



Cisco VPN 5008 Concentrator FRU Installation and Replacement Notes

This document provides information about installing and replacing field-replaceable units (FRUs) for the Cisco VPN 5008 concentrator. For more information on VPN 5008 concentrator hardware, see the *Cisco VPN 5008 Concentrator Hardware Guide*.

This document describes how to install and replace the following FRUs:

- AC Power Supplies, page 1
- DC Power Supplies, page 4
- Rack-Mounting Kits, page 12
- Fan Tray Assembly, page 20
- Replacing the Filter Foam, page 22



Warning

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

For a complete list of translated safety warnings, refer to the *Regulatory Compliance and Safety Information for the Cisco VPN 5002 and 5008 Concentrators*.

AC Power Supplies

Product Number: PWR-CVPN5008-AC+

This section describes how to remove and replace the AC power supplies.

AC Power Supply Specifications

The 5008 chassis is shipped standard with dual redundant AC power supplies. Figure 1 and Table 1 describe the AC power supply components.



Figure 1 VPN 5008 AC Power Supplies

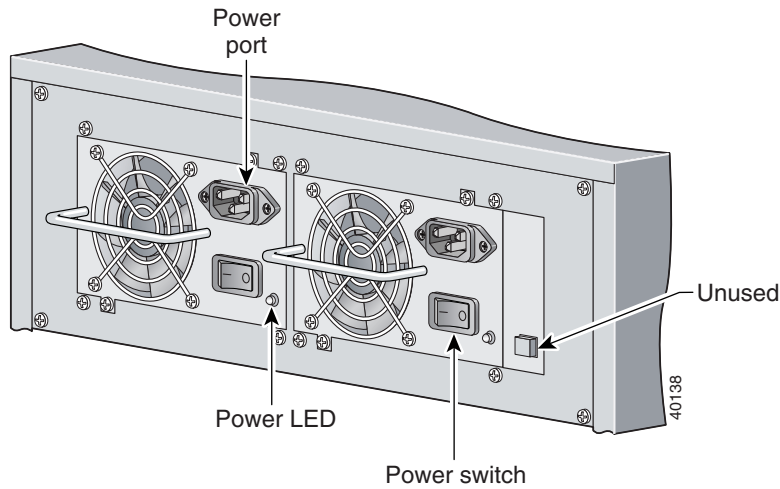


Table 1 VPN 5008 AC Power Supply Components

Component or Parameter	Description
Model number	EPRP-2405H
Voltage setting	Autoranging
Power switch	1 is on; 0 is off
Power LED	Green when power is on
Power port	Accepts the provided standard power cable
Maximum power consumption	370W
Power range	90 to 264 VAC
Frequency	47 to 63 Hz
Input current	7A
Operating temperature	32°F to 104°F (0°C to 40°C)



Warning

This unit has more than one power supply cord. To avoid electric shock, disconnect both power supply cords before servicing.

Attention

Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher les deux cordons d'alimentation avant de faire le dépannage.

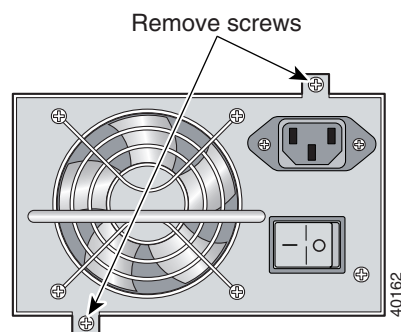
Replacing the AC Power Supply

Only trained, authorized personnel can replace a power supply. You need a medium Phillips screwdriver for the following procedure.

To replace the AC power supply on the VPN 5008 concentrator

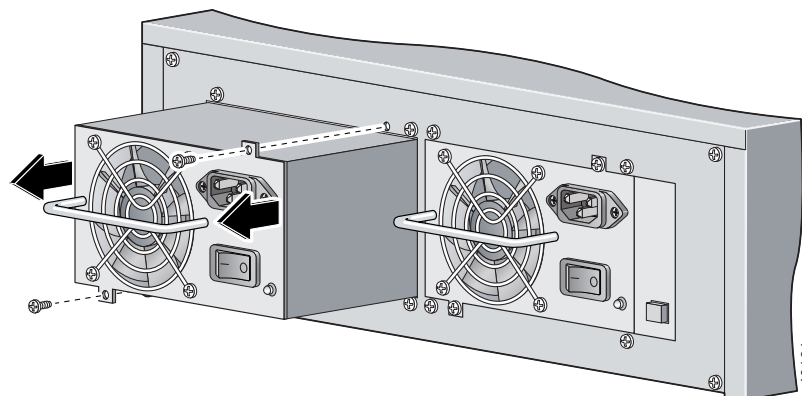
- Step 1** Unscrew and remove the two screws holding the power supply in place (Figure 2).

Figure 2 Removing Power Supply Screws



- Step 2** Grasp the handle and pull the power supply out of its receptacle (Figure 3).

Figure 3 Removing the Power Supply



- Step 3** Insert the new power supply so that it is flush with the faceplate and then replace the screws.

Plugging In Cords and Turning On Power

This section describes how to plug in the dual power supplies for the Cisco VPN 5008 concentrator. To plug in and turn on dual chassis power supplies

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- Step 1** Make sure the power is turned off by pressing 0 on the switches.
 - Step 2** Plug the supplied power cords into the power receptacles.
 - Step 3** Turn on the power by pressing 1 on the switches.
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DC Power Supplies

Product Number: PWR-CVPN5008-DC

This section describes how to remove and replace the DC power supplies.

DC Power Supply Specifications

You can order optional dual redundant –48 VDC power supplies for connection to DC power. Figure 4 and Table 2 describe the DC power supply components for the VPN 5008 chassis.

