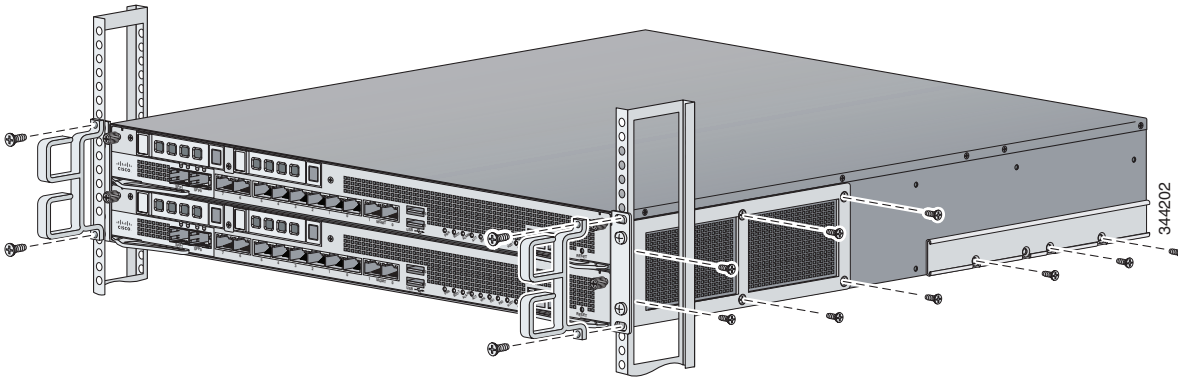
To install the slide rail kit hardware on the ASA 5585-X, follow these steps:

- Step 1** Power off the appliance.
- Step 2** Remove the power cable from the appliance.
- Step 3** If your appliance has the fixed cable-management brackets, do the following:
- Remove the cable-management brackets from the front sides of the appliance.
  - Remove the appliance from the rack.
  - Remove the front brackets, left and right side brackets, and left and right rear brackets from the appliance.



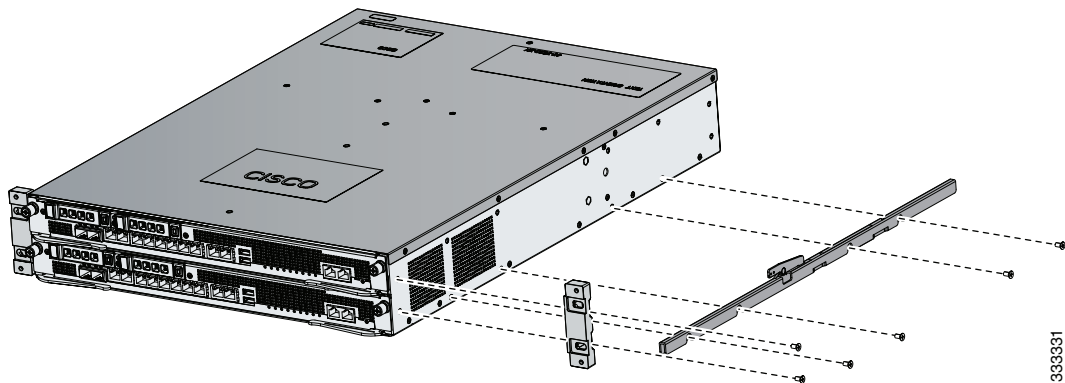
Figure 4-24 shows all of the brackets that can be removed for the fixed rack mount.

**Figure 4-24** Brackets for the Fixed Rack Mount



Attach the slide rail hardware (front brackets, and left and right side brackets) to the appliance. The brackets are labeled RIGHT and LEFT. This prepares the appliance for installation in the rack using the slide rail kit. Figure 4-25 shows all of the brackets you need to install on the appliance.

**Figure 4-25** Brackets for the Slide Rail Kit



## Installing and Removing a Slide-mounted Chassis



### Note

A slide rail kit ships with the ASA 5585-X.

After you have installed slide rail hardware on the appliance, you can install the slide rails in the rack and install the chassis. This section describes how to install and remove rack slide rails and the ASA 5585-X, and contains the following sections:

- [Package Contents, page 4-31](#)
- [Installing the Chassis in the Rack, page 4-31](#)
- [Removing the Chassis from the Rack, page 4-37](#)

## Package Contents

The slide rail kit package contains the following items:

