



# Installing and Upgrading Fans in Cisco 2811 Series Routers

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This document describes how to install or upgrade fans that are located internally within a Cisco 2811 series integrated services router. You need to remove the cover from the router to install or remove any of these items. The document contains the following sections:

- [Safety Warnings, page 1](#)
- [Removing the Chassis Cover, page 2](#)
- [Locating the Fan, page 5](#)
- [Installing and Removing the Fans, page 5](#)
- [Installing the Chassis Cover, page 13](#)

Before you begin the fan replacement procedure, disconnect the power and remove the cover, as described in the [“Removing the Chassis Cover” section on page 2](#). After you complete the fan replacement procedure, install the chassis cover as described in the [“Installing the Chassis Cover” section on page 13](#).

## Safety Warnings



Warning

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**This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

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Warning

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

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Warning

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

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**Warning**

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**Do not work on the system or connect or disconnect cables during periods of lightning activity.**  
Statement 1001

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**Warning**

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**Read the installation instructions before connecting the system to the power source.** Statement 1004

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**Warning**

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**Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.** Statement 43

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**Warning**

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**Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first.** Statement 1026

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## Removing the Chassis Cover

Cisco 2811 series routers have a cover that lifts off after you slide it free from front panel.



**Caution**

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*Do not*, under any circumstances, tamper with or attempt to remove the safety shields protecting the WIC/HWIC slots and connectors on the Cisco 2811 routers.

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## Removing the Cover from Cisco 2811 Routers

To remove the chassis cover for a Cisco 2811 series router, follow these steps. You will need a number 2 Phillips screwdriver and a flat-blade screwdriver with a blade width of  $1/4 \pm 1/32$  inch (5 to 7 mm). Rack-mounted routers must be removed from the rack and positioned on a flat surface before you start removing the cover.



**Caution**

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To prevent damage to the chassis, follow this procedure to remove the cover. Do not pry on the plastic bezel or on the ears at either side of the chassis on the back.

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The following warning applies only if the router is provided with a DC power input:



**Warning**

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

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**Step 1** Make sure that the router is turned off and disconnected from its power source.



**Warning** Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. Statement 1041

**Step 2** If rack-mounting brackets are attached to the chassis, remove them, using a Phillips screwdriver.

**Step 3** Remove the four screws at the back of the top cover, using a Phillips screwdriver.

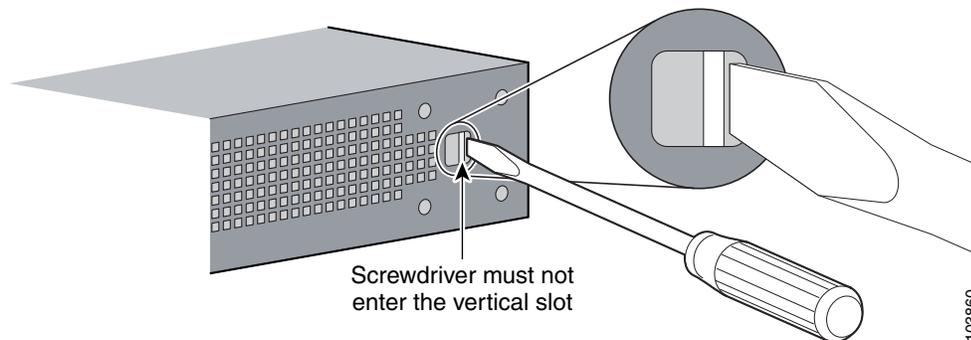
**Step 4** Perform the following steps to loosen the cover from the chassis:

- a. Insert the blade of the 1/4-inch screwdriver straight into the square hole on either side of the chassis near the back, so that it fits against the chassis and does *not* go past the chassis and into the narrow slot. See [Figure 1](#).



**Caution** Make sure that the tip of the screwdriver does *not* slide into the narrow vertical slot that is visible inside the square hole. The tip of the screwdriver should rest on the metal tab just inside the chassis cover and to the right of the vertical slot.

**Figure 1** Inserting the Screwdriver into the Side of the Chassis

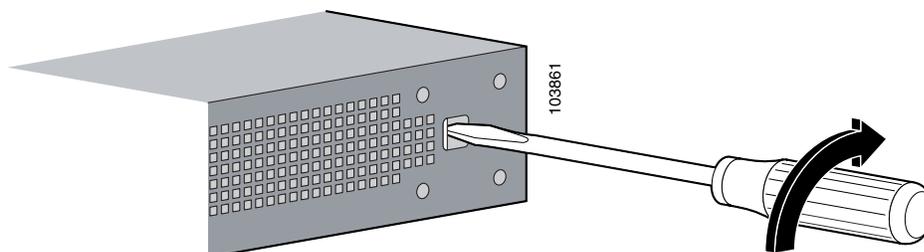


- b. With the screwdriver positioned as required in [Step a.](#) above, rotate the screwdriver a quarter turn toward the back of the chassis to loosen one side of the cover. See [Figure 2](#).



