

Jackscrew Installation Instructions (for EIP Ports)

For Cisco Part Number 51-0385-01

This document provides instructions for replacing the slide-type Ethernet connector locks with jackscrew type connector locks. Typically, Ethernet ports and cable connectors have either slide-type or screw-type locks, both of which provide strain relief and secure the cable to the router port. The slide-type lock is most common, and it is standard on EIP ports.

If your Ethernet cables use thumbscrews rather than posts, you must replace the slide-type lock with jackscrews before you can connect the cables to the ports.

You can complete this replacement while the EIP is installed and operating in the chassis; however, we recommend that you shut down an enabled interfaces before you work on the port.

The sections in this document include the following:

- “Obtaining Technical Assistance,” page 2
If you encounter installation problems that you cannot resolve, this section provides instructions for obtaining technical assistance and lists the information you will need to provide to the customer service or TAC representative when you call
- “Product Overview,” page 2
A brief illustrated description of the EIP and the two types of cable locks
- “Prerequisites,” page 4
Safety guidelines to prevent damage to the equipment from electrostatic discharge (ESD) and the tools and parts you will need for this replacement
- “Installation,” page 6
Procedures for shutting down interfaces that are already enabled, for replacing the slide-type lock bracket with jackscrews, and for verifying that you are able to bring the interfaces back up and resume operation

Obtaining Technical Assistance

This document contains instructions for replacing the slide-type connector locks that are standard on Cisco 7000 EIP ports with jackscrews so that you can connect cables with thumbscrews to the ports. If you encounter problems that you are unable to resolve, contact a customer service representative or the Technical Assistance Center (TAC) for assistance. You can phone the TAC at 800 553-2447, or send email to tac@cisco.com.

Before you call the TAC or a customer service representative, have the following information ready:

- Date you received the Cisco 7000
- Chassis serial number (located on a label on the right rear deck of the chassis)
- Type of software and version number
- Type of installation or upgrade you are performing (replacing EIP cable locks)
- Title and Doc. No. of this document (from the front page)
- Brief description of the problem you are having
- Brief explanation of the steps you have already taken to isolate and resolve the problem
- Maintenance agreement or warranty information

Refer to the *Cisco 7000 Hardware Installation and Maintenance* publication for complete system installation and startup procedures, and for physical descriptions of chassis components.

Product Overview

The type of connector lock you use on the EIP ports depends on the type of Ethernet interface cables you use. Cables with two short posts on the cable connector need a port with a slide-type lock—a bracket on the port slides (or snaps) around the posts on the cable connector to secure it. Cables with knurled thumbscrews (screws you can tighten with your fingers) on the cable connector need a port with jackscrews (into which you insert and tighten the thumbscrews). Both types of locks are shown in Figure 1.

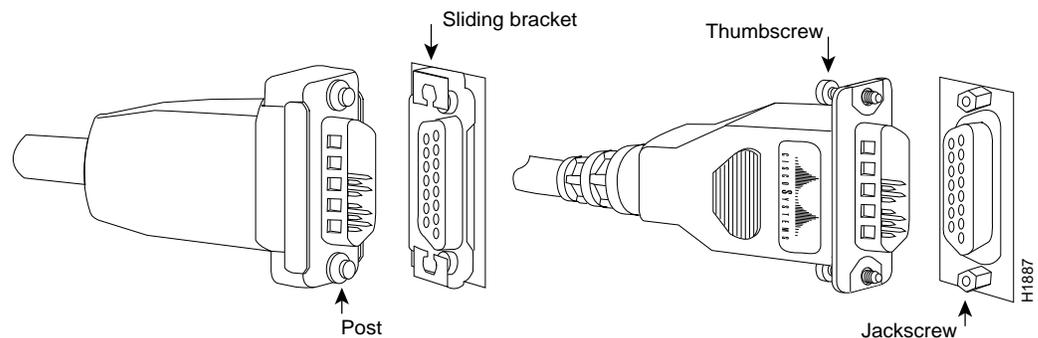


Figure 1 Ethernet Connector Locks, Slide-Type and Jackscrew-Type

The EIP is the 2, 4, or 6-port high-speed Ethernet interface processor for the Cisco 7000 router. The EIP and other interface processors (IPs) slide into slots in the rear of the router chassis (which is shown in Figure 2) and connect directly to the backplane. You can replace the connector locks while the EIP is installed in the chassis, provided that you first shut down the interface ports on which you will change connector locks. Figure 2 shows a 6-port EIP installed in IP slot 1.

