Installing Network Modules in Cisco 3800 Series Routers

This document describes how to install network modules in Cisco 3800 series routers. It contains the following sections:

Installing Network Modules

Network modules install directly into slots in the rear of the router. The Cisco 3845 and 3845-NOVPN router supports online insertion and removal (OIR, or hot swap) of network modules. The Cisco 3825 and 3825-NOVPN router does not support OIR.

Caution The Cisco 3845 and 3845-NOVPN router supports OIR with similar modules only. If you remove a network module, along with any installed WAN or voice interface cards, install another module and card combination exactly like it.

Caution The Cisco 3825 and 3825-NOVPN router does not support OIR of network modules. To avoid damaging the module, you must turn off electrical power and disconnect network cables before you insert the module into a router slot.

The Cisco 3825 and 3825-NOVPN router provides two slots for network modules. The lower network module slot of this router, labeled 1 on the rear panel, can hold either of the following sizes of network modules:

- One single-wide network module

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- One extended single-wide network module

The upper network module slot of the Cisco 3825 and 3825-NOVPN router, labeled 2 on the rear panel, can hold any of the following sizes of network modules:

- One single-wide network module
- One extended single-wide network module
- One double-wide network module
- One extended double-wide network module

The Cisco 3845 and 3845-NOVPN router provides four slots for network modules, labeled 1, 2, 3, and 4 on the rear panel. Each slot can hold either of the following sizes of network modules:

- One single-wide network module
- One extended single-wide network module

Slots 1 and 2 can also be combined to hold either of the following sizes of network modules:

- One double-wide network module
- One extended double-wide network module

Slots 3 and 4 can be combined in the same way to hold one double-wide or extended double-wide network module.

Note The terms *single-wide*, *extended single-wide*, *double-wide*, and *extended double-wide* refer to the physical size of a network module. *Enhanced* network modules offer additional functionality; this functionality is not directly related to the module's size.

Note The Cisco 3825 and 3825-NOVPN router supports one high-density analog-digital extension module for voice and fax. The Cisco 3845 and 3845-NOVPN module supports two of these modules.

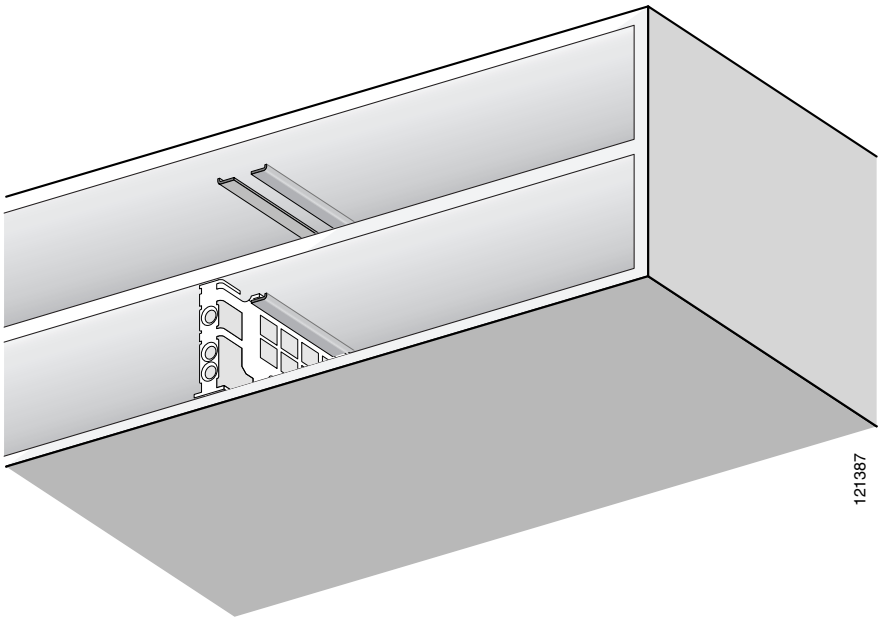
For detailed information about installing network modules in external router slots, see the following documents:

- *Cisco Network Modules Hardware Installation Guide*
- *Cisco 3800 Series Routers Cards and Modules*

Some network module configurations require the installation or removal of a slot divider in the module slot. See Figure 30.

Note Figure 30, Figure 31, and Figure 32 show a generic router. They do not represent the details of Cisco 3800 series routers.

Figure 30 Slot Divider for Double-Wide Network Module Slots (Generic Router)



All network module slots must be covered by network module faceplates, blank faceplates, or slot adapters for cooling, electromagnetic interference (EMI) reduction, and safety. The network module hardware kit for Cisco 3800 series routers contains four blank faceplates. Each blank faceplate covers one standard single-wide network module slot.

