CHAPTER 11

Installing and Upgrading Internal Modules in Cisco 1800 Series Routers (Modular)

This chapter describes how to install or upgrade modules that are located internally within the Cisco 1800 series integrated services routers (modular): memory modules and advanced integration modules (AIMs). You need to remove the cover from the router to install or remove any of these items. The chapter contains the following sections:

Note To see translations of the warnings that appear in this publication, see the *Regulatory Compliance and Safety Information for Cisco 1840 Routers*.

Safety Warnings

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

Warning **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

Warning **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.** Statement 94

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

Warning **Read the installation instructions before you connect the system to its power source.** Statement 1004

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

Modules Internal to the Cisco 1841 Router

This section tells how to install a small outline dual in-line memory module (SODIMM) and an advanced integration module (AIM) in the Cisco 1841 router. It contains the following subsections:

All the module replacement procedures in this section require removal of the chassis cover. Before you perform any of the module replacement procedures, disconnect the power and remove the cover as described in the "Opening the Chassis" section on page 11-2. After you complete the module replacement procedures, install the chassis cover as described in the "Closing the Chassis" section on page 11-11.

Opening the Chassis

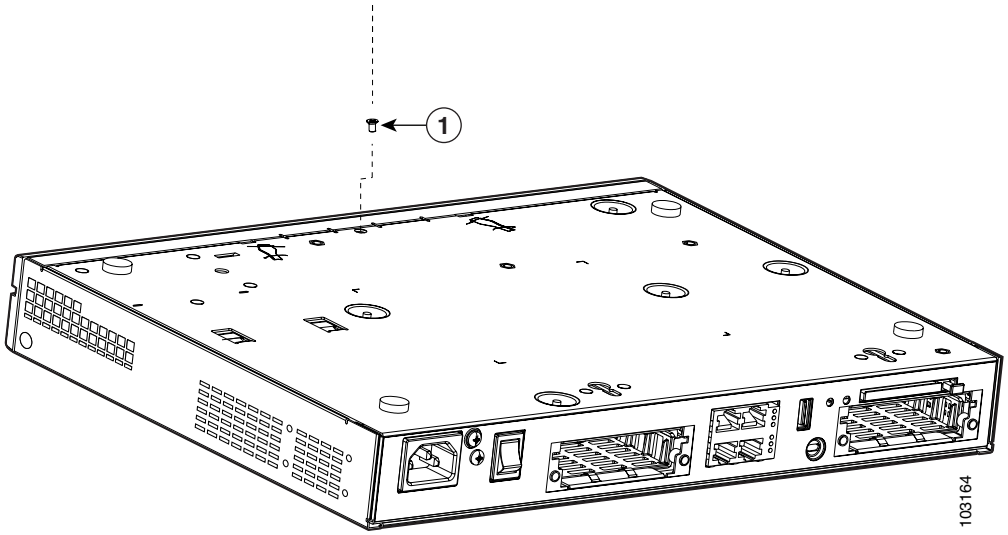
To open the chassis, follow these steps. A number 1 Phillips screw driver is required.

Step 1 Make sure that the router is turned off and is disconnected from AC power.

Step 2 Turn the router upside down, and rest the top of the router on a flat surface.

Step 3 Use the Phillips screwdriver to remove the screw that holds the top and bottom of the chassis together, as shown in Figure 11-1.

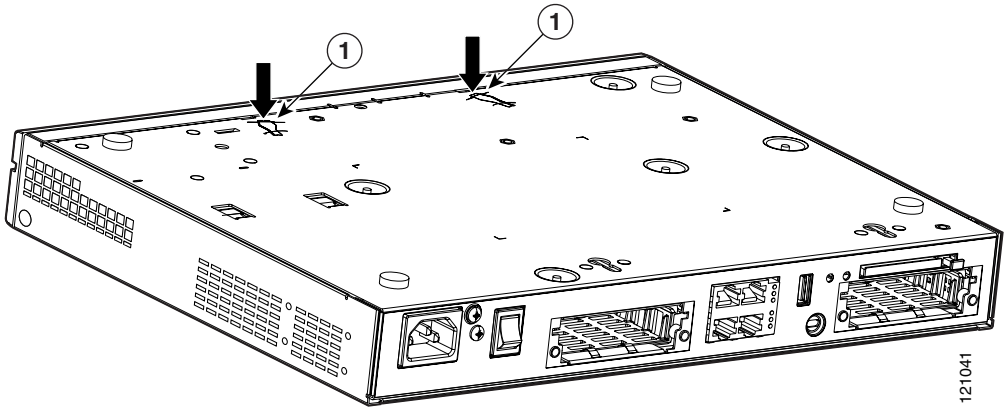
Figure 11-1 Removing the Chassis Screw



1	Router cover fastening screw		

Step 4 Insert a flat-head screwdriver into the slots at the screwdriver pry points and rotate the screwdriver 90 degrees to disengage the top cover from the chassis. See Figure 11-2.