**Caution** The friction fit may be fairly tight; however, if the cover does not move with moderate effort, make sure that the screwdriver is *not* inserted into the narrow vertical slot.

**Figure 2** Rotating the Screwdriver to Loosen the Chassis Cover



- c. Repeat [Step a.](#) and [Step b.](#) for the opposite side of the chassis.

The cover should now be positioned back from the bezel about 1/4 inch (6 to 7 mm). If it is not, repeat [Step a.](#) and [Step b.](#) for one or both sides of the chassis.

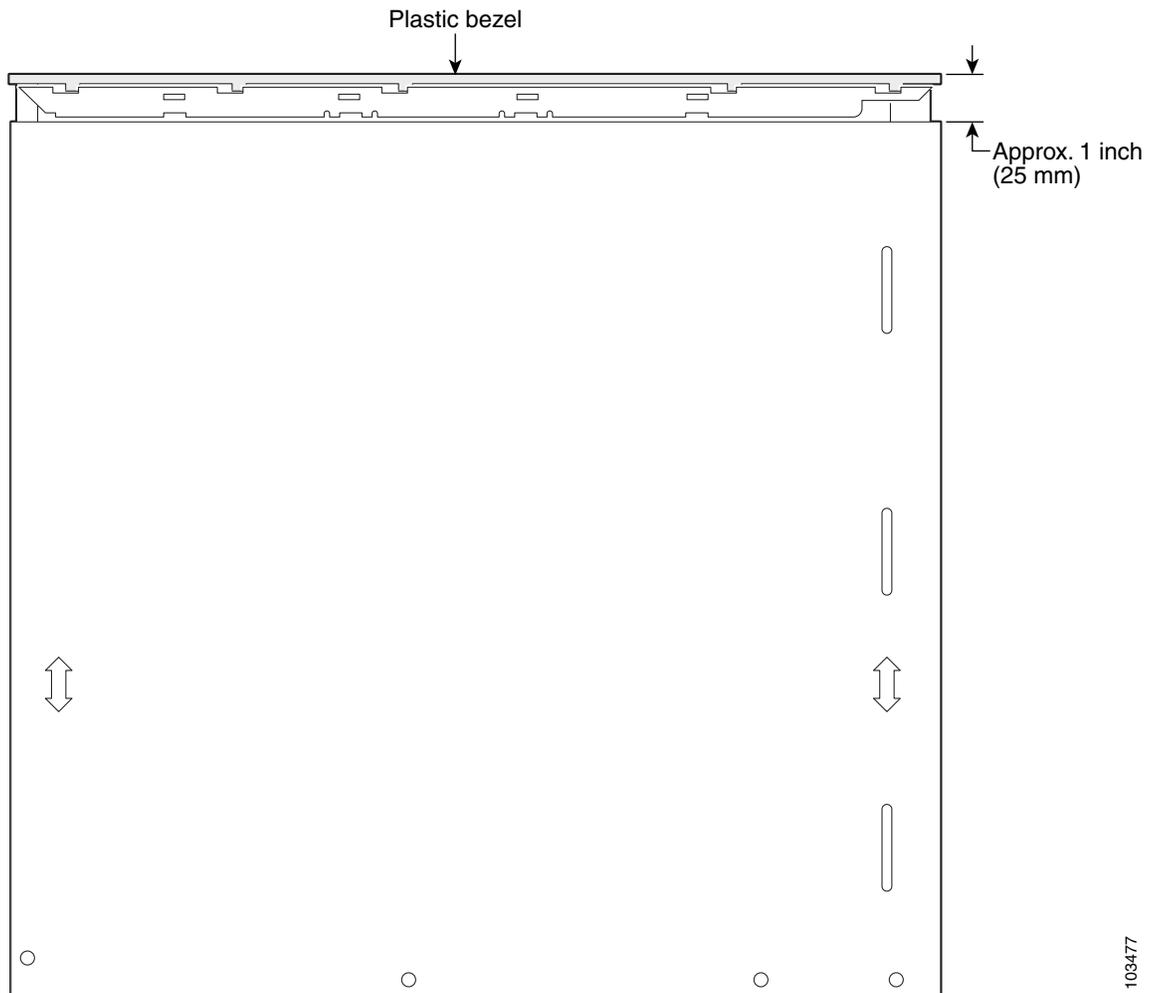
**Step 5** Slide the cover toward the back of the chassis until it contacts a stop (about 1 inch [25 mm]). The front edge of the cover should be free. See [Figure 3](#).



**Note** After the cover is loosened as in [Step 4](#), there may still be some friction to overcome as you complete the removal. However, do not use the screwdriver again as in [Step 4](#).