Warning **Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.** Statement 1029

Modifying the Width of Network Module Slots

T o reduce extended single-wide and extended double-wide network module slots in width to hold smaller network modules, or to cover unused slots, you may need a combination of blank faceplates, slot dividers, and slot adapters.

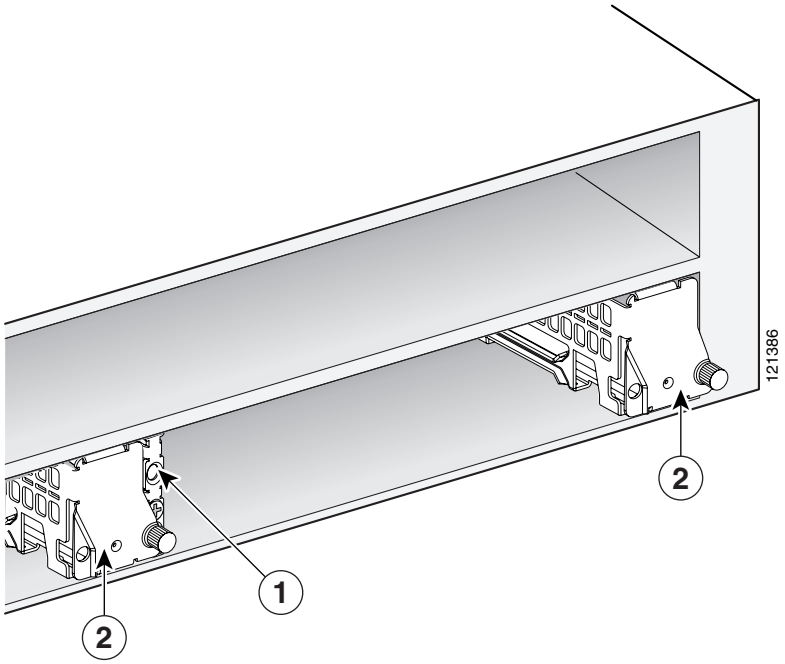
To reduce a slot in width:

- To reduce an extended single-wide slot to standard single-wide, install one slot adapter on the right. See Figure 31.
- To reduce an extended double-wide slot to standard double-wide, install two slot adapters on the right. See Figure 32.

To cover an empty network module slot:

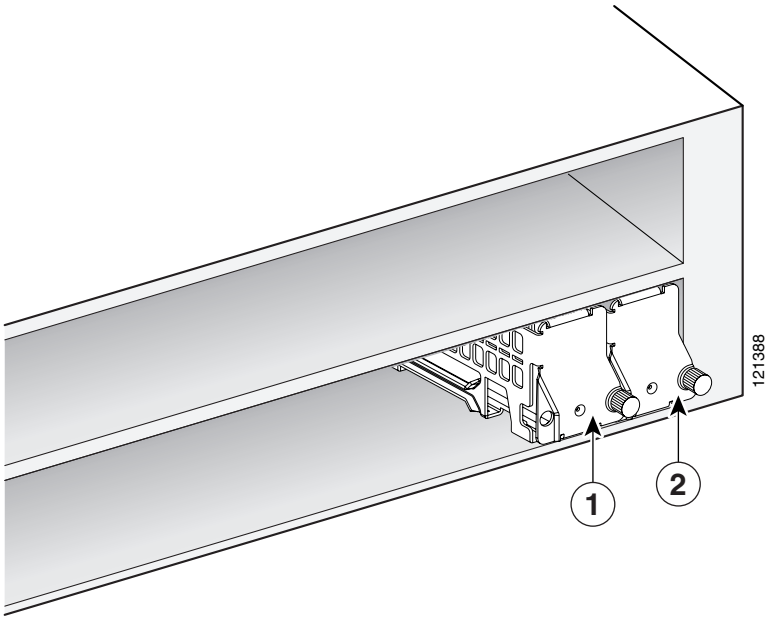
- Extended single-wide slot—Install a slot adapter as described in the "Installing and Removing Slot Adapters" section on page 10. Then attach a blank faceplate and tighten the two screws.
- Extended double-wide slot—Install a slot divider as described in the "Installing and Removing Slot Dividers" section on page 6 . Install a slot adapter in each single-wide slot as described in the "Installing and Removing Slot Adapters" section on page 10. Then attach a blank faceplate in each slot and tighten the two screws.