Figure 4 VPN 5008 DC Power Supplies

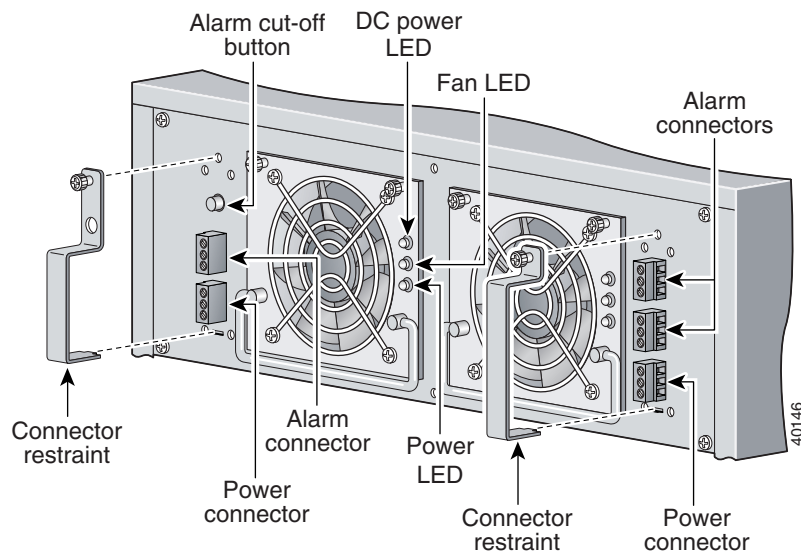


Table 2 *VPN 5008 DC Power Supply Components*

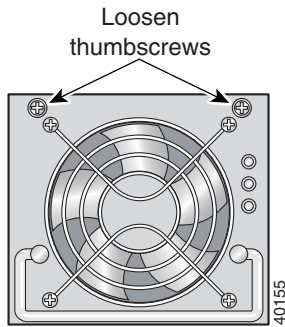
Component or Parameter	Description
Alarm cut-off button	Resets the alarm after an alarm occurs.
Alarm connectors	Three connectors serving both power supplies. Each connector sends alarms for one of the following severities: <ul style="list-style-type: none"> • Critical • Major • Minor See the label next to the connector for its severity.
DC power LED	Green when DC power is present.
Fan LED	Green when the fan is operating.
Power LED	Green when power is on.
Power connectors	One for each power supply.
Connector restraints	Prevent the alarm connectors and power supply connectors from being pulled out.
Maximum power consumption	500W
Power range	36 to 60 VDC
Input current	25 to 12.5A

Replacing the DC Power Supply

To replace the DC power supply on the VPN 5008 concentrator

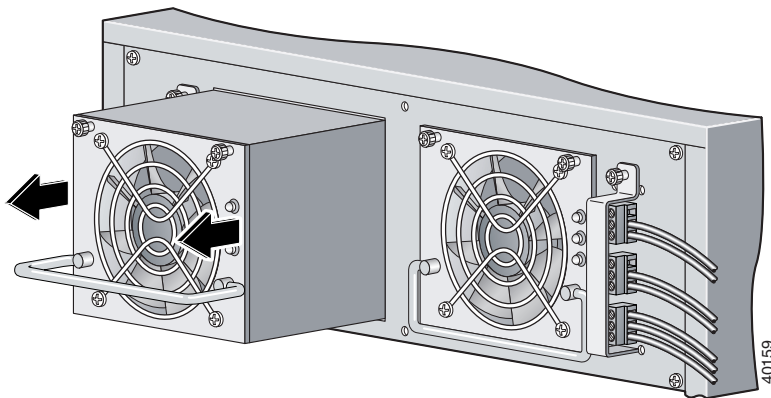
- Step 1** Loosen the two thumbscrews holding the supply in place (Figure 5).

Figure 5 *Loosening Power Supply Thumbscrews*



- Step 2** Grasp the handle and pull the power supply out of its receptacle (Figure 6).

Figure 6 *Removing Power Supply*



- Step 3** Insert the new power supply so that it is flush with the faceplate and then tighten the thumbscrews.

Using the DC Power Supplies

This section describes how to wire the provided power connectors and alarm connectors on the VPN 5008 concentrator, and how to reset a power alarm for connection to DC power.

Wiring the Power Connector

Each -48 VDC power supply includes a receptacle for a power connector. You must wire the provided connectors to the DC power source before plugging them into the power supplies (Figure 10).

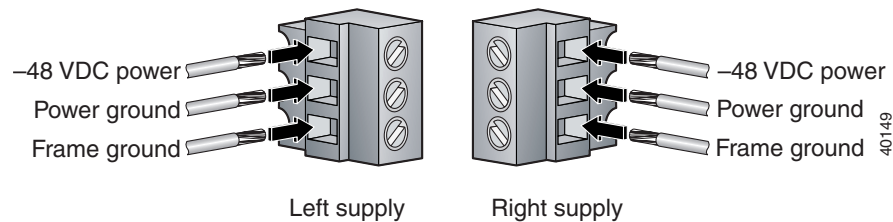
For the DC power requirements, see the chassis back panel.

Figure 7 shows the wire locations for the DC power connector.


Note

The maximum wire size for the power connectors is 14 AWG.

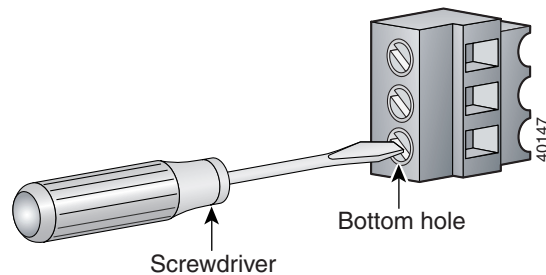
Figure 7 DC Connector Wiring Diagram



To wire the power connectors

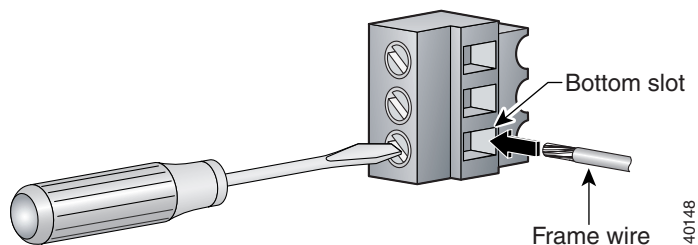
- Step 1** Turn off the DC power source.
- Step 2** Strip 0.125 inches (0.3175 cm) of insulation from the end of a 14 AWG green frame ground wire. Do not strip more than 0.125 inches.
- Step 3** Insert a medium flat-blade screwdriver into the connector bottom hole and loosen the screw (Figure 8).

Figure 8 Loosening the Screw



Step 4 Insert the frame ground wire into the bottom slot while you tighten the screw (Figure 9).