**Step 6** Lift the cover free of the router chassis.

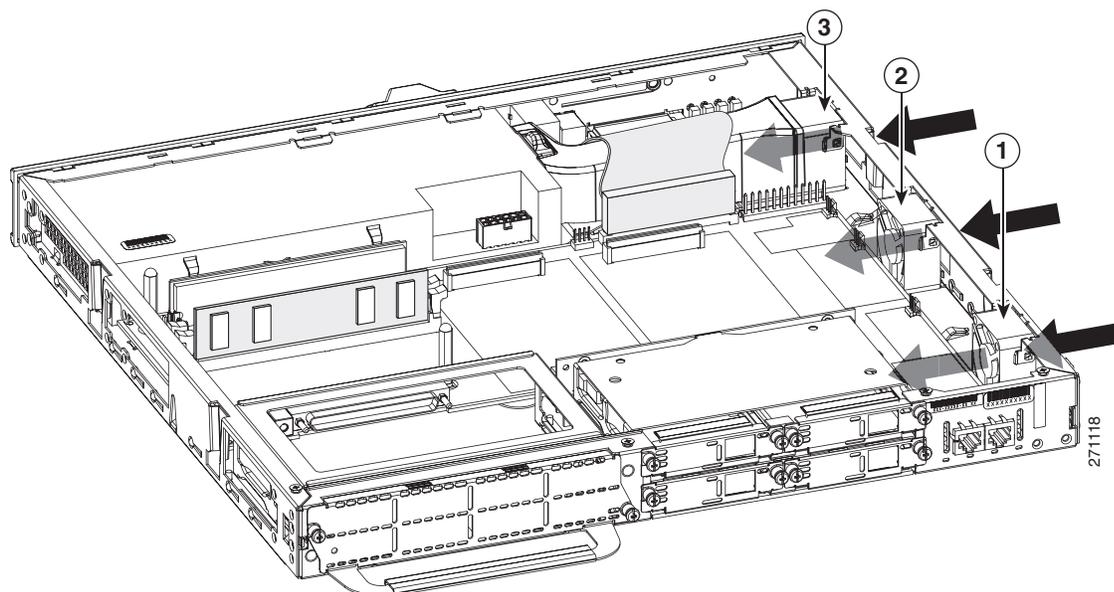
**Figure 3** Cisco 2811 Router—Cover in Position for Removal



# Locating the Fan

Figure 4 shows the locations of the fans in a Cisco 2811 series router.

**Figure 4** Fan Locations in Cisco 2811 Routers



1	System fan	2	System fan
3	Power supply fan		



**Note** The fan numbers in Figure 4 correlate to IOS show environment command numbers. The arrows show proper air flow.

## Installing and Removing the Fans

The router fans rest on the chassis base and have a wire that connects to the system board.

Before you remove or install a fan, remove the chassis cover as described in the [“Removing the Chassis Cover”](#) section on page 2.



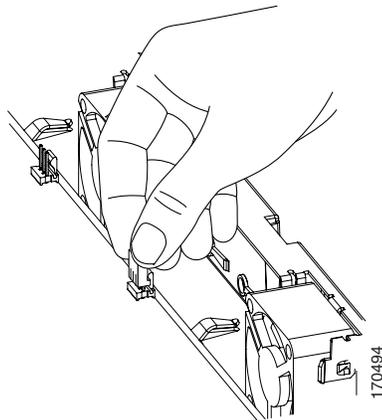
When you remove or install a fan, always wear an ESD-preventive wrist strap, and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal part of the chassis.

## Removing the System Fans

To remove a system fan, perform the following procedure. To complete this procedure, you may need a flat-blade screwdriver.

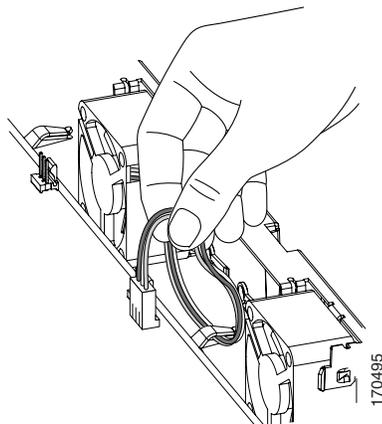
- 
- Step 1** Locate the fans to be removed. See [Figure 4](#) for the location of the fans.
  - Step 2** Disconnect the fan connector from the system board as shown in [Figure 5](#).

**Figure 5** *Disconnecting the System Fan Connector from the System Board*



- Step 3** Remove the fan wire from the wire management clip, which is located on the chassis base as shown in [Figure 6](#).

**Figure 6** *Removing the Fan Wire from the Wire Management Clip*



- Step 4** Remove the fan by sliding it upward, and then tilting it toward the chassis wall as shown in [Figure 8](#).