Figure 31 Slot Divider and Adapters for Standard Single-Wide Network Modules (Generic Router)



1	Slot divider	**2**	Slot adapters

Figure 32 Slot Adapters for Double-Wide Network Modules (Generic Router)



1	Slot adapter	**2**	Second slot adapter

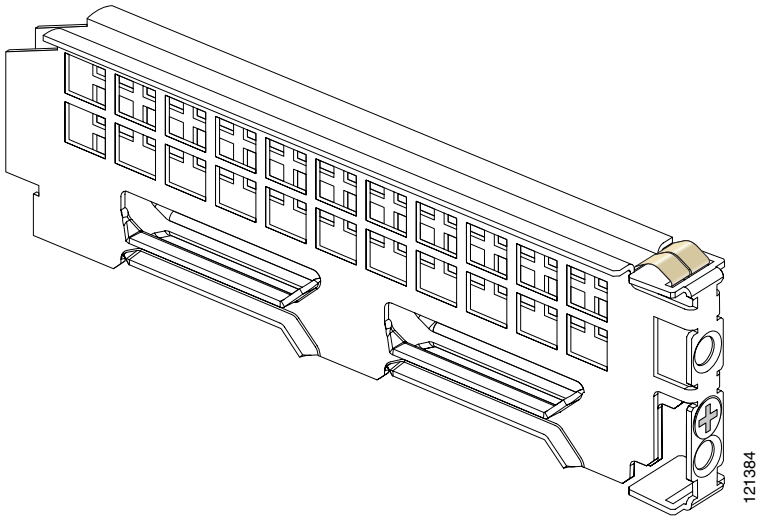
Installing and Removing Slot Dividers

On the Cisco 3845 and 3845-NOVPN router, you can remove a slot divider to combine two extended single-wide network module slots into an extended double-wide slot, or install a slot divider to divide an extended double-wide slot into two extended single-wide slots.

Installing Slot Dividers

Figure 33 shows a slot divider for a double-wide or extended double-wide network module slot.

Figure 33 Slot Divider for Network Module Slot



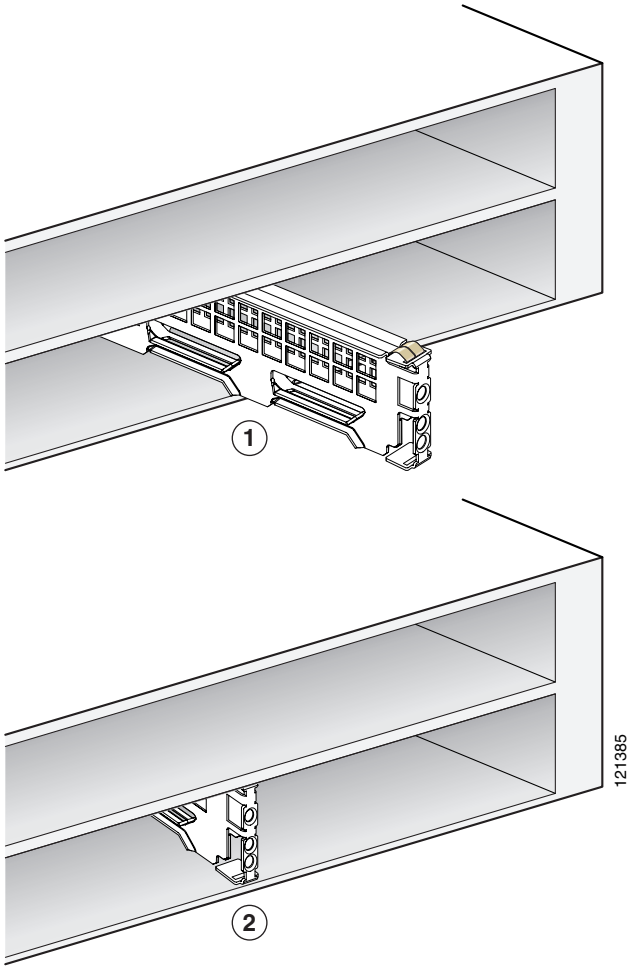
To install slot dividers in network module slots, follow these steps. You need a number 1 Phillips screwdriver.

Step 1 Insert the top rails of the slot divider between the guide rails in the top of the network module slot. See Figure 34.

Note Figure 34 shows a generic router. It does not represent a detailed view of a Cisco 3800 series routers.

Note The guide rails begin approximately 1 inch (3 cm) from the router's rear panel.