Figure 9 Attaching the Frame Ground Wire



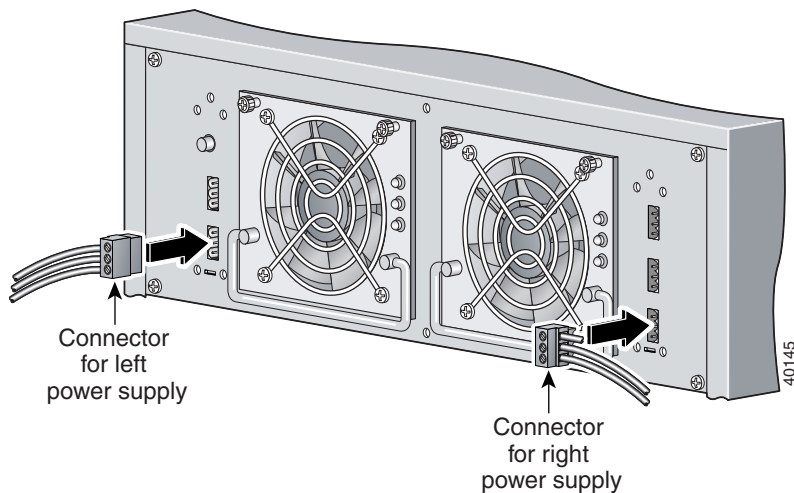
Step 5 Repeat Steps 2, 3, and 4 to insert the following wires:

- -48 VDC power wire into the top slot
- Power ground return wire into the middle slot

Step 6 Externally fuse the -48 VDC power wire with a 15-ampere (A) fuse.

Step 7 Plug the DC power connectors into the bottom connectors on the left and right power supplies (Figure 10).

Figure 10 Plugging the Power Connectors into the Chassis



Step 8 Turn on the DC power source.



Warning

After you wire the DC power supply, remove the tape from the circuit breaker switch handle. Reinstall power by moving the handle of the circuit breaker to the On position.

Wiring the Alarm Connectors

The VPN 5008 concentrator –48 VDC power supplies include three receptacles for alarm connectors: one each for critical, major, and minor alarms. In the event of a power interruption or system failure, the appropriate alarm activates.

The minor alarm activates if any power supply malfunctions. The major alarm activates if both power supplies malfunction. The critical alarm is currently unused.

The alarm relay switches support the following positions:

- Normally open alarm—A device that has an open contact when there is no alarm.
- Normally closed alarm—A device that has a closed contact when there is no alarm.

Figure 11 shows the wire locations for the alarm connectors on the right power supply. Figure 12 shows the wire locations for the alarm connectors on the left power supply.

Figure 11 Alarm Connector Wiring for the Right Power Supply

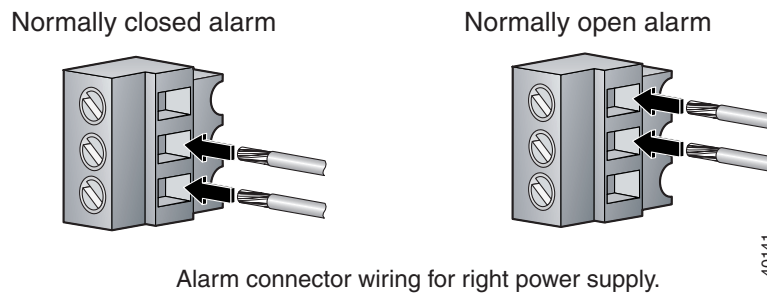
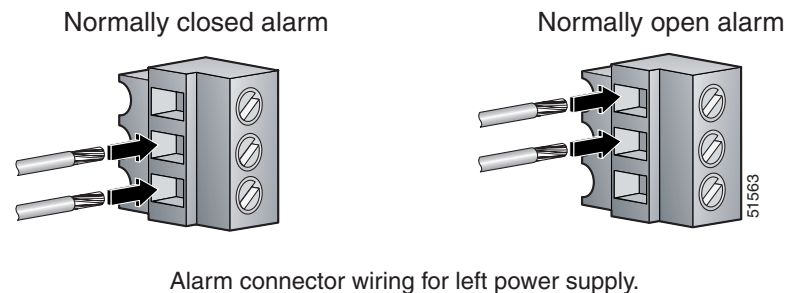


Figure 12 Alarm Connector Wiring for the Left Power Supply

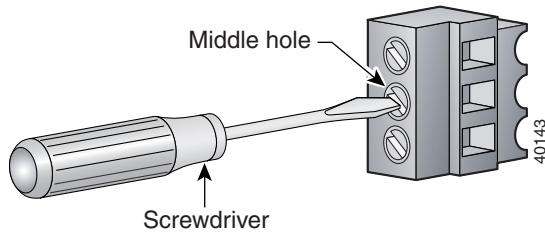


To wire the alarm connectors

- Step 1** Strip 0.125 inches (.3175 cm) of the insulation from the end of two 14 AWG wires. Do not strip more than 0.125 inches.

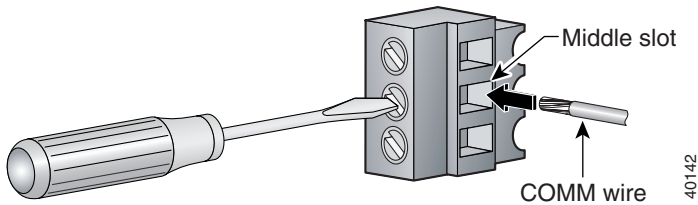
Step 2 Insert a medium flat-blade screwdriver into the connector middle hole and loosen the screw (Figure 13).

Figure 13 *Loosening the Screw*



Step 3 Insert one wire to serve as the COMM wire into the middle slot while tightening the screw (Figure 14).

Figure 14 *Attaching the COMM Wire*



Step 4 Loosen the screw (Figure 13) for the appropriate slot and insert the other wire while you tighten the screw. The COMM wire is always in the middle slot.

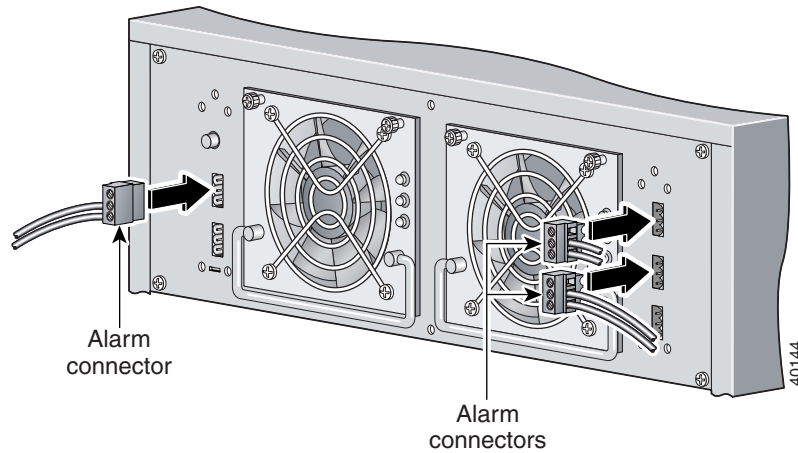
- For a normally closed alarm, insert the wire into the bottom slot.
- For a normally open alarm, insert the wire into the top slot.