- Left and right slide rails
- Six #10-32 screws
- Two #10-32 cage nuts

## Installing the Chassis in the Rack

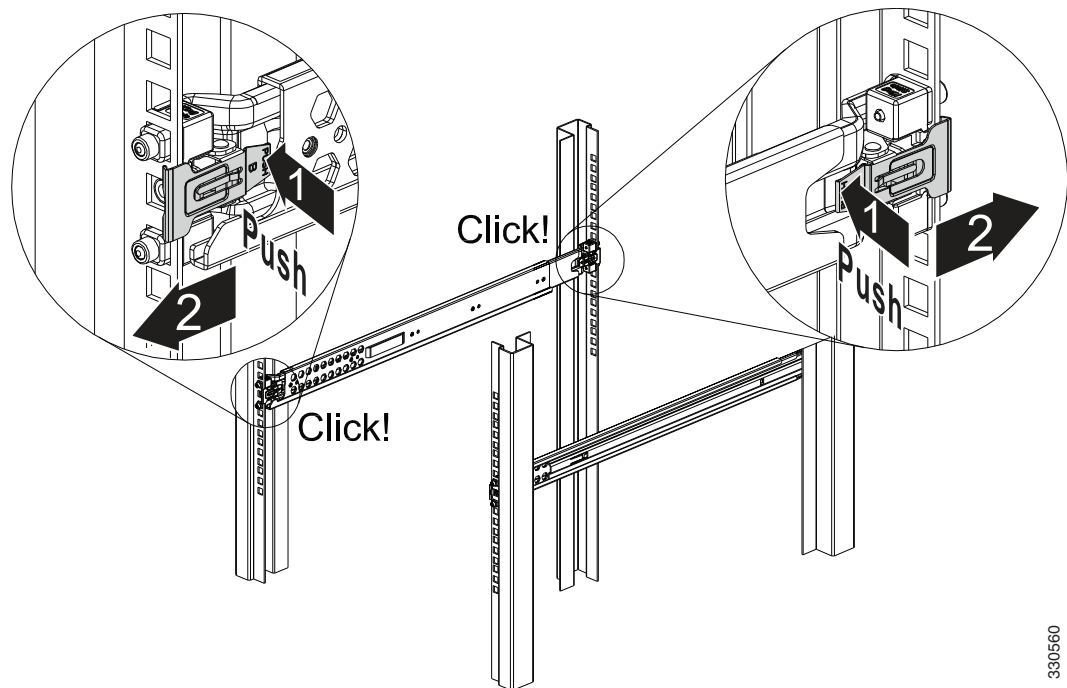
To install the chassis in the rack using the slide rail kit, follow these steps:

- Step 1** Press the latch on the end of the slide rail and push forward to engage the pins in the rack until the clip clicks and locks around the rack post (Figure 4-26).



**Note** The slide rails are labeled 'left' and 'right.' Install the left slide rail on the left side of the rack and the right slide rail on the right side of the rack.

**Figure 4-26** Press and Push to Install the Slide Rail

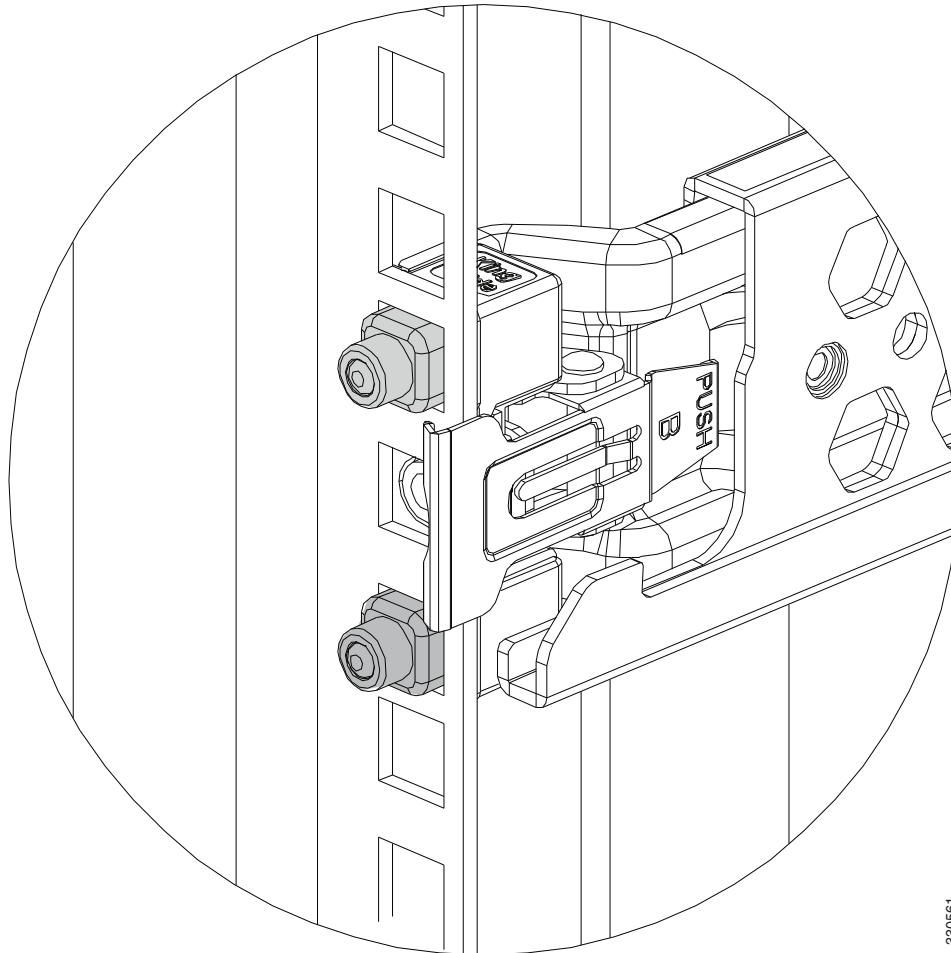


For square hole posts, square studs must be attached fully inside the square hole on the rack rail. For threaded hole posts, the round stud must fully enter inside the threaded hole rack rail (Figure 4-27).



**Note** After installing the square or round studs into the rack post, verify that the locking clip is fully seated and secure against the rack rail.

**Figure 4-27** Square Studs for Square Hole Post



- Step 2** Secure the slide rail to the rack post with the provided #10-32 screws by tightening the screws at the front and rear end of the slide rail to the rack post (Figure 4-28). Both front and rear rack posts must be secured with the screws before you install the chassis.