Figure 11-2 Screwdriver Pry Points

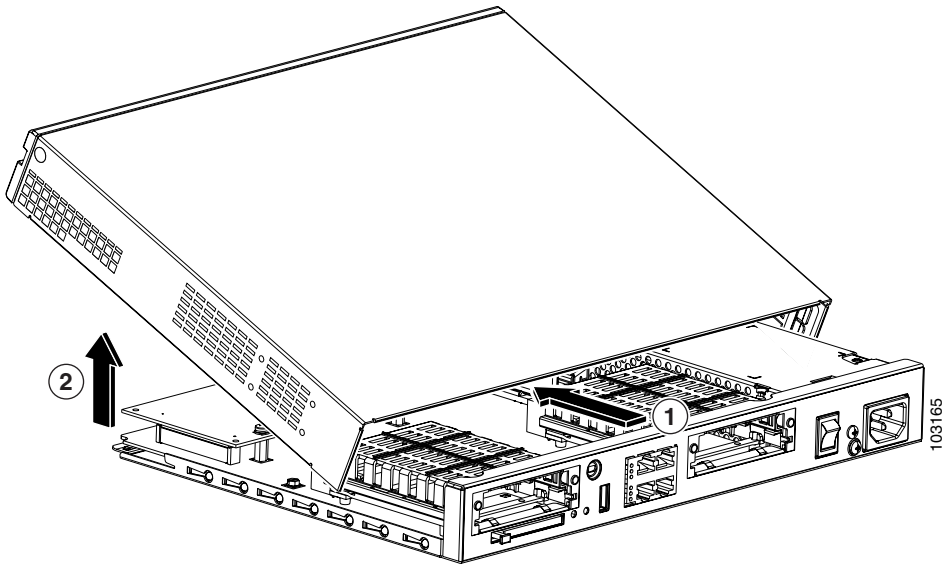


1	Screwdriver pry points		

Step 5 Turn the router back to its original position (top up).

Step 6 Gently slide the top of the router (which is facing up toward you) away and up from the bottom of the router (which is resting on the flat surface). See Figure 11-3.

Figure 11-3 Removing the Cover of the Cisco 1841 Router



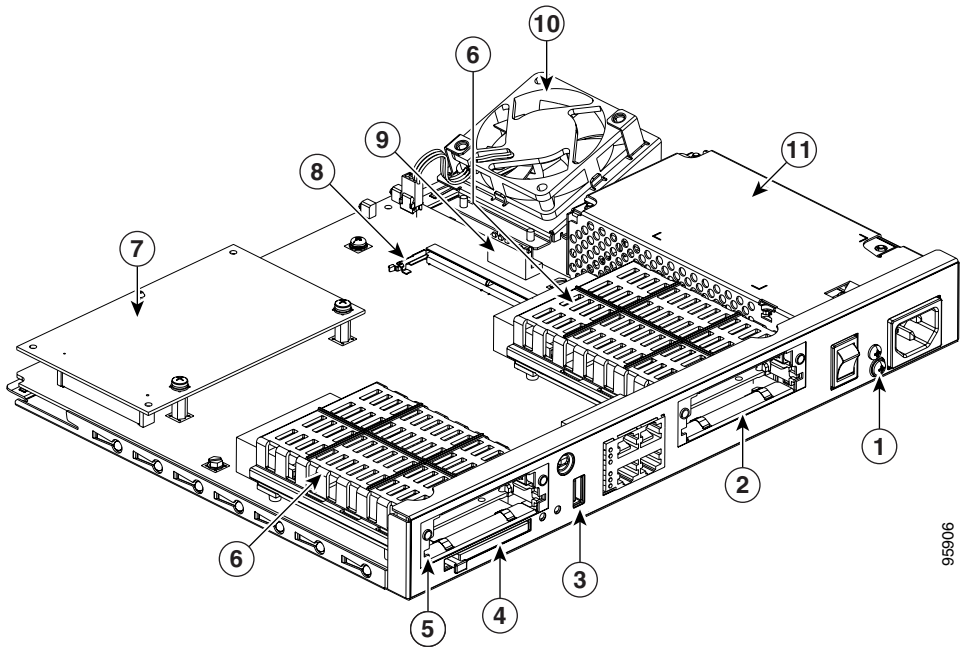
1	Slide cover back from router chassis	**2**	Rotate cover to remove from router chassis

