# Quick Start Guide
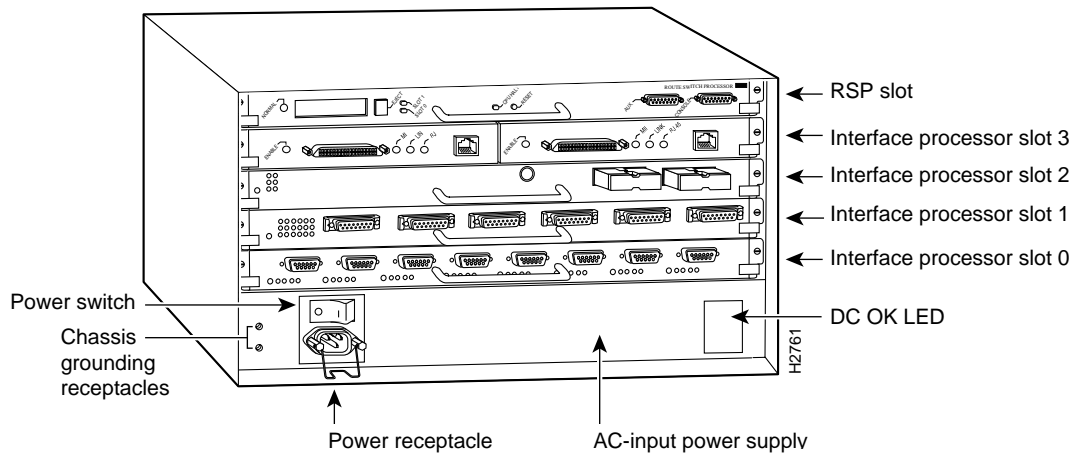
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# CISCO 7505 ROUTER



- ← RSP slot
- ← Interface processor slot 3
- ← Interface processor slot 2
- ← Interface processor slot 1
- ← Interface processor slot 0
- Power switch
- Chassis grounding receptacles
- DC OK LED
- H2761
- Power receptacle
- AC-input power supply

## ❶ INSTALL THE HARDWARE

## ❷ CONNECT THE RSP

## ❸ START AND CONFIGURE THE SYSTEM

## ❹ INSTALL FIELD REPLACEABLE UNITS (FRUS)

CISCO SYSTEMS

# ① Install the Hardware



Power switch
Chassis grounding receptacles
Power receptacle
AC-input power supply
RSP slot
Interface processor slot 3
Interface processor slot 2
Interface processor slot 1
Interface processor slot 0
DC OK LED
H2761
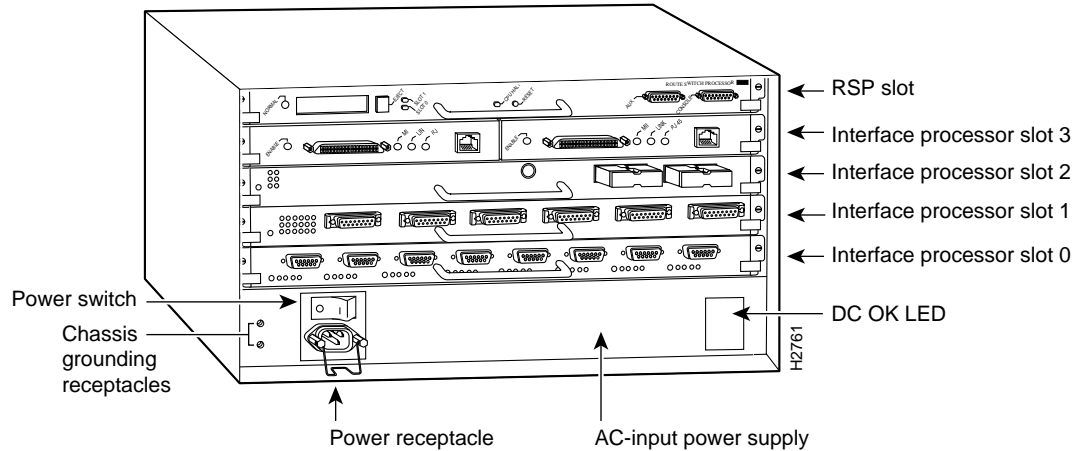
The Cisco 7505 has five slots: one slot for the Route Switch Processor (RSP) and slots 0, 1, 2, and 3 for the interface processors. The Cisco 7505 uses a single power supply, with two models available: DC input or AC input.