Figure 34 Inserting Slot Divider into Network Module Slot (Generic Router)



1	Insert slot divider	**2**	Tighten screw so front surface is flush with router rear panel

Step 2 Push the slot divider into the slot. The slot divider's screw tip and guide pin fit into holes at the back of the slot. Use the number 1 Phillips screwdriver to tighten the attachment screw. When it is fully seated, the slot divider's front surface is flush with the router's rear panel. See Figure 34.

Step 3 Pull gently on the slot divider to check that it is seated securely.

Removing Slot Dividers

Note The network module slots on both sides of a slot divider must be empty of network modules and slot adapters before you remove the slot divider.

To remove slot dividers from network module slots, follow these steps:

Step 1 Using a number 1 Phillips screwdriver, loosen the slot divider attachment screw.

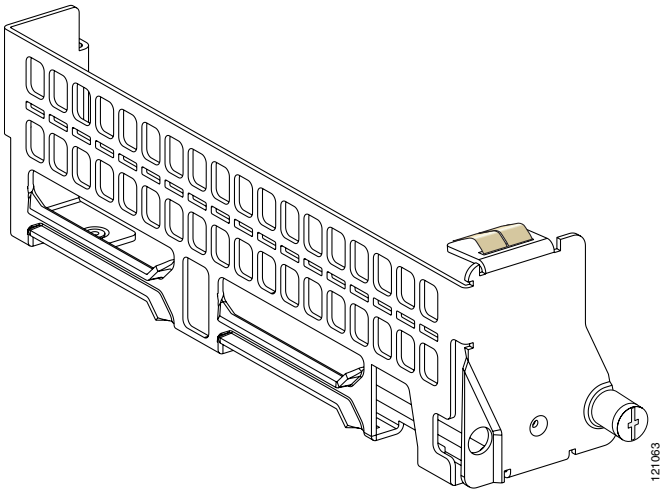
Step 2 Pull the slot divider straight out of the network module slot.

Tip Save the slot divider for future use.

Installing and Removing Slot Adapters

Install slot adapters in extended-width network module slots to reduce the slot width. Figure 31, Figure 32, and Figure 35 show slot adapters for network module slots.

Figure 35 Slot Adapter for Network Module Slot



Installing Slot Adapters

Note A network module slot must be empty before you install a slot adapter.

To install a slot adapter, follow these steps. You need a number 2 Phillips screwdriver.

Step 1 Orient the slot adapter for insertion, with the captive thumbscrew at the right side.

Step 2 Insert the slot adapter into the far right edge of the network module slot.

Step 3 Guide the triangular end of the slot adapter into the rectangular hole at the back of the slot, and align the captive thumbscrew with the threaded hole in the chassis, slot divider, or adjacent slot adapter.

Note You may be fastening the slot adapter to the router chassis, to another slot adapter, or to a slot divider, depending on its installation location.

Step 4 Use the number 2 Phillips screwdriver to tighten the thumbscrew.

Removing Slot Adapters

To remove a slot adapter, use a number 2 Phillips screwdriver to loosen the captive thumbscrew. Pull the slot adapter straight out of the slot.

Tip Save the slot adapter for future use.

Installing Blank Faceplates

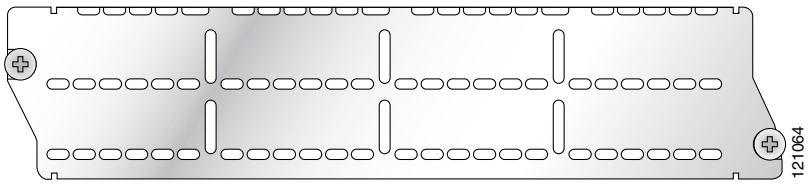
All network module slots must be covered by network module faceplates, blank faceplates, or slot adapters for cooling, electromagnetic interference (EMI) reduction, and safety. The network module hardware kit for Cisco 3800 series routers contains four blank faceplates. Each blank faceplate covers one standard single-wide network module slot.

Warning **Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.** Statement 1029

Figure 36 shows a blank faceplate for a network module slot.

Note To cover network module slots on Cisco 3800 series routers, use only the blank faceplate with captive thumbscrews shown in Figure 36. Do not use blank faceplates with snap tabs.

Figure 36 Blank Faceplate for Standard Single-Wide Network Module Slot



To install a blank faceplate, align the captive screws with the screw holes on the router. Use a number 2Phillips screwdriver to tighten the captive screws until the faceplate is flush with the chassis. To remove the faceplate, loosen the captive screws.

Tip Save blank faceplates for future use.