Step 7 Place the router bottom on an antistatic mat, and begin installing memory.

Locating Modules

Figure 11-4 shows where the connector for the SODIMM or the AIM is located on the Cisco 1841 motherboard.

Figure 11-4 Cisco 1841 Interior



1	Ground screw	**7**	AIM module
2	Interface card slot 0	**8**	SODIMM socket
3	USB port	**9**	Power supply connection
4	CompactFlash memory card slot	**10**	System fan
5	Interface card slot 1	**11**	Power supply
6	Safety shields for WIC/HWIC slots and connectors		

Caution Do not, under any circumstances, tamper with or attempt to remove the safety shields protecting the WIC/HWIC slots and connectors.

Installing a SODIMM

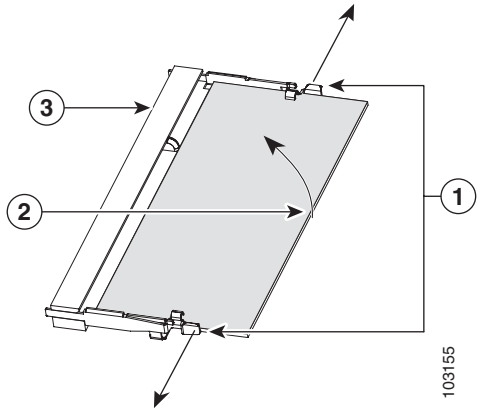
You can install a SODIMM to increase the amount of DRAM in the router.

To install a SODIMM on the router motherboard, follow these steps:

Step 1 Locate the SODIMM socket on the motherboard.

Step 2 Remove any existing SODIMM by gently pulling the spring-loaded clips on the end of the socket far enough to clear the SODIMM, and gently pulling the SODIMM up and away from the socket. See Figure 11-5.

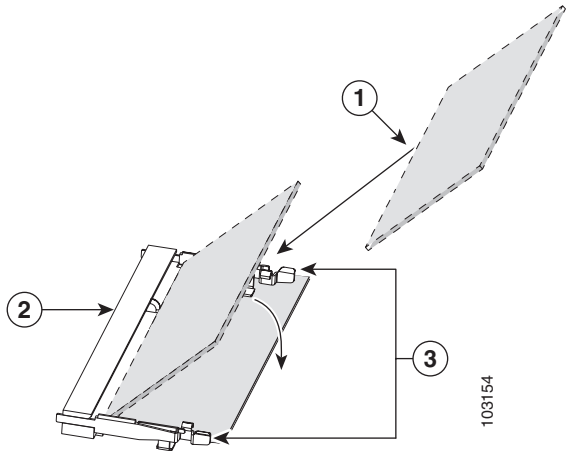
Figure 11-5 Removing a SODIMM



1	Spring-loaded clips	**3**	SODIMM socket
2	SODIMM		

Step 3 Insert the SODIMM into the SODIMM socket, as shown in Figure 11-6.

Figure 11-6 Installing a SODIMM



1	SODIMM	**3**	Spring-loaded clips
2	Insert and rotate into socket.		

Step 4 Firmly press the SODIMM into the socket until the spring-loaded clips on the socket snap over the end of the SODIMM.

Installing an AIM

The Cisco 1841 router has the capability to support a single AIM module. To install an AIM, follow the procedure given here.

Table 11-1 AIMs Supported on Cisco 1841 Router

Cisco Part Number	Type
AIM-CUE=	Unity Express
AIM2-CUE-K9	Unity Express
AIM2-APPRE-104-K9	AXP—Application eXtension Platform
AIM-IPS	Intrusion Prevention Systems
AIM-VPN-EPII-PLUS	VPN Encryption

Caution When you install an AIM, 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.