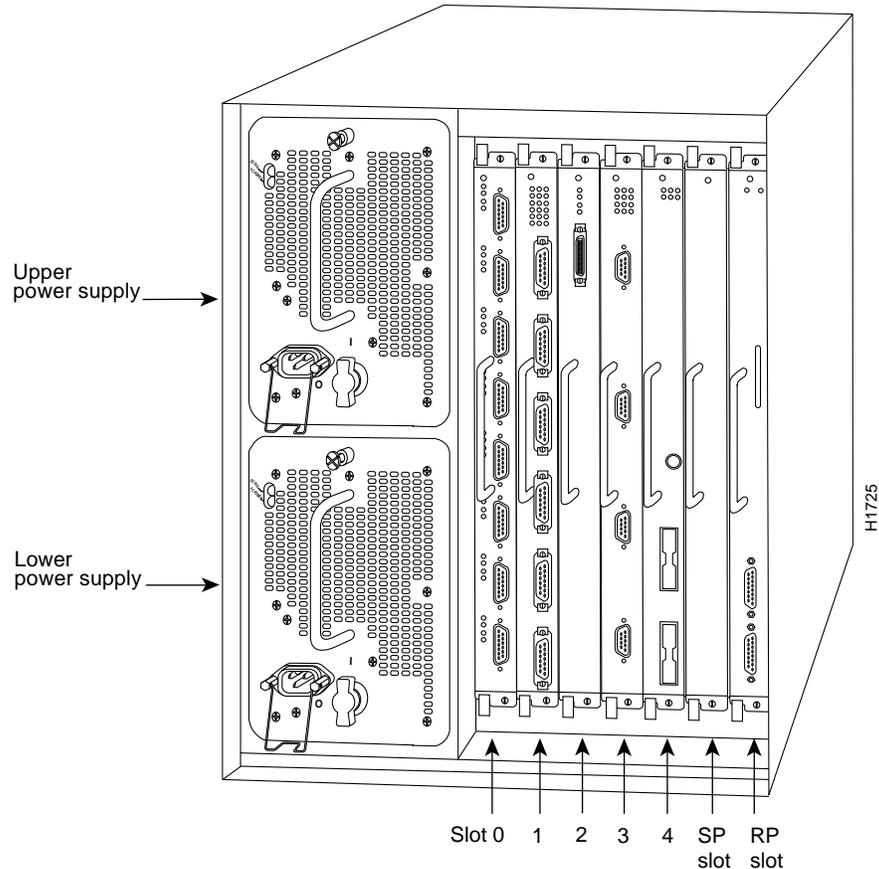


Figure 2 Cisco 7000 Chassis Rear View

Figure 3 shows a 6-port EIP as it is shipped from the factory, with the standard slide-type locks on all six ports.

The Enabled LED lights to indicate that the EIP is receiving power and is enabled for operation. The bank of 18 LEDs indicate the state of the individual interfaces, with one horizontal row of 3 LEDs for each of the 6 ports (numbered 0 through 5). The LEDs light when the indicated port detects the following network activity:

- Collision—Lights when a frame collision has been detected.
- Transmit—Lights when frames are being transmitted. When frames are transmitted, the Receive LED also lights up because valid traffic is being sent on the network.
- Receive—Lights when frames are being received. It indicates that valid traffic is being received from the network.