Step 5 Plug the alarm connectors into the top connector on the left power supply and the top and middle connectors on the right power supply (Figure 15).



Note To avoid activating the alarm during power supply installation, plug in the alarm connectors *after* you turn on the power.

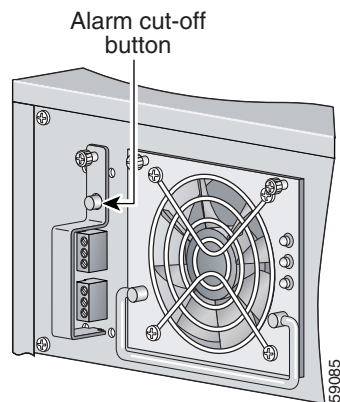
Figure 15 Plugging the Alarm Connectors into the Chassis



Resetting the Power Alarm

The power supply alarm activates in the event of a power interruption or malfunction. Use the alarm cut-off button on the left power supply (Figure 16) to deactivate the alarm and enable it again.

Figure 16 Alarm Cut-Off Button



If the system is still running despite alarm activation, it was probably disrupted by a temporary power failure. Press the alarm cut-off button to reactivate the alarm after an event.

If the system is not running, the cause of the alarm is either a continuing power failure or a catastrophic system failure. To determine the cause of the alarm, check the LEDs on the power supplies:

- If the DC Power LED is off, the DC power source is not functioning. Check the power source. If the power is disrupted, restore it to reboot the system.
- If the Power LED is off on both supplies while the DC power LED is on, the cause of the alarm is probably a catastrophic system failure. Contact the Cisco Technical Assistance Center.

Attaching the Connector Restraints

After the alarm connectors and power supply connectors are plugged in to the chassis, attach the connector restraints. The connector restraints prevent the alarm connectors and power supply connectors from being pulled out (Figure 17).

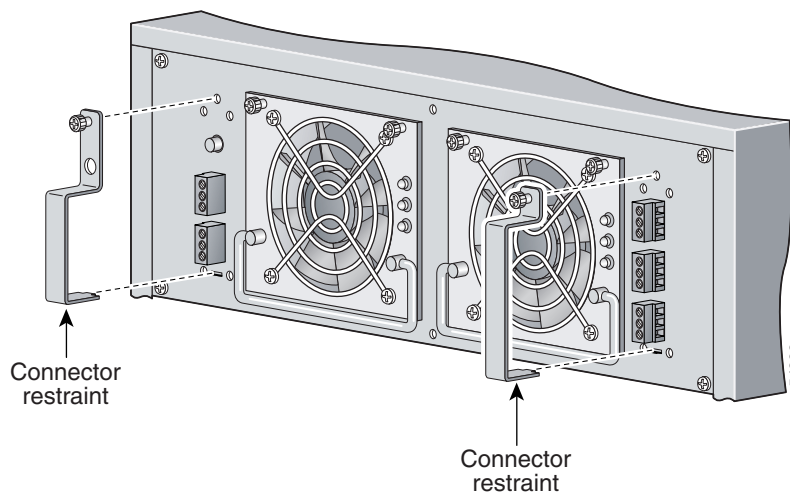
Have the following provided parts available:

- One left-side connector restraint and thumbscrew
- One right-side connector restraint and thumbscrew

To attach the connector restraints

-
- Step 1** Insert the tabbed bottom portion of the connector restraints into the slots located directly below the power connectors on the VPN 5008 chassis.
- Step 2** Cover the alarm and power connectors with a restraint.
- For the left-side restraint, make sure the alarm cut-off button shows through the hole in the top of the restraint.
- Step 3** Use the thumbscrews to tighten the connector restraints to the chassis (Figure 17).

Figure 17 Attaching the Connector Restraints



Rack-Mounting Kits

Product Number: ACS-CVPN5008-RM

This section describes how to install brackets and handles on the VPN 5008 chassis, the proper method for moving the chassis, and how to mount the chassis in a rack.

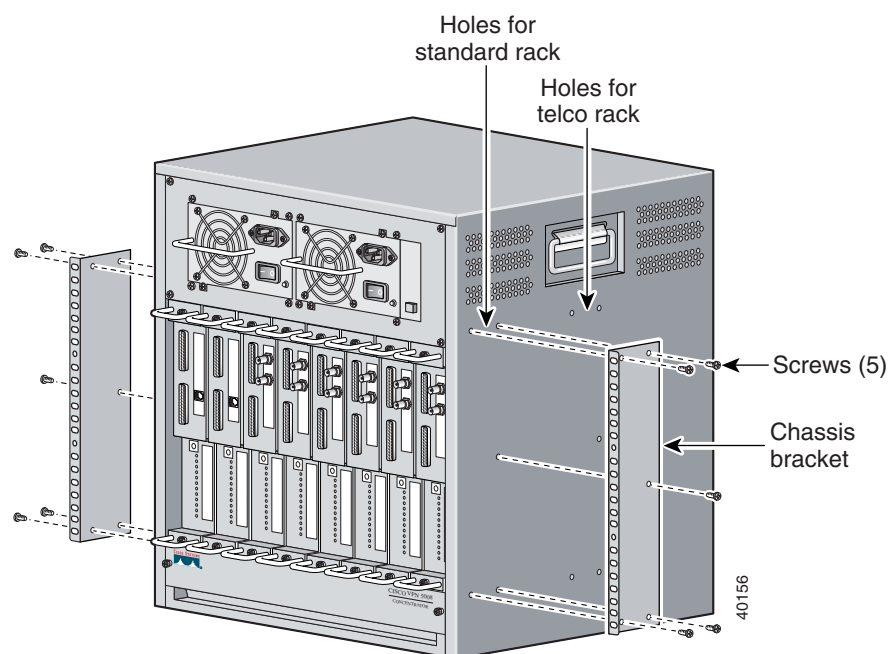
Installing Chassis Brackets and Handles

Install the chassis brackets and handles on the VPN 5008 chassis even if you do not plan to mount it in a rack. Do not install the handles for a telco rack, which does not provide enough finger room to use them.