## Packing List

- 1 Cisco 7505 router

- 1 Route Switch Processor (RSP)

- Y-Adapter cables, 1 auxiliary and 1 console

- 1 AC power supply

- 1 AC power supply cable

- 1 Power cord

- 1 Anti-static wrist strap and documentation

# ① Install the Hardware

## Prepare to Install the Router

**Note**   For detailed hardware installation instructions and safety guidelines, refer to the *Cisco 7500 Series Router Installation and Configuration Guide, Site Preparation and Safety Guide,* and the *Cisco 7500 Regulatory Compliance and Safety Guide.*

⚠ **Warning**   Only trained and qualified personnel should install, replace, or service this equipment.

**Step 1**   Lift the router safely out of the packing container.

**Step 2**   Ensure the power service at the site is suitable for the router you are installing.

**Step 3**   Check the packing slip to ensure that all the proper components are present.

**Step 4**   Confirm that you have the required tools and parts:

For rack-mounting (optional):

- Number 1 and Number 2 Phillips screwdrivers

- 1/4-inch and 3/16-inch flat-blade screwdrivers

- Tape measure

- Level (optional)

- Two chassis ears (rack brackets included with Cisco 7505)

- Four M4 x 10-mm Phillips flathead screws to secure the ears to the chassis (included)

- Eight 10-32 x 3/8-inch slotted binderhead screws to secure the chassis ears to the mounting strips (also called rails) in the rack

For cable-management brackets:

- Number 1 Phillips screwdriver

- Two cable-management brackets

- Six M3 x 8-mm Phillips panhead screws
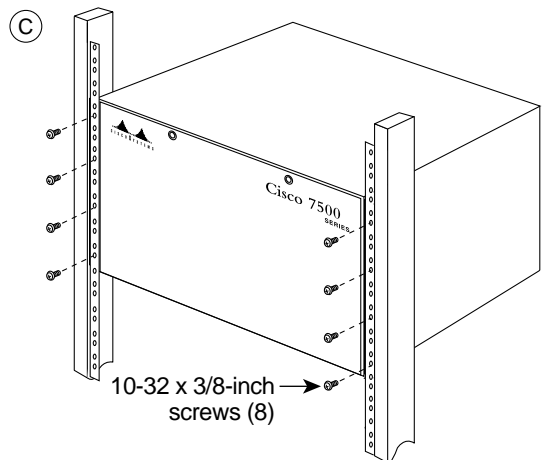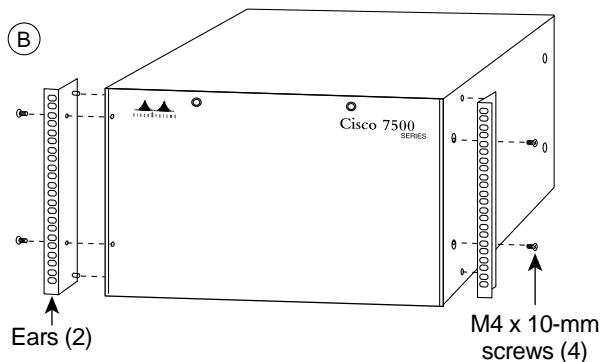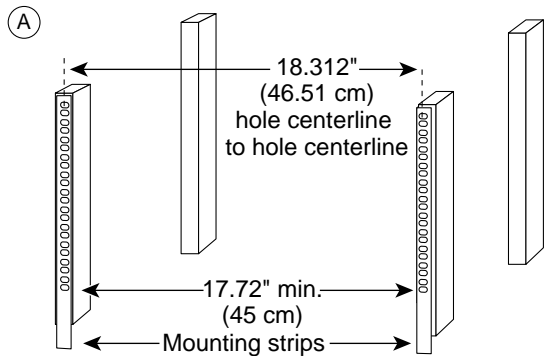
For interface modules:

- Number 1 Phillips or 3/16-inch flat-blade screwdriver

For DC-Input Power Supply:

- Twin-lead, 10-AWG cable terminal block connection

- Single 10-AWG wire for the ground connection

- 3/16-inch flat-blade screwdriver

# 1 Install the Hardware

## Rack-Mount the Router (Optional)

A

18.312"
(46.51 cm)
hole centerline
to hole centerline

17.72" min.
(45 cm)

Mounting strips

B

Cisco 7500 SERIES

Ears (2)

M4 x 10-mm
screws (4)

C

Cisco 7500 SERIES

10-32 x 3/8-inch
screws (8)

53373

**Step 1**     Measure the space between the vertical mounting strips on the rack. Confirm that the rack conforms to the measurements shown in A.

**Step 2**     Use the four M4 x 10-mm screws provided to attach the ears to the sides of the chassis, as shown in B. (Use two screws per ear.)