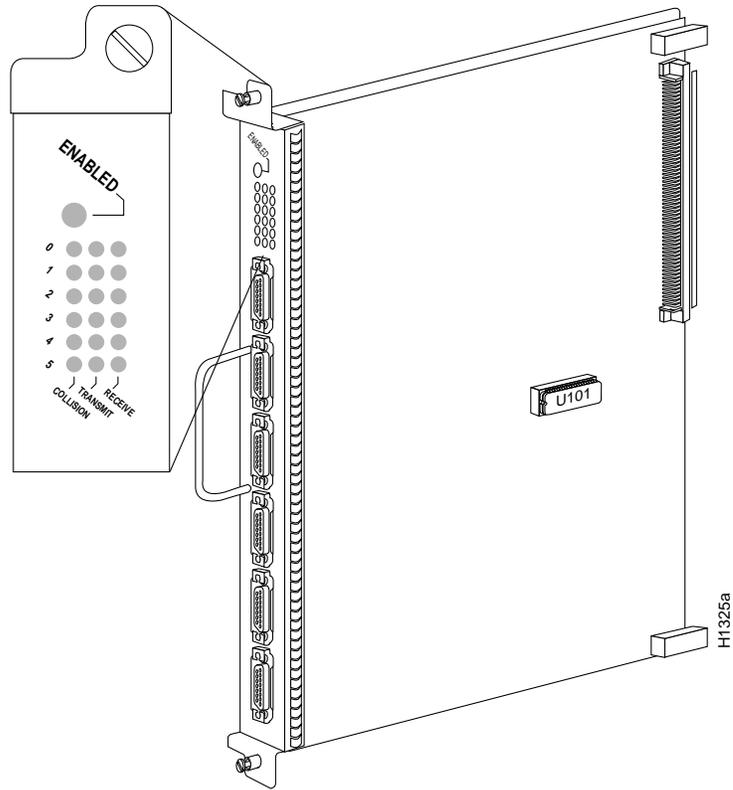


Figure 3 Ethernet Interface Processor (EIP)

Prerequisites

Before replacing the EIP connector locks, ensure that you have the necessary parts and tools you will need to perform the installation without interruption.

Required Tools

You need the following tools to perform this replacement procedure.

- 1/8-inch flat-blade screwdriver to remove the small screws that secure the slide-lock bracket to the EIP port
- 3/16-inch nut driver to tighten the jackscrews
- ESD-prevention equipment or the disposable grounding wrist strap included with the replacement kit

Required Parts

The following parts are included in each jackscrew replacement kit. Because the holes in the EIP are threaded, you need only two lock washers and two jackscrews for each port. Discard the extra flat washers and hex nuts included in the kit.

- 2 jackscrews
- 2 lockwashers
- 4 flat washers (discard)
- 2 hex nuts (discard)

Preventing Electrostatic Discharge (ESD) Damage

Electrostatic discharge (ESD) damage, which occurs when electronic cards or components are improperly handled, can result in complete or intermittent failures. The EIP comprises a printed circuit board that is fixed in a metal carrier. Electromagnetic interference (EMI) shielding, connectors, and a handle are integral components of the carrier. Although the metal carrier helps to protect the board from ESD, you can still damage the board by touching the connector pins. Always use a preventive antistatic strap whenever working on the EIP, and avoid touching the connector pins.

Following are guidelines for preventing ESD damage:

- Always use an ESD wrist strap or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to one of the captive installation screws on an installed power supply (see Figure 4).
- Handle carriers by the handles and carrier edges only; avoid touching the board or any connector pins.
- Avoid contact between the EIP and clothing. The wrist strap only protects the EIP from ESD voltages on the body; ESD voltages on clothing can still cause damage.

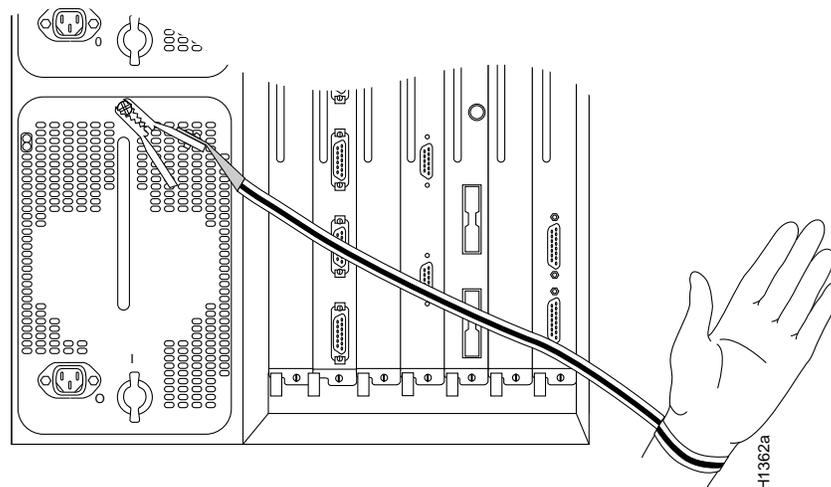


Figure 4 Placement of ESD Wrist Strap

Note: For safety, periodically check the resistance value of the antistatic strap. The measurement should be within the range of 1 and 10 Mohms.