**Note** If the fan is difficult to grasp when sliding upward, use a flat-blade driver for leverage as shown in [Figure 7](#).

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**Figure 7** Using a Flat-Blade Screwdriver for Added Leverage When Removing the Fan

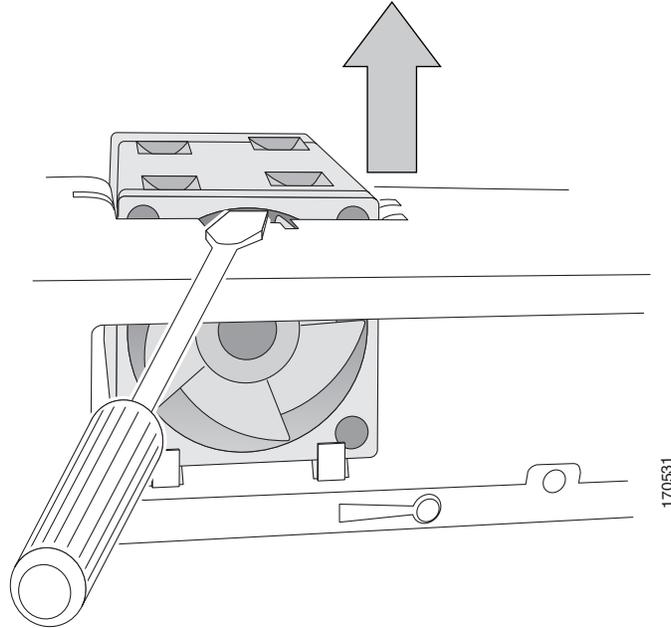
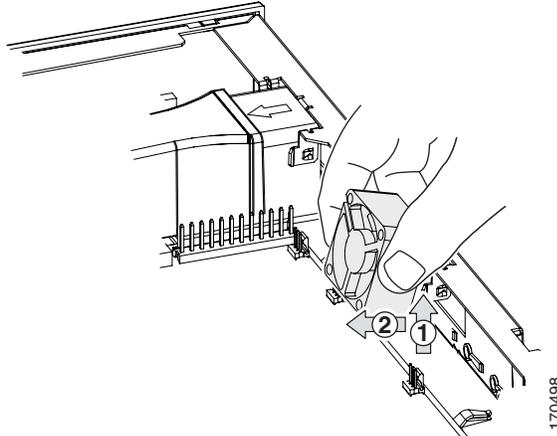


Figure 8 shows the fan being tilted away from the chassis to remove it.

**Figure 8** Lifting and Tilting the Fan to Remove



<b>1</b>	Lift the fan upward	<b>2</b>	Tilt the fan toward chassis
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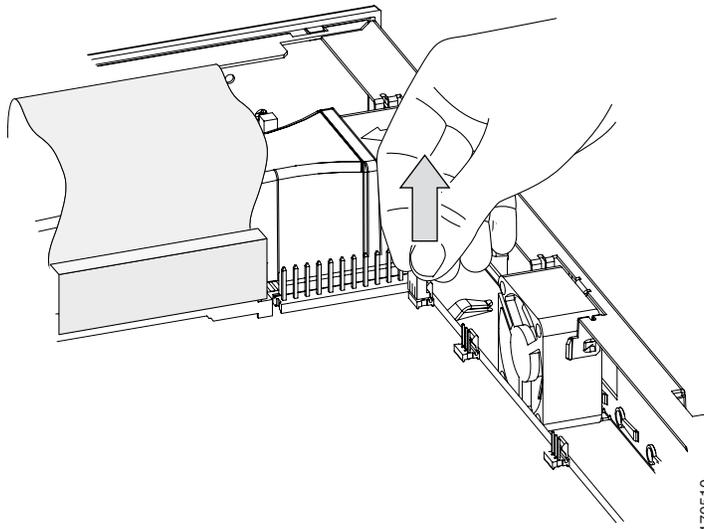
**Step 5** Place the fan in an antistatic bag to protect it from ESD damage.

## Removing the Power Supply Fan

To remove the power supply fan, perform the following procedure. To complete this procedure, you may need a flat-blade screwdriver.

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- Step 1** Locate the fan to be removed. See [Figure 4](#) for the location of the fans.
- Step 2** Disconnect the fan connector from the system board as shown in [Figure 9](#).

**Figure 9** *Disconnecting the Power Supply Fan Connector*



- Step 3** Lift the ribbon cable to allow slack to remove the air baffle as shown in [Figure 10](#).