**Caution**

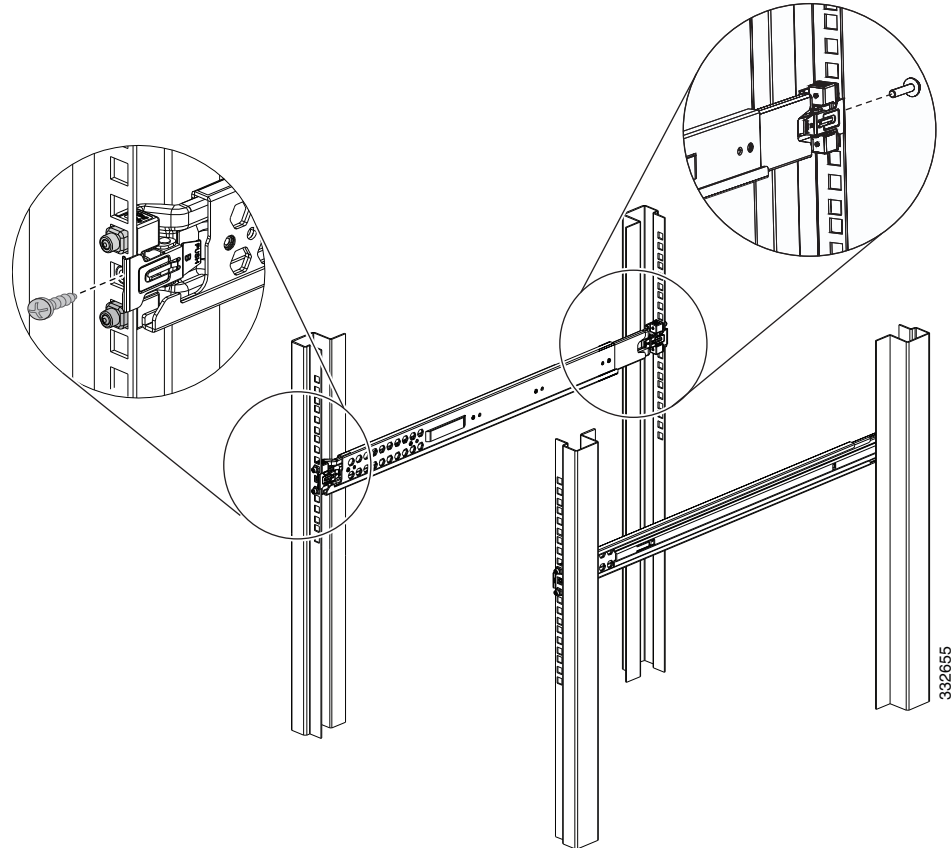
It is critical that the screws are installed and secured to the front and rear end of the slide rails.



**Note**

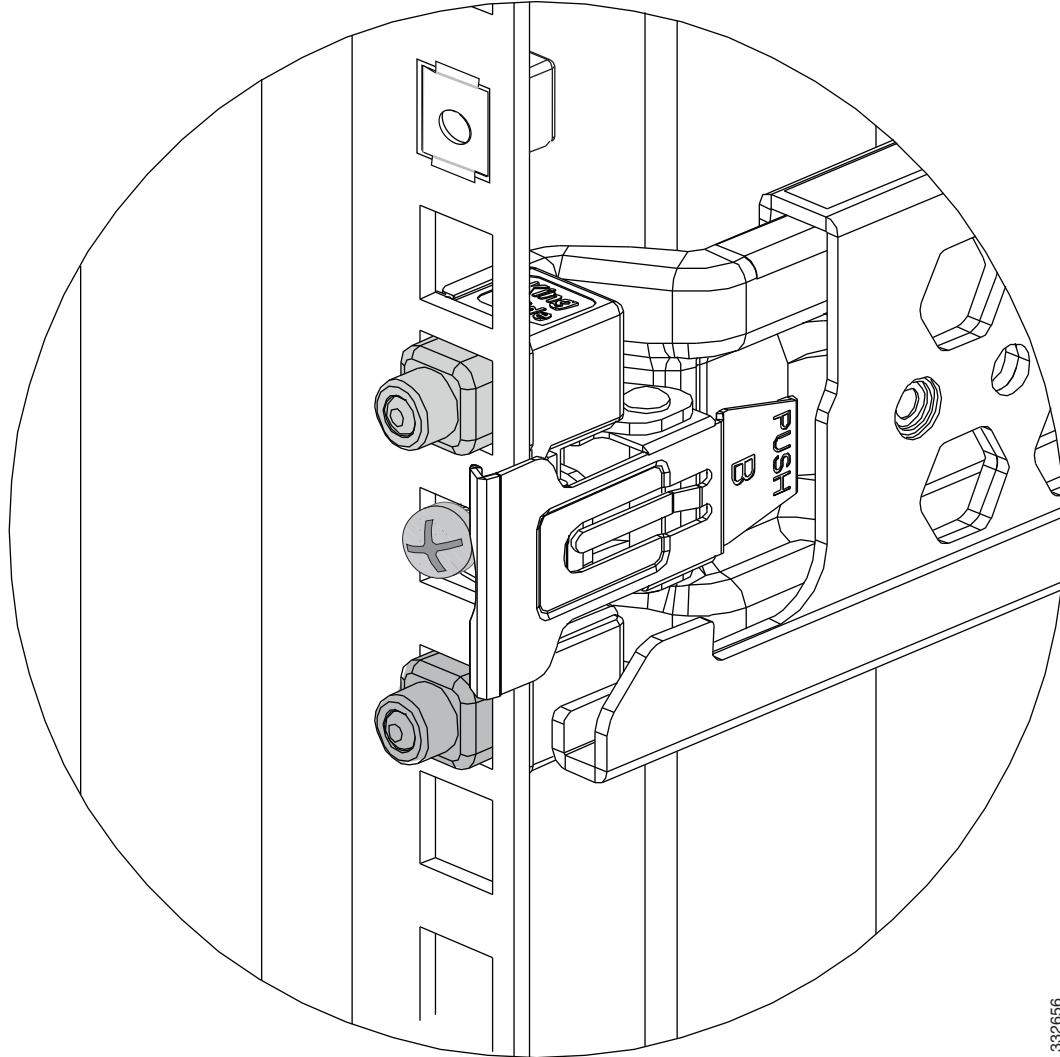
The rack opening (the distance from the front to back rack uprights) should be between 26.5 and 38 inches.