You need a Phillips screwdriver to complete the following procedure.

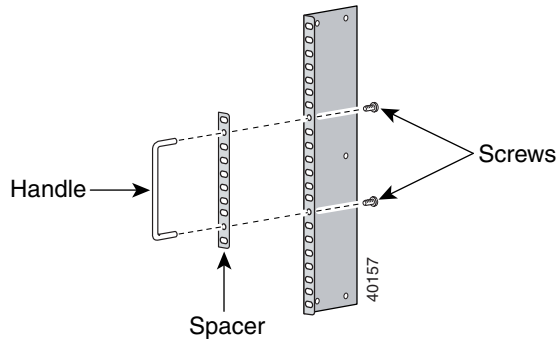
- Step 1** To fasten the chassis brackets to the sides of the chassis, use five provided screws on each side. Use the front holes for a standard rack or table, and the middle holes for a telco rack (Figure 18).

Figure 18 *Installing Chassis Brackets*



- Step 2** For a standard rack or table only, use two provided screws on each side to fasten the handles and spacers to the center of the chassis brackets (Figure 19).

Figure 19 *Installing Handles for a Standard Rack or Table*



Moving the Chassis to a Table or Platform

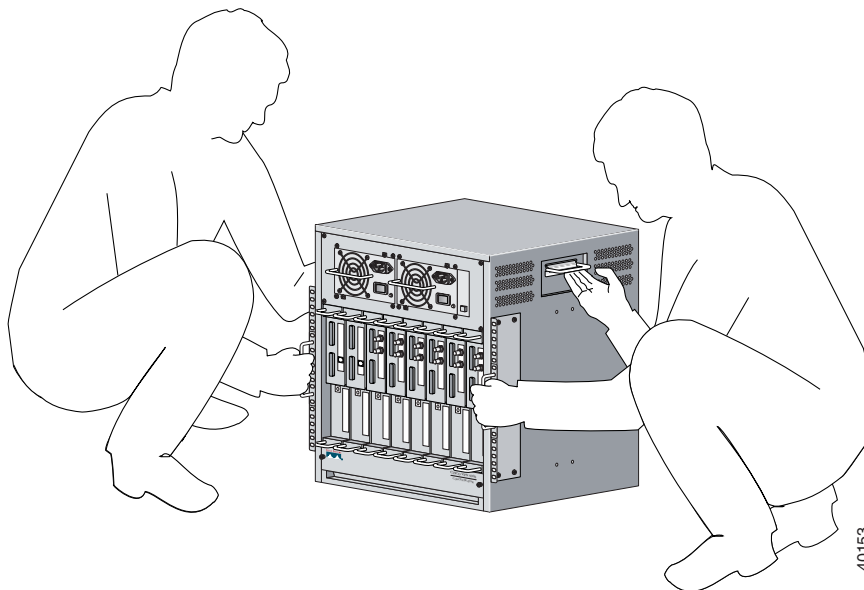
After you attach the brackets, use two people to move the chassis to a table or platform by holding the front and side handles as shown in Figure 20.



Warning

Two people are required to lift the chassis. To prevent injury, keep your back straight and lift with your legs, not your back.

Figure 20 *Moving the Chassis onto a Table or Platform*



Rack-Mounting the Chassis

You can mount the VPN 5008 chassis in a standard 19-inch equipment rack or in a telco rack. You must provide:

- At least 18 screws or clips for mounting the brackets to the rack
- Phillips screwdriver
- At least two people to lift the chassis into place

Rack Placement Considerations

Before you mount the chassis, consider the following rack guidelines:

- Use an open equipment rack (one without side enclosures or doors) for adequate ventilation.
- The chassis requires 14 rack units (23.5 vertical inches, 59.69 cm) of rack space.
- Load the equipment rack from the bottom. For stability, place the VPN 5008 chassis in the lower half of the equipment rack.

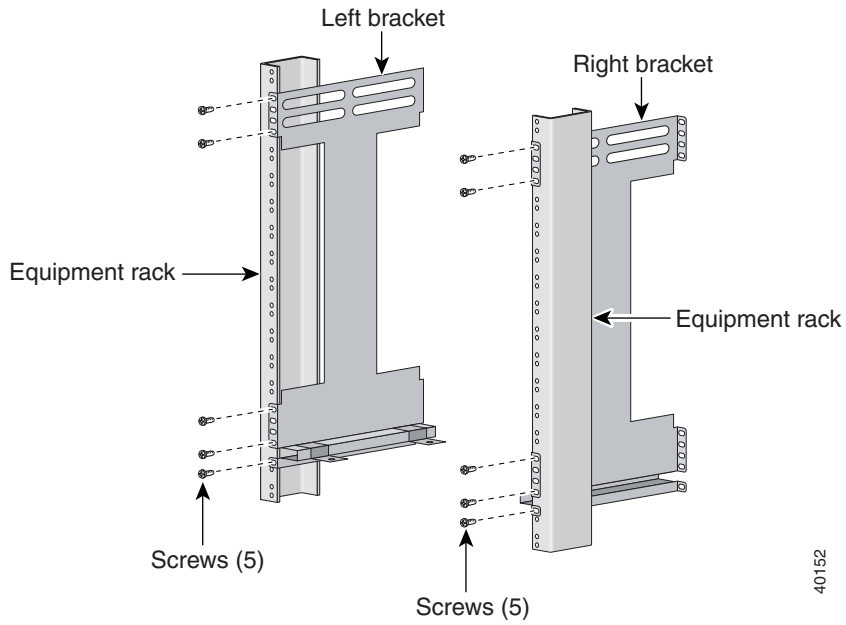
Attaching the Rack-Mount Brackets and Shelf to the Rack

This section describes how to attach the provided rack-mount brackets and shelf to the rack. The brackets and shelf maintain the proper alignment, but do not bear the weight of the chassis. The ledges at the bottom of the brackets bear the weight of the chassis until it is securely attached to the equipment rack.

To attach the brackets and shelf

-
- Step 1** Hand-tighten the brackets to the rack using your own screws or clips (Figure 21). Be sure that the brackets are placed evenly on the rack.
- Use at least two screws to fasten the top of each bracket to the rack. You can use any two holes on the rack tab.
 - Use at least three screws to fasten the bottom of each bracket to the rack. Use one of the screws to fasten the bottom hole in the rack tab.