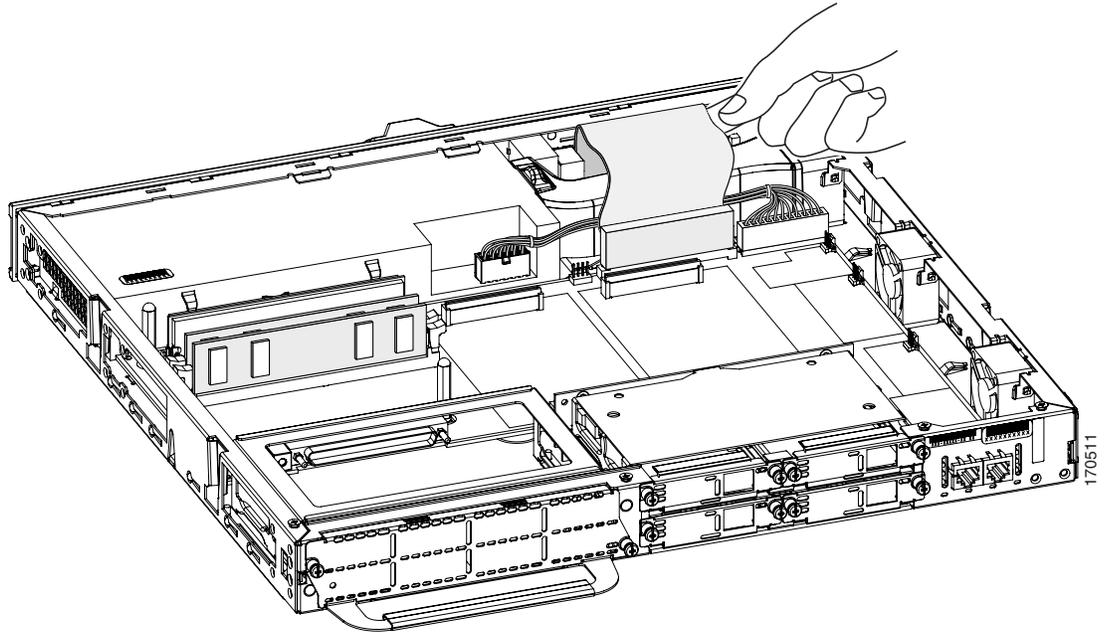


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**Note** It is not necessary to disconnect the ribbon cable from the CompactFlash printed circuit board (PCB) or system board.

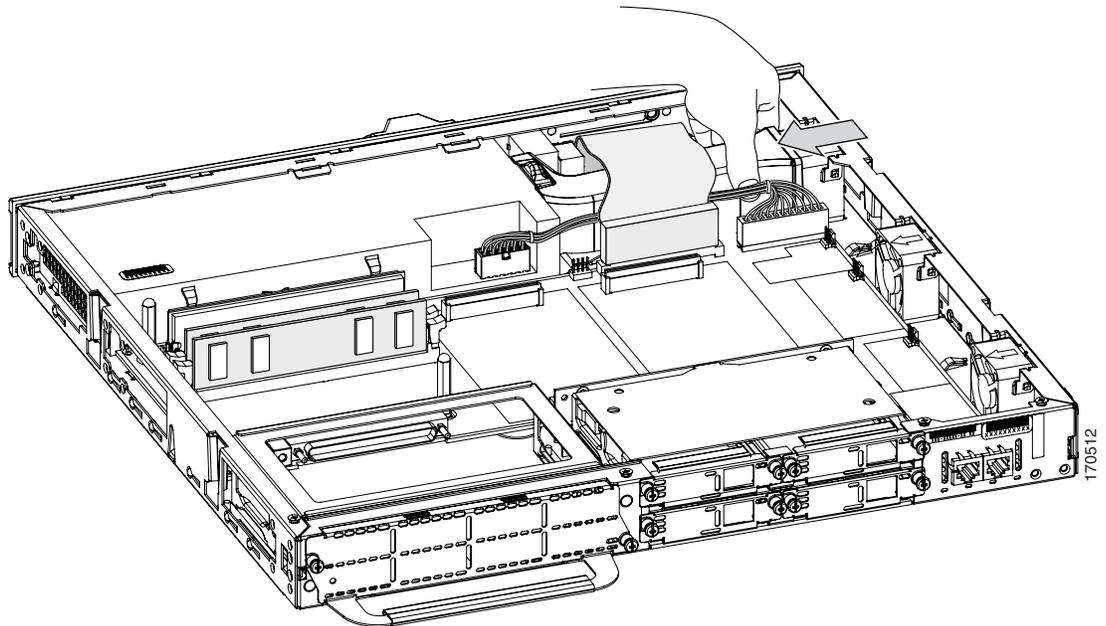
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**Figure 10**      *Lifting the Ribbon Cable*