**Figure 4-28**     *Securing the Slide Rail to the Rack Post*



- Step 3** For square hole racks, install one #10-32 cage nut on each side of the rack rail (Figure 4-29). Leave one square hole spacing above the slide rail. The cage nut will be used later to secure the chassis to the rack post. For threaded hole racks, no additional hardware is needed.

**Figure 4-29** Installing the #10-32 Cage Nuts



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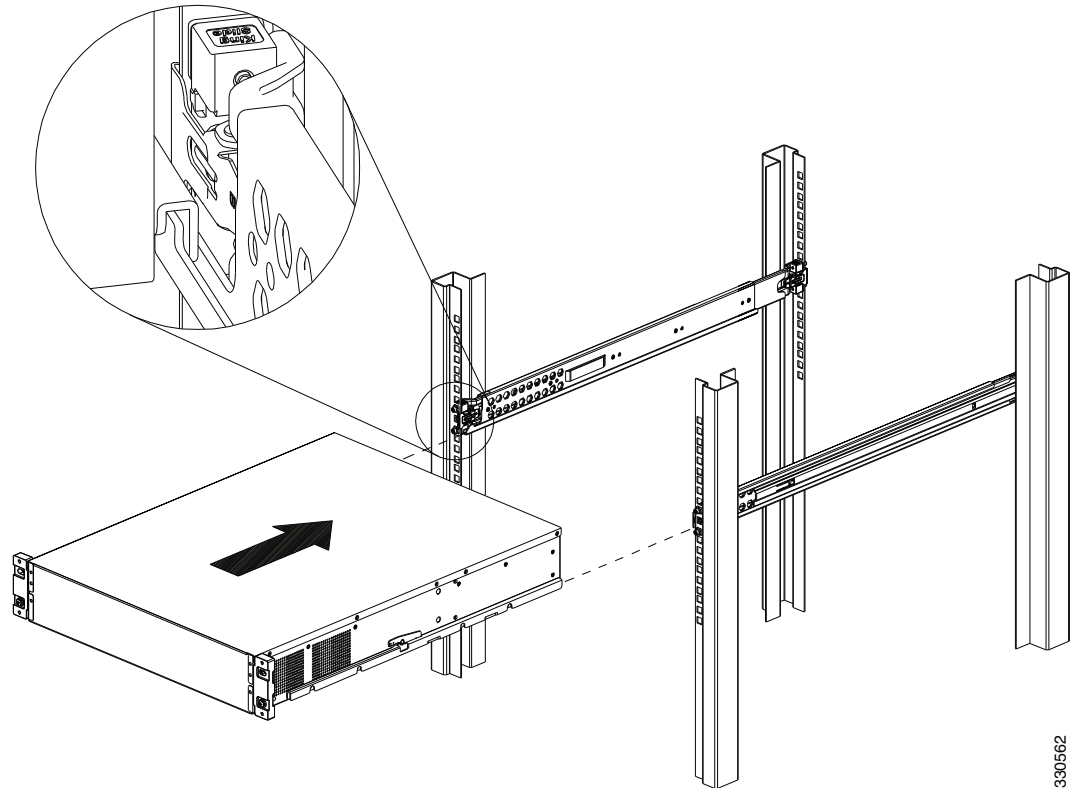
- Step 4** Install the chassis on the outer rail. Make sure that the U-bars are aligned to the outer rail evenly, then push the chassis into the rack (Figure 4-30).