Caution Handle AIMs by the edges only. AIMs are ESD-sensitive components and can be damaged by mishandling.

Accessory Kit to Use

Some AIMs are provided with multiple accessory kits that contain different configurations of mounting hardware. Mounting hardware for the Cisco 1841 router consists of two machine thread metal standoffs, two machine thread metal screws, and one plastic standoff.

To install an AIM2-CUE-K9 or an AIM2-APPRE-104-K9, use the snap-fit blue standoff, the two hex standoffs, and the two M2.5 screws found in mounting kit 69-1870-01. You can discard the remaining parts.

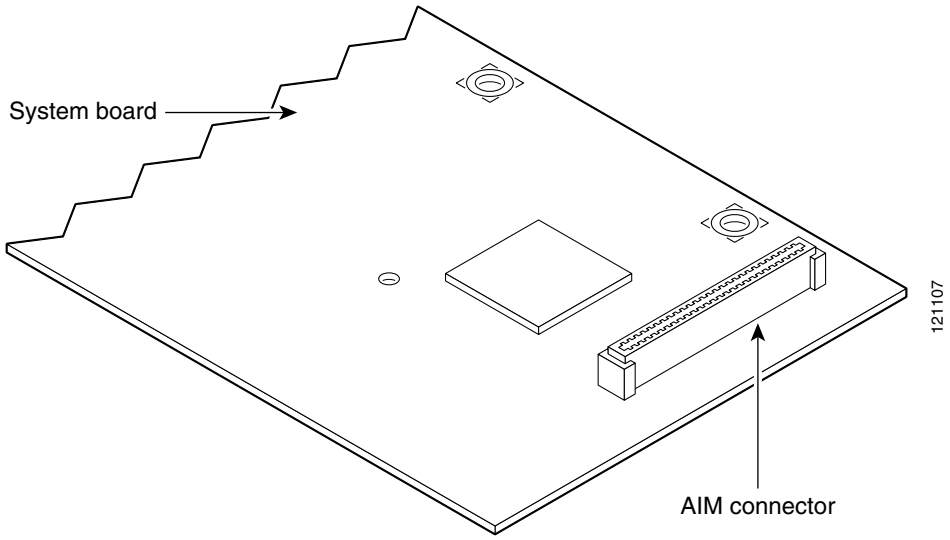
For all other AIM module installations, use the hardware found in mounting kit 69-1316-01.

Installation Procedure

To install the AIM, perform the following steps. You need a number 2 Phillips screwdriver or flat-head screwdriver to complete this procedure.

Step 1 Find the metal standoff attachment locations on the system board near the AIM connector, indicated by a star pattern, as shown in Figure 11-7.

Figure 11-7 Location of Metal Standoff Attachment Locations



Step 2 Install the two metal standoffs from the accessory kit into the system board in the metal standoff attachment locations, as shown in Figure 11-9. Use a 1/4-inch nut driver to tighten the standoffs. Locations for AIM standoffs are denoted by a star pattern around the standoff mounting holes.

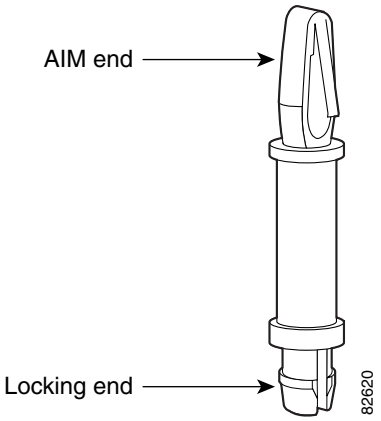
Caution Make sure that the standoffs are installed straight. Tighten them gently but firmly. The shoulder must be seated tightly against the system board.

Step 3 Insert the plastic standoff (Figure 11-8) from the accessory kit into the hole in the system board. See Figure 11-9. Press the standoff firmly into the system board to be sure that it is locked to the board.

Note The plastic standoff snaps into the system board. Be sure to insert the locking end of the standoff into the system board. The locking end is the shortest end of the standoff. Figure 11-8 identifies the locking end of the plastic standoff used with AIMs.

Note For most AIMs, the plastic snap-in standoff is white. For the AIM2-CUE-K9 and the AIM2-APPRE-104-K9, the plastic standoff is blue and has a slightly larger snap-in feature to accomodate the PCB which is thicker.