Figure 21 Fastening the Brackets to the Rack

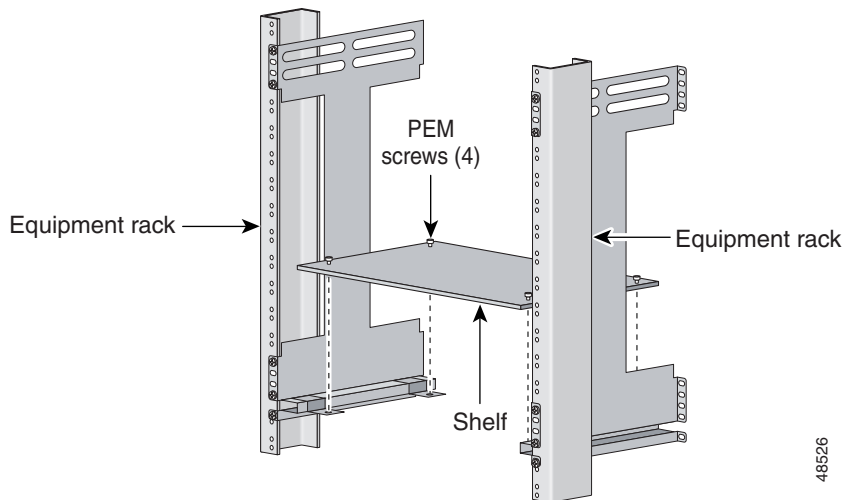


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Step 2 Lower the shelf onto the tabs protruding from the right bracket.

Step 3 Adjust the bottom of the brackets as shown in Figure 22 so that the four thumbscrews on the shelf line up with the tabs on the brackets.

Figure 22 Securing the Shelf



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Step 4 Tighten the four thumbscrews to secure the shelf to the brackets.

- Step 5** Adjust the top of the brackets so that the brackets are straight up and down, and then use a screwdriver to tighten all mounting screws.
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Moving the Chassis into the Rack

After you attach the brackets, complete the following steps to install the chassis in a rack.

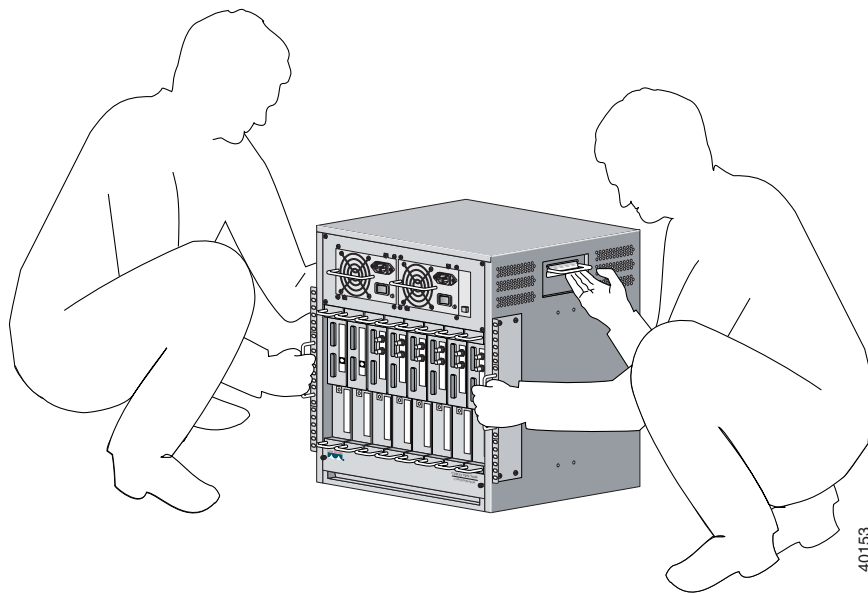
- Step 1** Using two people, carefully lift the chassis and place it into the brackets.



Two people are required to lift the chassis. To prevent injury, keep your back straight and lift with your legs, not your back.

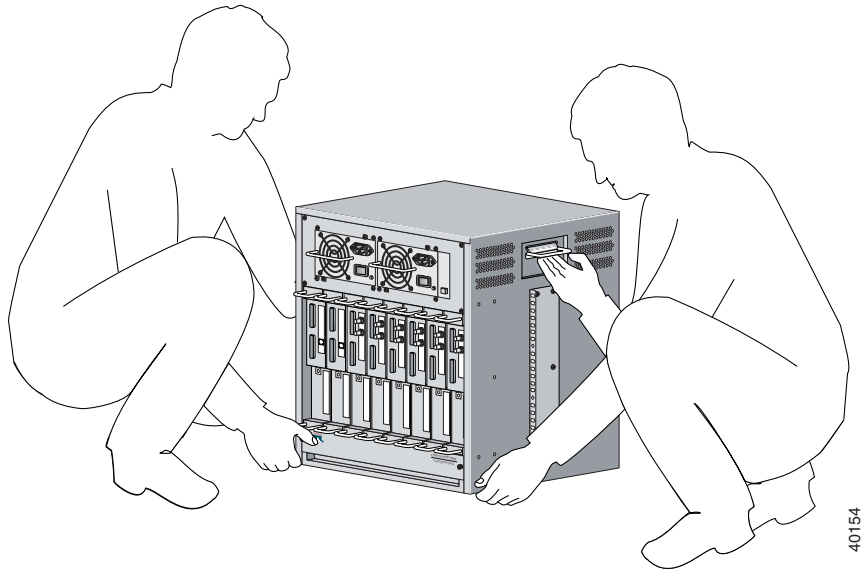
- For a standard rack, hold the chassis by the front and side handles (Figure 23).

Figure 23 *Moving the Chassis into a Standard Equipment Rack*



- For a telco rack, hold the chassis from the bottom and by the side handles (Figure 24).