**Caution**

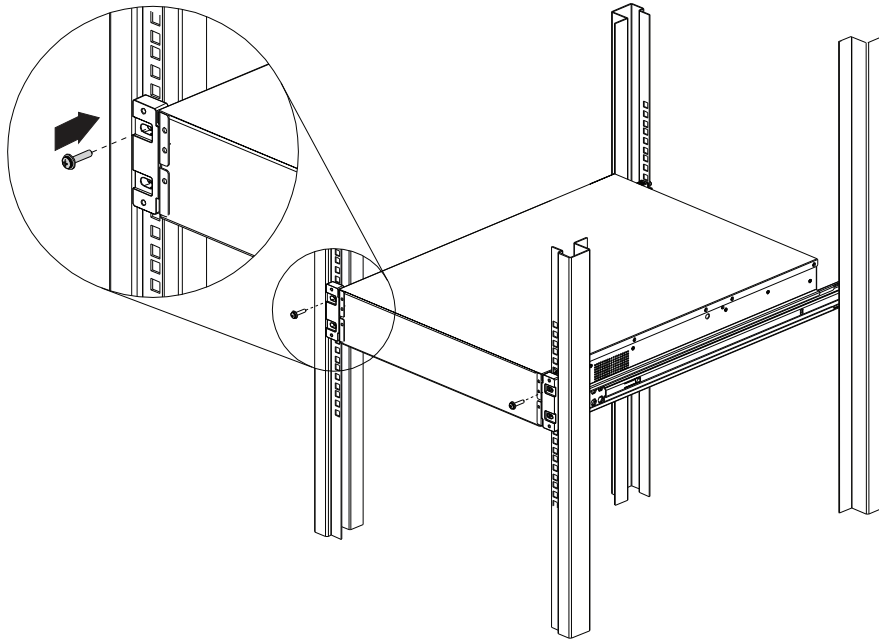
Before installing the chassis, make sure that the slide rails are properly installed and that the perforated holes on the outer slide rail align with the perforated holes on the chassis.

**Figure 4-30** *Installing the Chassis on the Outer Rail*



- Step 5** Tighten the screws to secure the chassis to the rack (Figure 4-31). Use the upper hole to secure the chassis to the rack.
- a. For square hole racks, secure the chassis to the rack by installing the #10-32 screw into the cage nut that you installed in Step 3.
  - b. For threaded hole racks, secure the front of the chassis by installing the #10-32 screws into the rack threaded hole.

**Figure 4-31**     *Securing the Chassis to the Outer Rail*



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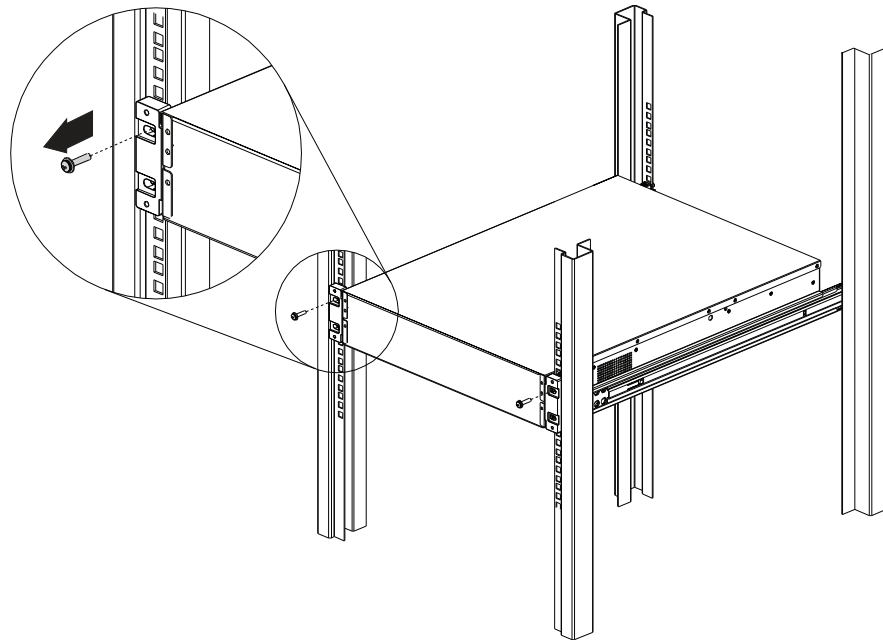


## Removing the Chassis from the Rack

To remove the chassis from the rack, follow these steps:

- Step 1** Remove the screws from the front brackets of the rail post (Figure 4-32).

**Figure 4-32** Removing the Screws from the Outer Rail

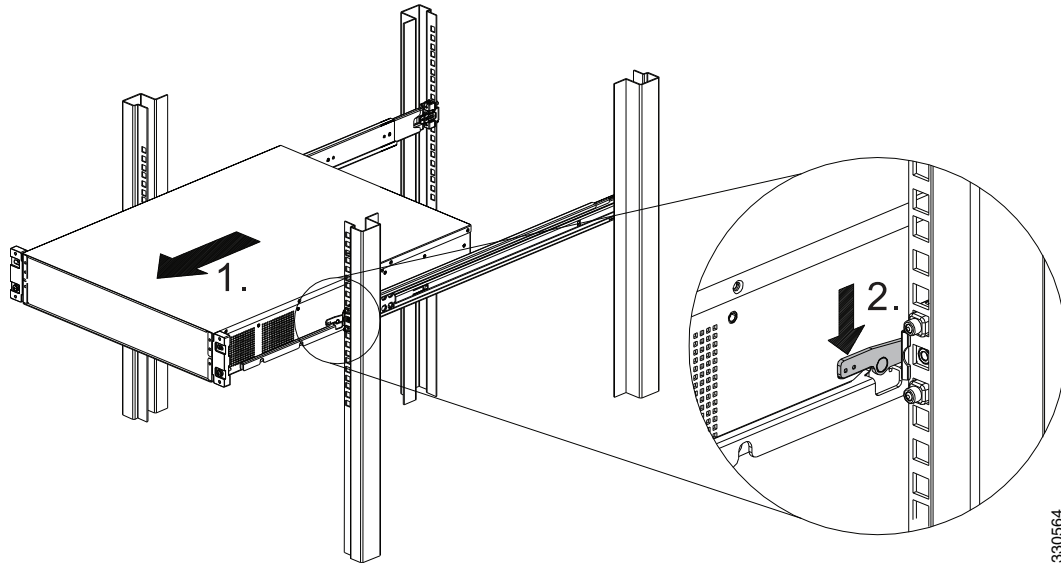


- Step 2** Pull the chassis out to the locked position.