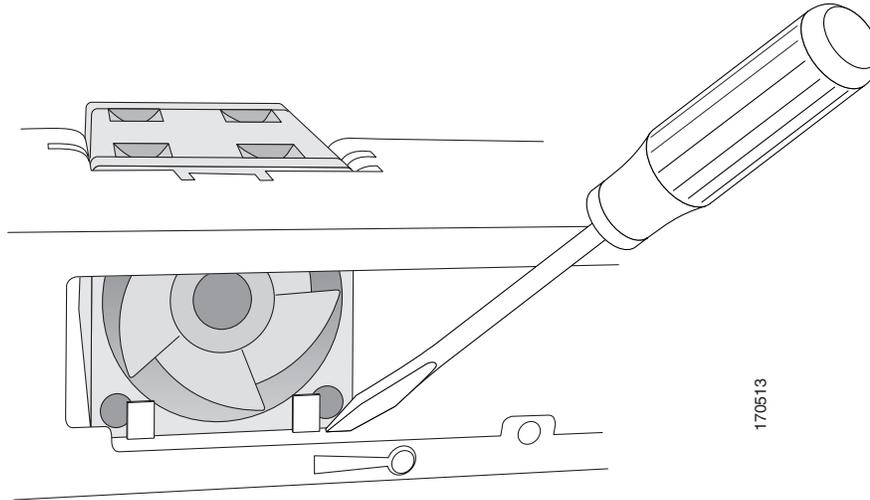
- Step 4**      Remove the plastic air baffle by gently squeezing the air baffle sides, disengaging the baffle from the chassis base as shown in [Figure 11](#).

**Figure 11**      *Removing the Air Baffle*



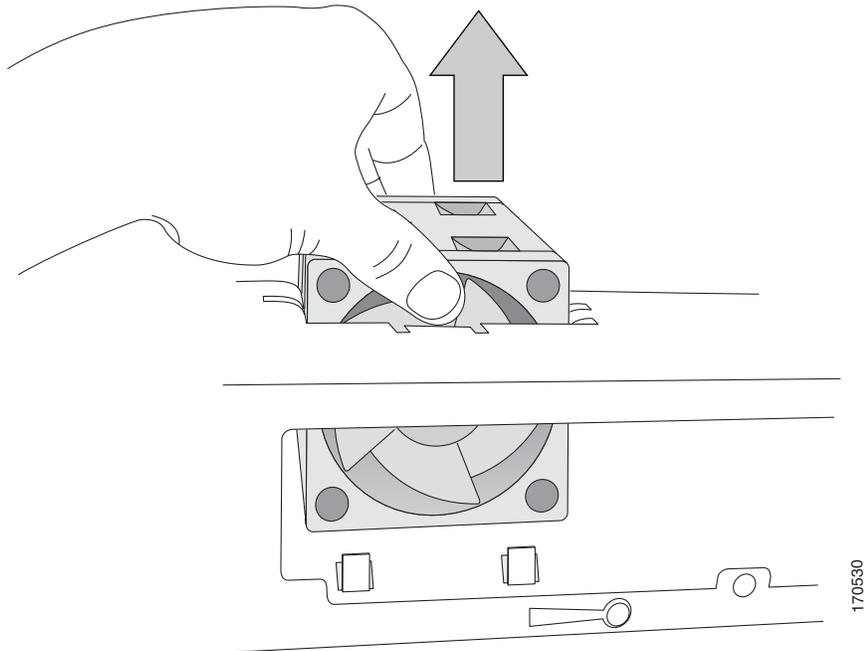
- Step 5**      Remove the fan wire from the wire management clip, which is located on the chassis base as shown in [Figure 6](#).
- Step 6**      Remove the fan by placing a flat-blade screwdriver at the base of the plastic fan housing and lifting the fan in a vertical position, as shown in [Figure 12](#).

**Figure 12** *Using a Flat-Blade Screwdriver to Lift the Fan*



**Step 7** Disengage the fan from the side attachment slots and push the fan toward the center of the chassis, and remove the fan as shown in [Figure 13](#).

**Figure 13** *Disengaging the Fan from the Side Attachment Slots*



**Step 8** Place the fan in an antistatic bag to protect it from ESD damage.

## Installing the Fans

To install the system and power supply fans, perform the following procedure:

**Step 1** Locate the fan slot. See [Figure 4](#) for the location of the fans.

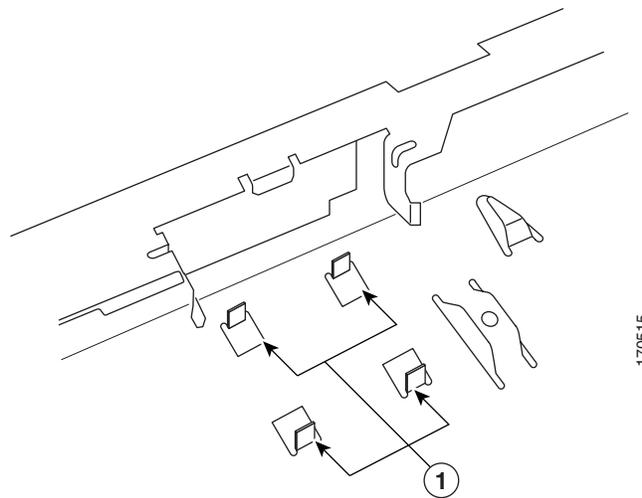


**Note** The fan should seat within the four tabs shown in [Figure 14](#).



**Note** The fans have side attachment slots that are used to guide the fan into place. See [Figure 16](#).

**Figure 14** Positioning the Fan



**1** Tabs

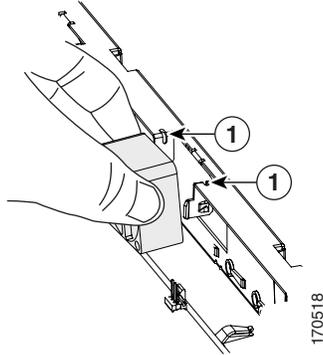


**Caution**

Verify that the side attachment slots are not bent out of position when you install the fan. Misaligned side attachment slots will not properly secure the fan when in position.

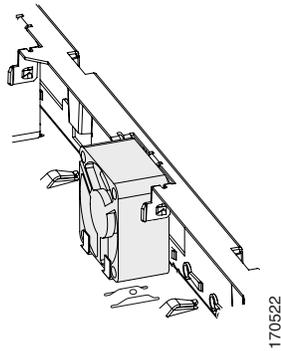
**Step 2** Insert the fan in the side attachment slots (as shown in [Figure 16](#)), and slide the fan down over the locking tabs at the chassis base as shown in [Figure 17](#).

**Figure 15** *Inserting the Fan*



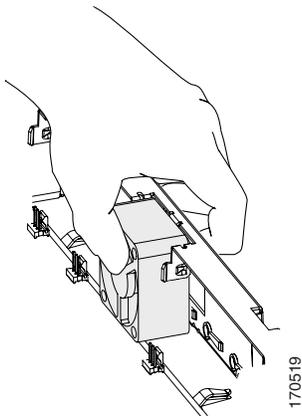
**1** Side attachment slots

**Figure 16** *Fan Inserted*



**Step 3** Angle the fan into the locking tabs, and verify that the fan has snapped into the locking tabs as shown in [Figure 17](#).

**Figure 17** *Angling the Fan Into the Locking Tabs*

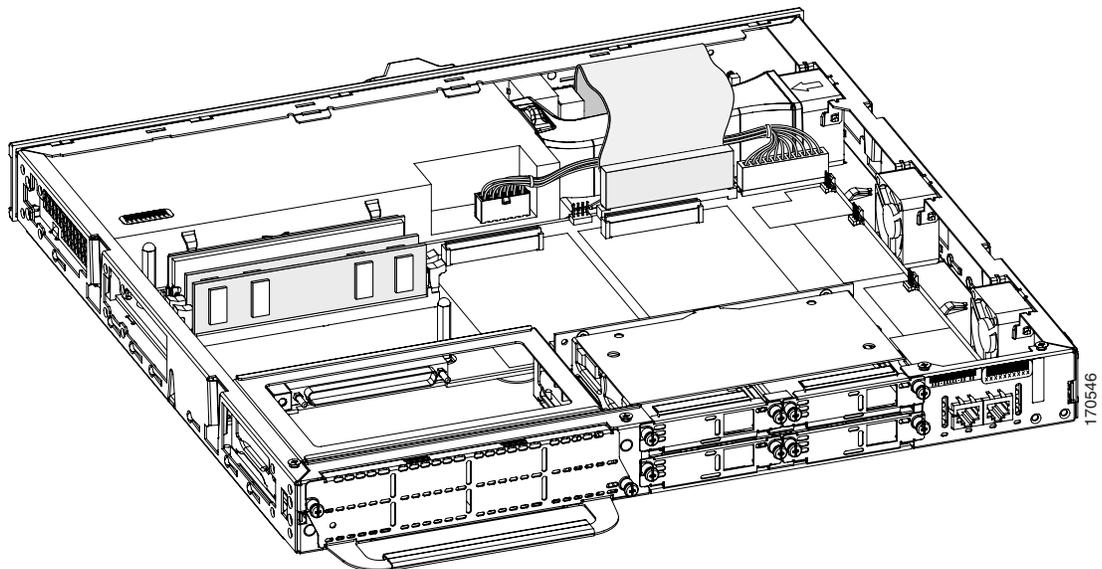




**Note** When the fan is properly seated, the top and bottom of the fan should be flush against the chassis wall.

- Step 4** Thread the fan wire under the wire management feature at the chassis base as shown in [Figure 6](#).
- Step 5** Attach the fan connector to the system board.
- Step 6** (Power supply fan only) Install the plastic air baffle below the ribbon cable, and secure the plastic tabs onto the chassis base. Gently squeeze the baffle so that the four bottom hooks can snap into the sheet metal hold-downs.
- Step 7** (Power supply fan only) Fold the ribbon cable below the sheet metal flange, as shown in [Figure 18](#) to prevent damage when installing the cover.