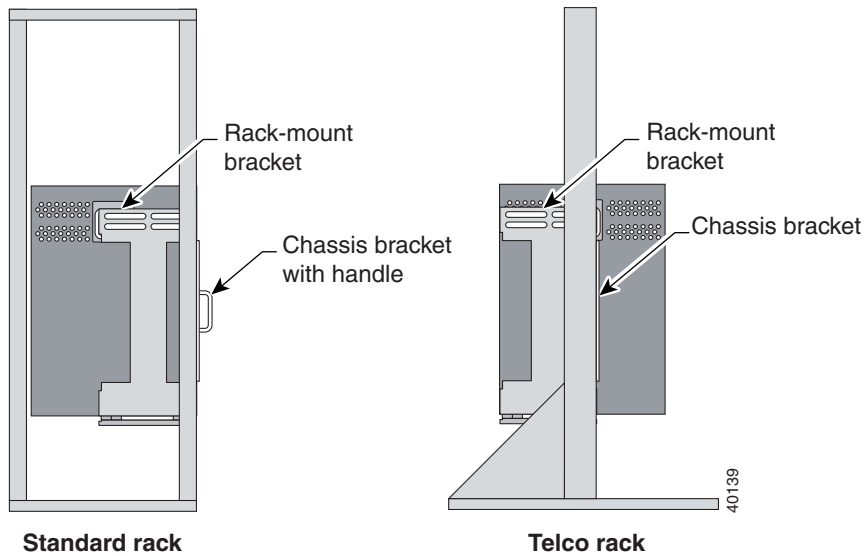
Figure 24 *Moving the Chassis into a Telco Rack*



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Step 2 Slide the chassis into the rack until the chassis brackets are flush with the sides of the rack (Figure 25).

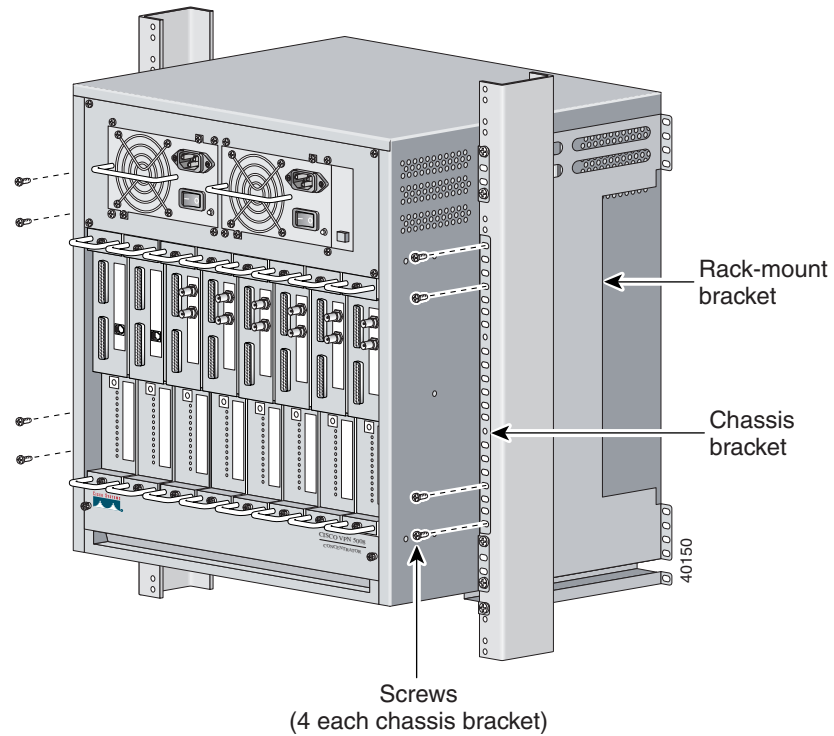
Figure 25 *Placing the Unit into a Rack*



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- Step 3** Using your own screws or clips, secure the chassis brackets to the rack. Use at least two screws at the top and two screws at the bottom of each bracket (Figure 26).

Figure 26 *Securing the Chassis to the Rack*



Fan Tray Assembly

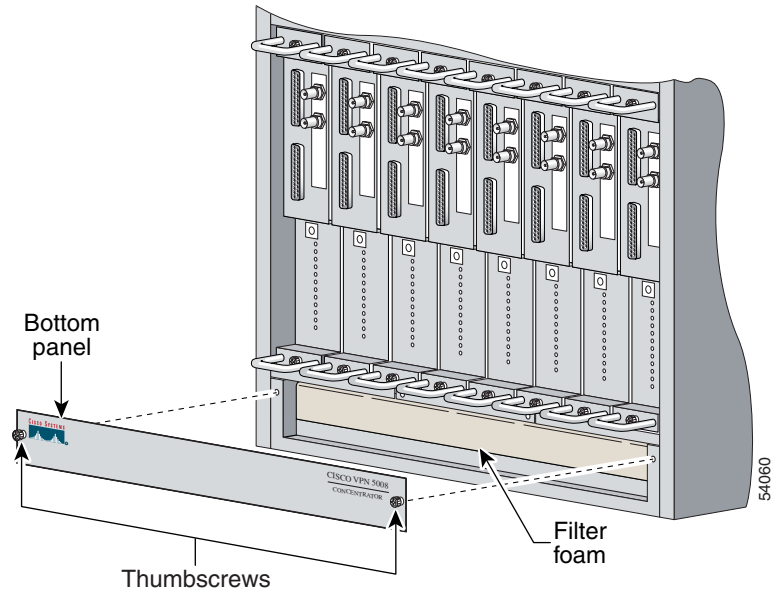
Product Number: ACS-CVPN5008-FAN

This section describes how to install and replace the fan tray assembly.

To replace the fan tray assembly

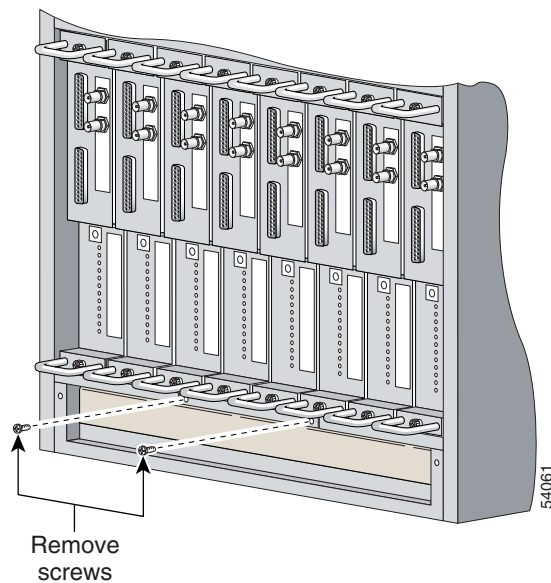
- Step 1** Loosen the two thumbscrews and remove the bottom panel on the concentrator (Figure 27).