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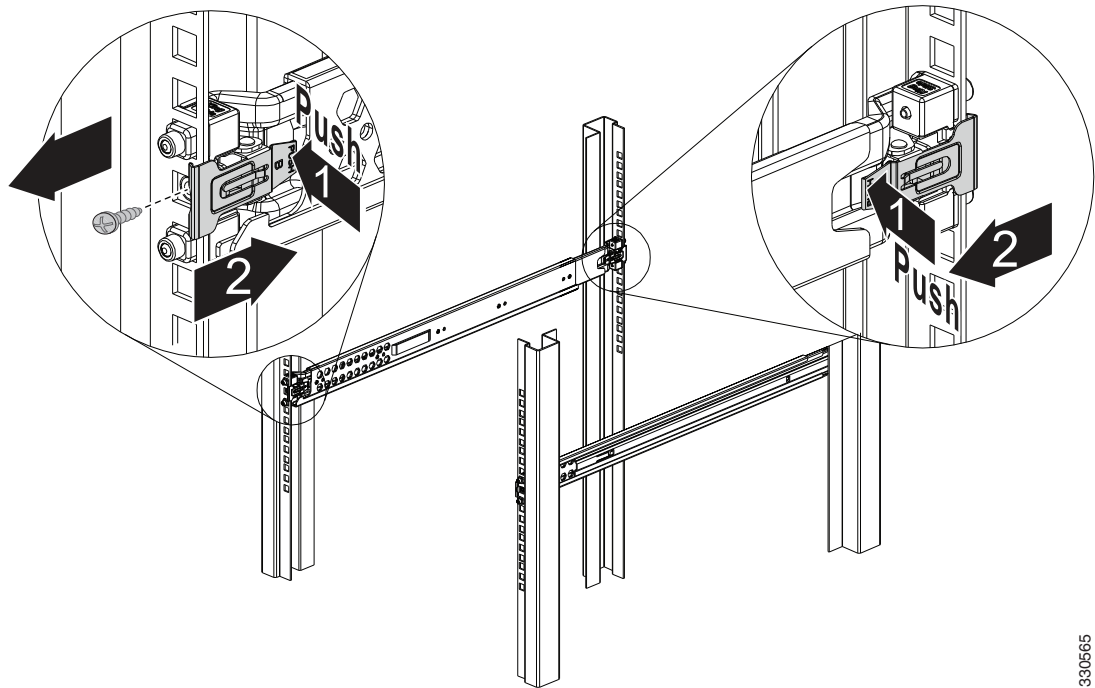
- Step 3** Press down the release hook to remove the chassis from the rack (Figure 4-33).

**Figure 4-33** Pressing Down the Release Hook



- Step 4** Remove the two screws from the front and rear of the rack that are securing the slide rail, and release the latch and pull out the rails (Figure 4-34).

**Figure 4-34** Releasing the Latch to Pull Out the Rails

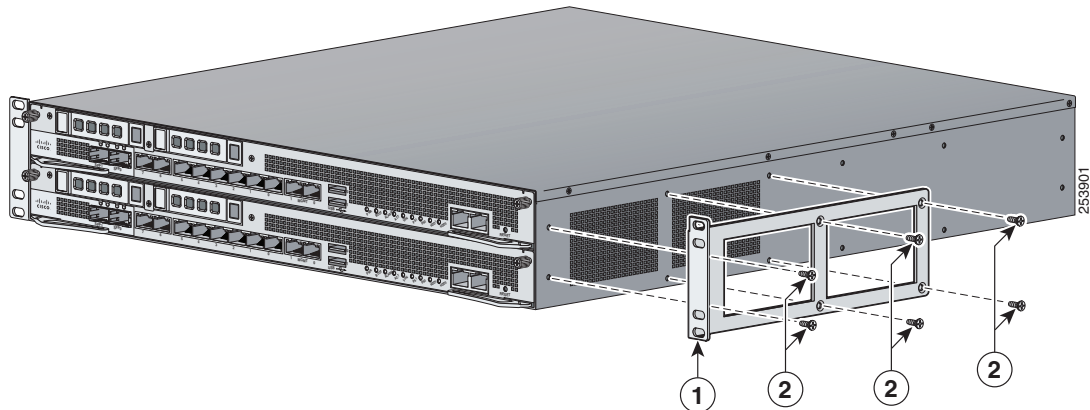


## Mounting the Chassis Using a Fixed Rack Mount

If you are not able to use the slide rail kit in your rack installation, an optional fixed rack-mount solution is available. You can install fixed front and rear rack-mount brackets on the ASA 5585-X so that you can easily mount it in a rack.