Figure 11-8 Plastic Standoff Orientation

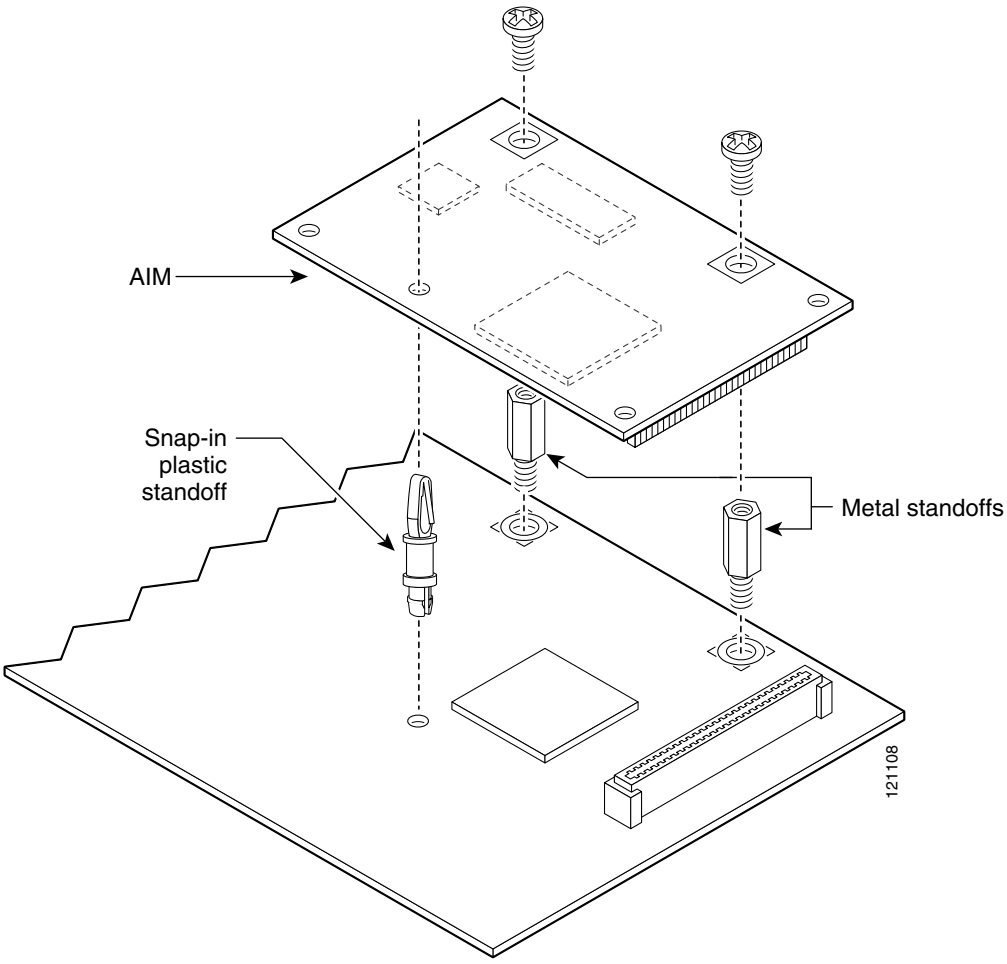


Step 4 Insert the connector on the AIM into the AIM connector on the system board. See Figure 11-9.

Note Be sure to press firmly on the AIM until the board seats onto the connector. The plastic standoff must snap into the hole in the AIM board. See Figure 11-9.