Installation

The following installation process describes the procedure for shutting down the interfaces on which you will replace connector locks, removing the slide-type lock bracket, and installing jackscrews to accommodate screw-type cable connectors.

Note: Although shutting down an interface before replacing the lock is not *required*, Cisco Systems recommends that you do so as a precaution to protect the electronic components in the system and to avoid creating problems on your network.

Shutting Down Interfaces

It is unlikely that interface ports will be enabled if you have not been able to connect the network interface cables. However, if any of the interfaces *are* already enabled, you can avoid potential problems by administratively shutting the interface down and, when the replacement is complete, enabling the interface again with commands you enter from the console terminal.

The **shutdown** interface subcommand disables all functions and prevents all packet transmission on the interface that you specify with the **interface type slot/port** command. The **no shutdown** interface subcommand turns the interface back on. Because **interface** is a privileged-level configuration command, you may need a password to enable the privileged level of the EXEC command interpreter.

Following is an example session to first enter the privileged level and configuration mode, and then to specify and shut down each of the first two Ethernet ports (port 0 and port 1) on an EIP installed in slot 1 of the Cisco 7000. Entering **Ctrl-Z** saves the configuration and returns you to the EXEC command interpreter.

```
Router>enable
Password:secretword

Router#configure
Configuring from terminal, memory, or network [terminal]?

interface ethernet 1/0
shutdown

interface ethernet 1/1
shutdown

^Z
```

After you have replaced the connector locks, reenable the interfaces by entering the command **no shutdown**, as shown in the following partial example.

```
interface ethernet 1/1
no shutdown
^Z
```

You can display the current state of an individual Ethernet interface by entering the command **show interface type slot/port**, or you can omit the interface type and address to display interface information for all network interfaces in the router.

Following is a partial, sample session that displays information about the first Ethernet port (port 0) on an EIP installed in slot 1. Only the first few lines of the display are included in the example, because the state of the interface (up or down) is indicated on the first line of the display.

```
Router>show interface ethernet 1/0

Ethernet1/0 is administratively down, line protocol is down
  Hardware is cxBus Ethernet, address is 0000.0c (bia.0c02.d0cc)
  (display text deleted)
```

```
Router>show int eth 1/1

Ethernet1/1 is up, line protocol is up
  Hardware is cxBus Ethernet, address is 0000.0c (bia.0c02.d0ce)
  (display text deleted)
```

You can also use the **show configuration** command to display the status of all interfaces. Refer to the *9.17 Addendum to the Router Products Configuration and Reference* publication for complete command descriptions and instructions.

Removing the Slide Lock

The bracket for slide-type locks is secured to the EIP port with two small screws. You can complete this replacement procedure without removing the EIP from the chassis. Follow these steps to remove the slide-type locks from the EIP ports.

- Step 1:** Ensure that the ESD-prevention strap you are wearing is clipped to a captive installation screw on the power supply or another unpainted area of the chassis where it makes good contact.
- Step 2:** On the first connector port to be changed, use the 1/8-inch screwdriver to loosen and remove the two small screws that secure the bracket to the connector port.
- Step 3:** Pull the slide-lock bracket, which is shown in Figure 5, off the connector.



Figure 5 Connector Slide-Type Lock Bracket

- Step 4:** Repeat steps 2 and 3 for all addition ports that require jackscrews.
- Step 5:** Place the removed brackets and slotted screws aside; you can discard them after the jackscrews are installed, and the installation is complete.

Installing the Screw-Type Lock

Use the hardware provided in the replacement kit to reinstall the connector. Do *not* use any of the hardware you removed from the slide-type lock bracket.