**Figure 18** Ribbon Cable Orientation



**Note** Verify that the power cable and ribbon cable have remained secure to the CompactFlash PCB and system board.

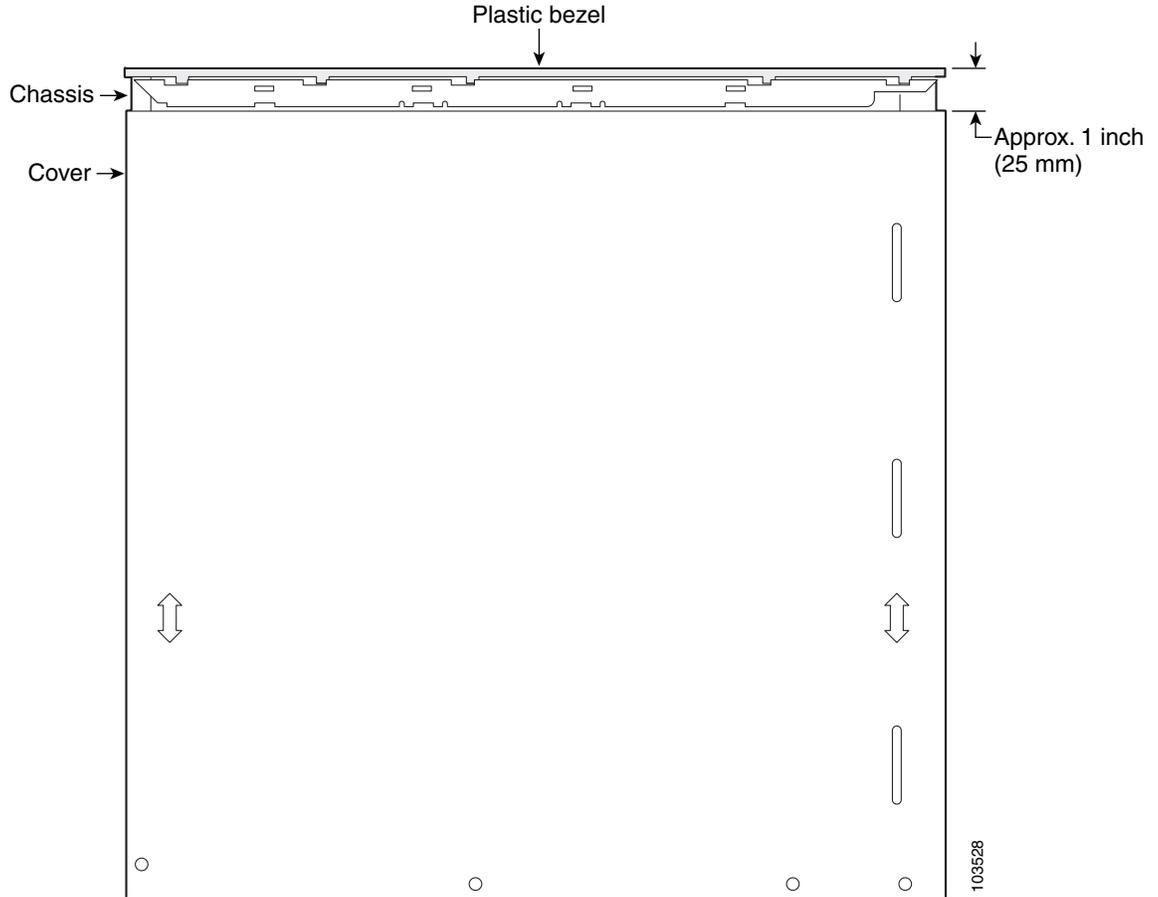
## Installing the Chassis Cover

The Cisco 2811 series router has a cover that slides into place after you position it flat on top of the chassis.

To install the chassis cover on the router, follow these steps. You will need a number 2 flat-blade screwdriver.

- Step 1** Position the cover so that it rests flat on the chassis, with the front (bezel) end of the cover about 1 inch (25 mm) from the front end of the chassis. See [Figure 19](#).

**Figure 19** *Cover in Position for Installation*



- Step 2** Slide the cover toward the front so that the male flanges enter the slots and the cover is fully closed. Press the cover flat against the chassis while you slide the cover closed.
- Step 3** Use a Phillips screwdriver to install the four screws at the top back of the cover.

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