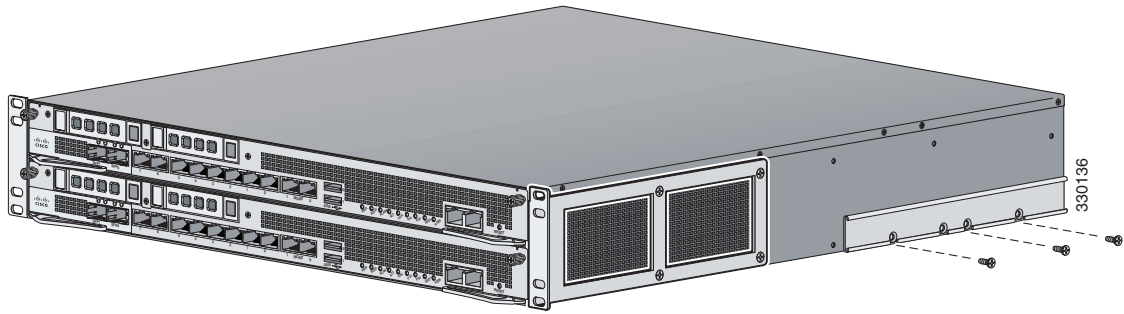
To fixed-mount the ASA 5585-X, follow these steps:

- Step 1** If the adaptive security appliance is already operational and not rack-mounted, or if you are replacing an adaptive security appliance with the ASA 5585-X, do the following:
- Power off the adaptive security appliance.
  - Remove the power cable from the adaptive security appliance.
  - Remove the old adaptive security appliance from the rack.
- Step 2** Position the front bracket on the side of the adaptive security appliance and line up the bracket screws with the screw holes on the adaptive security appliance.



<b>1</b>	Bracket	<b>2</b>	Bracket screws
----------	---------	----------	----------------

- Step 3** Tighten the screws into the chassis.
- Step 4** Repeat this procedure on the other side of the chassis.
- Step 5** You can now mount the chassis in a rack; go to [Step 12](#). If using the optional rear rack rails, continue with Step 6.
- Step 6** Attach one of the rear brackets using three M4 screws.



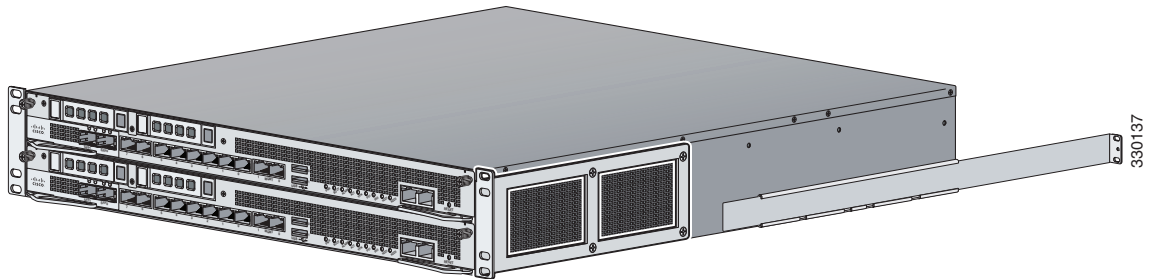
**Step 7** Repeat to attach the second bracket to the other side of the chassis.

**Step 8** Measure the distance between the front and rear rack rails and select the proper slide-mount brackets.

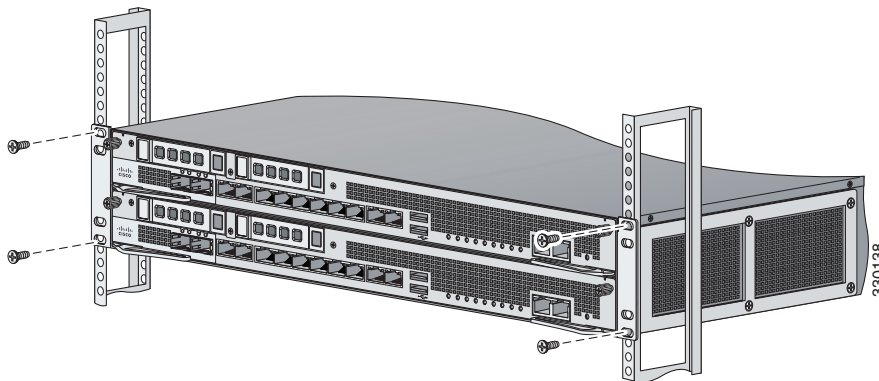


**Note** The slide-mount brackets let you install the rear of the chassis to the rear rack rails. The brackets are designed to slide within the installed rear brackets and accommodate a range of rack depths.

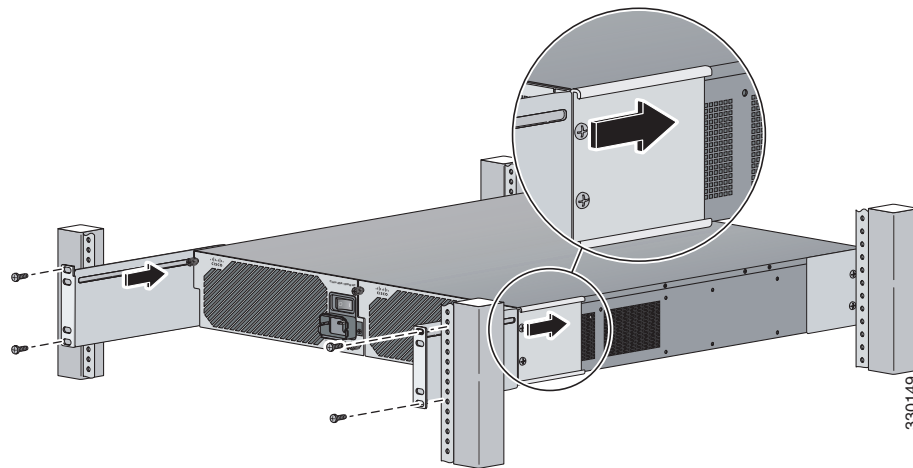
**Step 9** Install the proper slide-mount brackets on to the rear bracket on the chassis.