- Step 1:** Ensure that the slide-type lock bracket, shown in Figure 5, has been removed from the connector port.
- Step 2:** Insert a lock washer onto the shaft of a jackscrew and push it up to the head of the jackscrew.

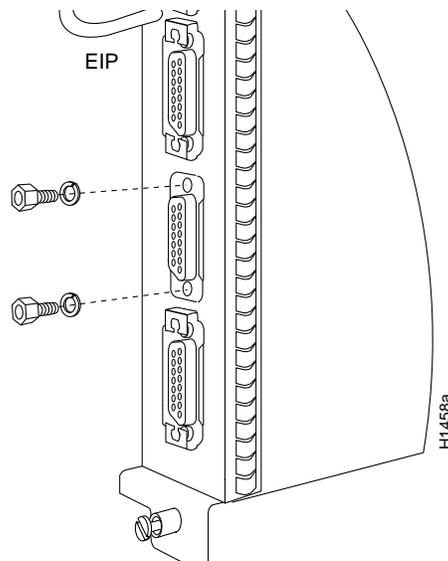


Figure 6 Jackscrew and Lock Washer Installation

- Step 3:** Insert the jackscrew into one of the threaded holes on the connector. Turn the jackscrew clockwise about two full turns to thread it into the hole.
- Step 4:** Repeat steps 2 and 3 for the second jackscrew and lock washer, placing the second jackscrew in the other threaded hole on the connector. Turn the jackscrew clockwise about two full turns to thread it into the hole.
- Step 5:** Observe both jackscrews edge-on and turn them another half turn to ensure they are threaded properly.
- Step 6:** Use the 3/16-inch nut driver to tighten the jackscrews in the connector. Do not overtighten the screws; the lock washer will secure the jackscrews in place, and the thumbscrews on the cable connector, when inserted and tightened, will further tighten the jackscrews.
- Step 7:** Repeat steps 1 through 6 for all addition ports that require jackscrews.
- Step 8:** Proceed to the next section to check the installation.

Checking the Installation

To check the interfaces, you will connect network interface cables to the EIP ports, reenable any interfaces you shut down, if any, then check the LEDs and console displays to verify the status of the interfaces.

- Step 1:** Connect network interface cables to the EIP ports.
- Step 2:** If any ports are shut down, use the **no shutdown** interface subcommand to reenable them. Refer to “Shutting Down Interfaces” on page 6 for examples.
- Step 3:** Observe the EIP LEDs (shown in Figure 3) to check the state of the interfaces. The LEDs should light to indicate traffic or detected activity on each port that has been brought up.
- Step 4:** If the system fails to recognize an Ethernet interface, check the cables that are connected to the EIP ports. Ensure that the cables are inserted in the EIP ports and that the connections are secured with the slide locks or thumbscrews.
- Step 5:** If you installed a new cable on an interface port that was previously functioning properly, suspect the new cable. Check the cable for the correct polarity and type; if another cable is available, swap out the cable and observe the EIP LEDs to see if the interface responds with a different cable.
- Step 6:** Use show commands to display the state of the interfaces as follows:
- Enter the command **show int** *[type slot/port]* to display information about a specific interface port.
 - Enter the command **show interfaces** to display information about all interfaces
 - Enter the command **show configuration** to check the configured state (*up* or *administratively down*) of all interfaces.
- Step 7:** If the EIP itself appears to have failed (if the Enabled LED is not lit), use the **show controller cxbus** command to display information about all cxbus interface processors.
- Step 8:** If an error message is displayed on the terminal, refer to the *Cisco 7000 Addendum to Router Products Configuration and Reference* publication for error message definitions.

An error condition exists if any of the previously configured interfaces fail to show any activity, or if the EIP appears to be malfunctioning. If this happens, refer to the instructions in “Obtaining Technical Assistance” on page 2 to contact a service representative or the TAC.

When you have verified that all interfaces are in the state they were in before this procedure, the installation is complete. You can now resume normal operation. Refer to the *9.17 Addendum to Router Products Configuration and Reference* or the *EIP Installation and Configuration Instructions* publications to configure new interfaces.

This document is to be used in conjunction with the *Cisco 7000 Hardware Installation and Maintenance* publication.

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