Figure 27 Removing the Bottom Panel



Step 2 Remove the two screws that fasten the fan tray to the chassis (Figure 28).

Figure 28 Removing the Screws

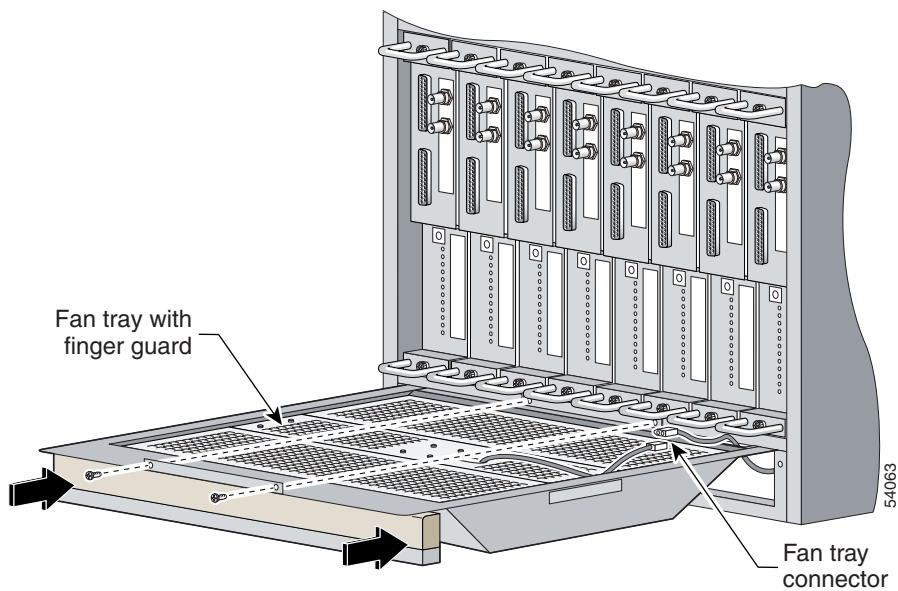


Step 3 Pull the fan tray out only far enough to expose the fan tray connector.

Step 4 Disconnect the fan tray connector and remove the fan tray.

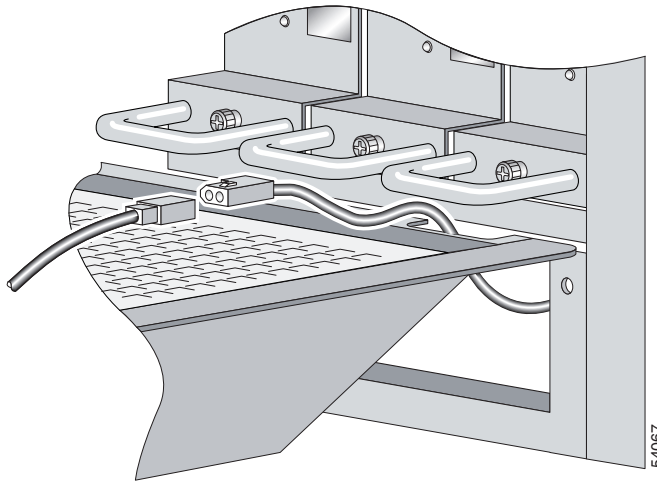
Step 5 Slide the new fan tray in far enough to attach the fan tray connector (Figure 29).

Figure 29 Fan Tray Assembly with Finger Guard



Make sure the connector wire is positioned in the slot at the back of the fan tray (Figure 30).

Figure 30 Positioning the Wire and Connector



Step 6 Use two screws to fasten the fan tray to the chassis.

Step 7 Replace the cover plate and fasten the thumbscrews.

Replacing the Filter Foam

Product Number: ACS-CVPN5008-FILTER

This section describes how to replace the Cisco VPN 5008 chassis air filter.

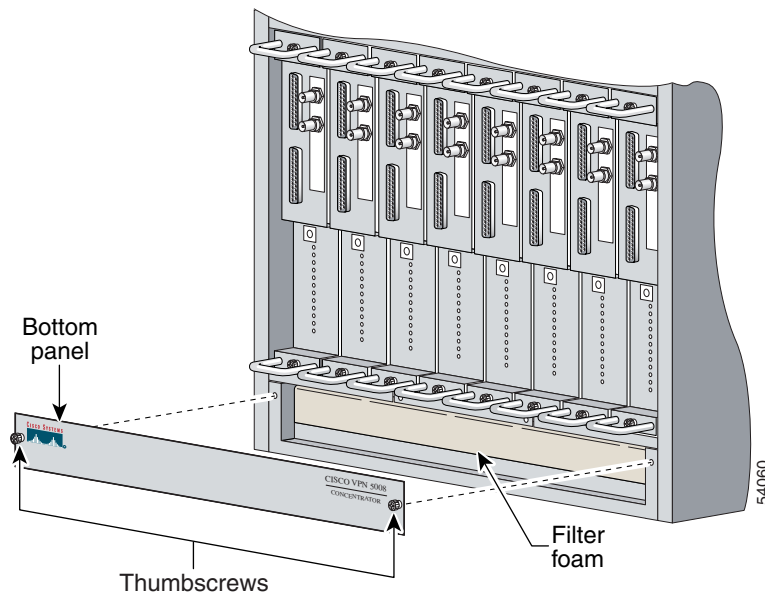
Under normal operation, you do not need to replace the air filter. Replace the filter only if an excessive amount of dirt and dust collects over an extended period of time, or if a lit Over Temp LED appears on an ESP card. See the *Cisco VPN 5002 and 5008 ESP Card Hardware Guide* for more information about resolving a high-temperature condition.

Cisco Systems provides an extra filter with each unit to minimize the platform down time.

To change the filter, complete these steps:

- Step 1** Remove the bottom panel by loosening the two captive thumbscrews (Figure 31).

Figure 31 Replacing the Filter Foam



- Step 2** Remove the filter from its slot.
Step 3 Put the supplied replacement filter in the slot.
Step 4 Replace the bottom panel and securely tighten the captive thumbscrews.

If you want to reuse the old filter, wash it in warm, soapy water and allow to completely dry. If either of the supplied filters is worn out or cannot be thoroughly cleaned, you can order a replacement filter from Cisco Systems.

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

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- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
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San Jose, CA 95134-9883

We appreciate your comments.

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Cisco.com

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<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

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