**Step 10** For added security, screw in the front slide rail brackets to the rack.



**Step 11** Secure the slide brackets to the corresponding holes in the rear rack rail using the screws provided.



- Step 12** Re-attach the power cable to the adaptive security appliance.
  - Step 13** Power on the adaptive security appliance.
- 

## Installing the Cable Management Brackets

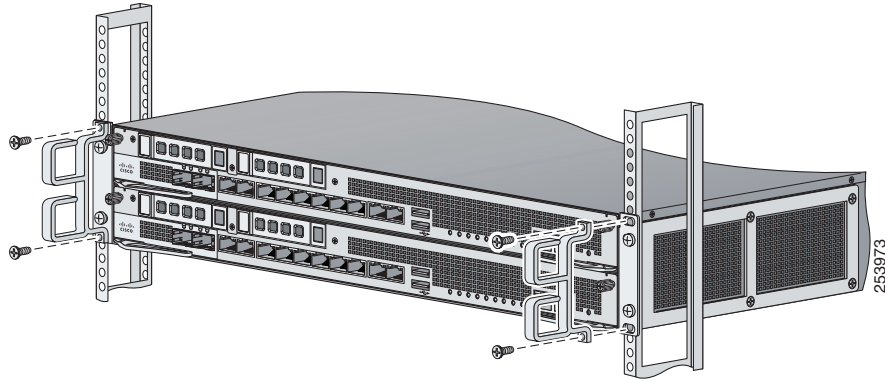
The ASA 5585-X ships with two cable management brackets that you can use to organize the cables connected to the adaptive security appliance.

To install the cable management brackets on the ASA 5585-X, follow these steps:

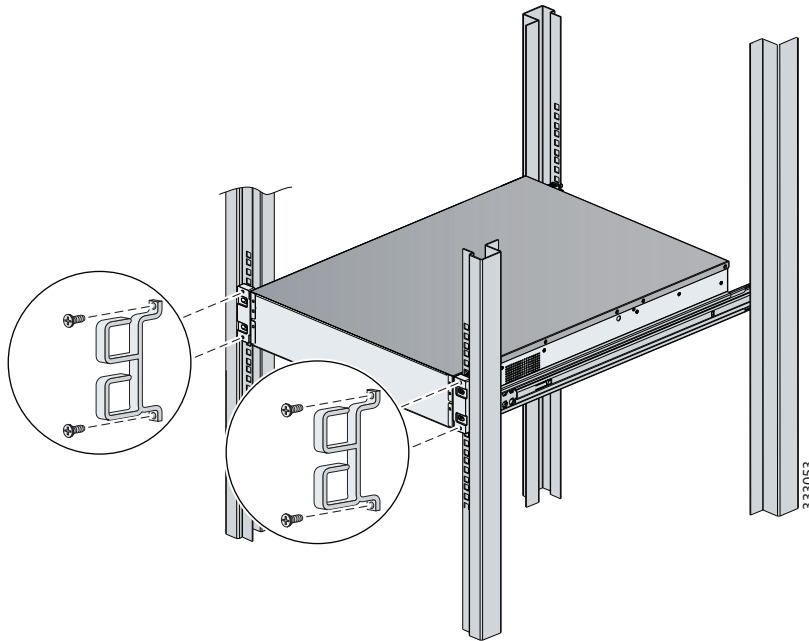
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- Step 1** Power off the adaptive security appliance.
- Step 2** Remove the power cable from the adaptive security appliance.
- Step 3** Position the cable management brackets on the front side of the adaptive security appliance, and line up the bracket screws with the screw holes on the adaptive security appliance. [Figure 4-35](#) shows the cable management bracket for the fixed rack mount, and [Figure 4-36 on page 4-42](#) shows the cable management bracket for the slide rail.

**Figure 4-35** Cable Management Brackets for the Fixed Rack Mount



**Figure 4-36** Cable Management Brackets for the Slide Rail



- Step 4** Tighten the screws into the rack.
- Step 5** Re-attach the power cable to the adaptive security appliance.
- Step 6** Organize the cables through the cable management brackets on the adaptive security appliance.
- Step 7** Power on the adaptive security appliance.

# Troubleshooting Loose Connections

Perform the following actions to troubleshoot loose connections on adaptive security appliances:

- Make sure all power cords are securely connected.
- Make sure all cables are properly aligned and securely connected for all external and internal components.
- Remove and check all data and power cables for damage. Make sure no cables have bent pins or damaged connectors.
- Make sure each connector is properly seated.
- If a device has latches, make sure they are completely closed and locked.
- Check any interlock or interconnect indicators that indicate a component is not connected properly.
- If problems continue, remove and re-install each connector, checking the connectors and sockets for bent pins or other damage.