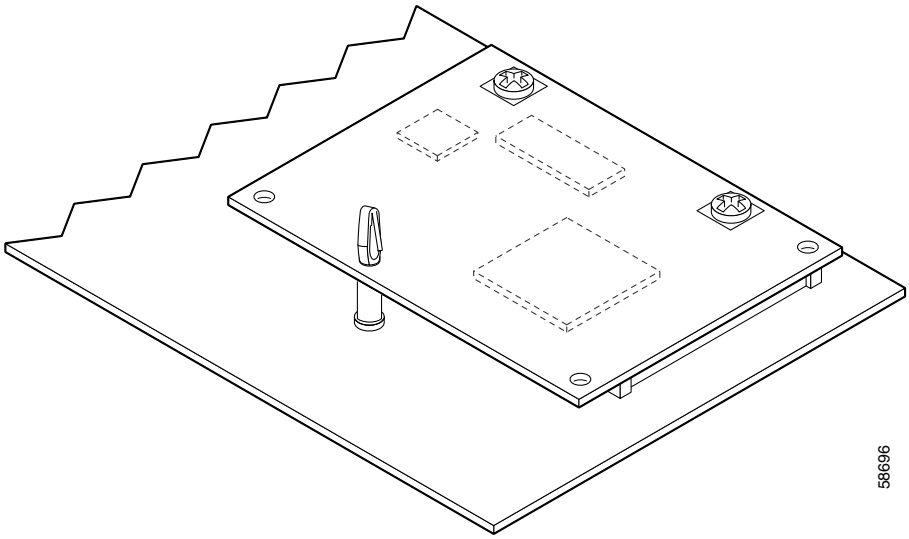
Step 5 Insert the screws from the accessory kit through the AIM into the metal standoffs. See Figure 11-9. Carefully tighten the screws with a Phillips screwdriver.

Figure 11-9 Connecting the AIM to the System Board



Step 6 Check that the AIM is installed correctly on the system board. See Figure 11-10.

Figure 11-10 Correctly Installed AIM



Applying the AIM Label

The AIM label for the chassis might be in the AIM mounting kit, or it might be attached to the label on the AIM card. To apply the chassis label, follow these steps:

Step 1 If the chassis label is attached to the label on the AIM card, carefully tear off the chassis label at the perforation. If the chassis label is in the AIM mounting kit, remove the label from the kit bag.

Step 2 Peel the chassis label from its backing.

Step 3 If there is a suitable space, apply the chassis label to the back of the chassis. If no suitable space is available on the back of the chassis, apply the label to the top cover at the back edge. The label must be visible with the chassis installed.

Note Do not apply the AIM label for the chassis to a blank cover plate; to any removable network module or interface card; or over any holes, screws, chassis vents, or existing labels.

Closing the Chassis

To close the chassis, follow these steps:

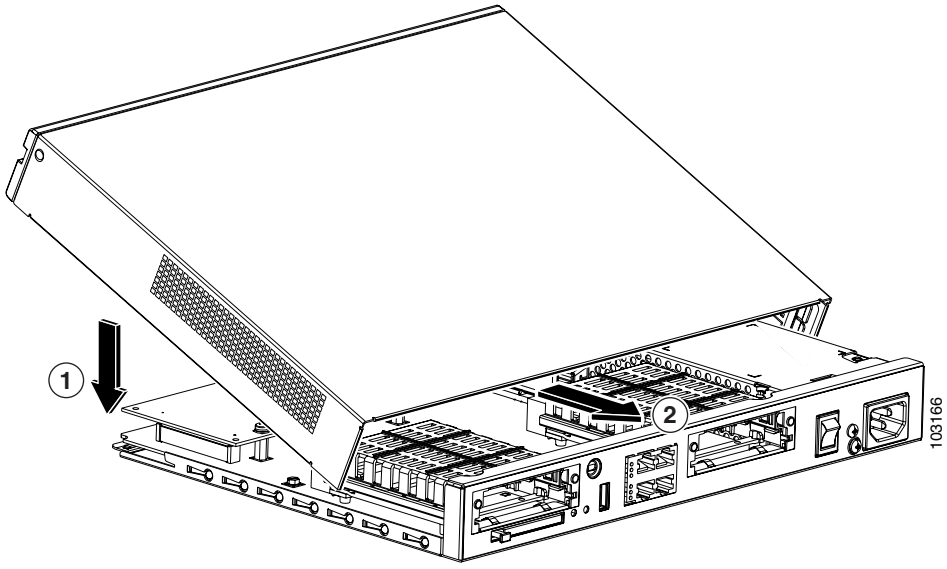
Step 1 Rotate the cover down onto the chassis. Slide the cover back onto the bottom of the chassis. See Figure 11-11.

Step 2 Push firmly to close.

Step 3 Turn the router upside-down.

Step 4 Use a number 1 Phillips—screwdriver to reinstall the screw that holds the cover to the chassis. See Figure 11-1.

Figure 11-11 Closing the Chassis



1	Rotate cover onto router	**2**	Slide cover onto router chassis