⚠️ **Warning**    To prevent injury, two people are required to lift the chassis. Grasp the chassis underneath the lower edge, and lift with both hands. To prevent injury, keep your back straight and lift with your legs, not your back.

**Step 3**     Use the eight 10-32 x 3/8-inch screws provided to attach the ears to the mounting strips, as shown in C. Use four screws per ear and mounting strip.

**Step 4**     Level the chassis as required. Provide two inches of clearance on either side of the chassis.

3

# 1 Install the Hardware

## Install Interface Processors, Fillers, VIPs, and RSPs

Card carrier guide (black)

A

Captive
installation
screw

B

C

53375
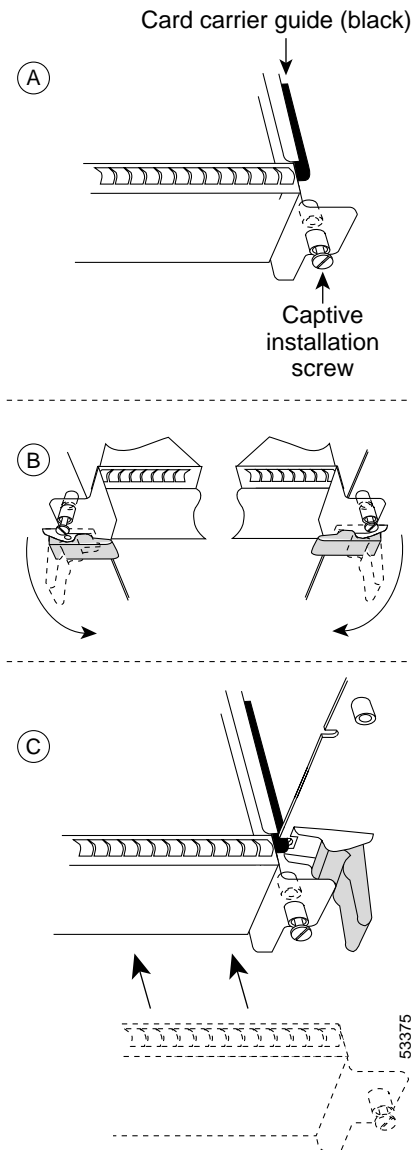
The Route Switch Processor (RSP) comes uninstalled with your Cisco 7505 router, but is a required system component. Install the RSP in the RSP slot, and install any interface processors, fillers, or Versatile Interface Processors (VIPs) in slots 0, 1, 2, and 3.

**Step 1** Hold the interface processor, filler, VIP, or RSP with one hand, and place your other hand under the carrier to support the card and guide it into the slot. Avoid touching the card.

**Step 2** Place the interface processor, filler, VIP, or RSP in the slot and align the guide on the carrier with the groove in the slot, as shown in A.

**Step 3** Carefully slide the interface processor, filler, VIP, or RSP into the slot until the faceplate makes contact with the ejector levers.

**Step 4** Use the thumb and forefinger of each hand to push the ejector levers flat against the interface processor, filler, VIP, or RSP, as shown in B.

**Step 5** Use a screwdriver to tighten the captive installation screws, as shown in C.

**Step 6** Repeat Step 1 through Step 5 to install the RSP or any additional interface processors, fillers, or VIPs.

**Note** Refer to the "Check the RSP Installation" section on page 19 to check the RSP installation. Refer to the "Check the Interface Processor or VIP Installation" section on page 20 to check the interface processor or VIP installation.

# ① Install the Hardware

## Attach the Cable-Management Brackets

Bracket (2)

M3 screw (6)     53372
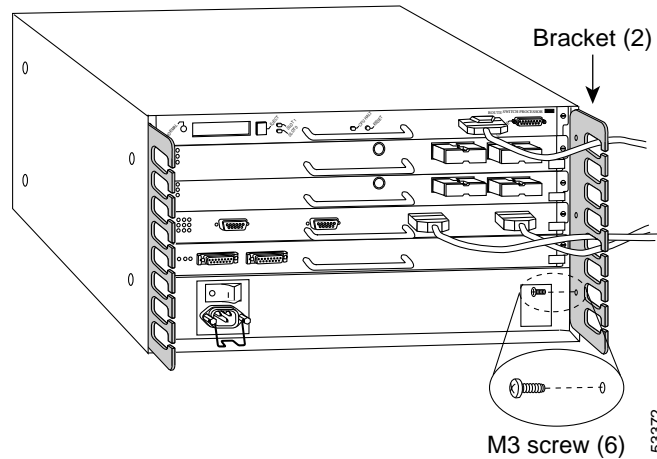
**Step 1**   Place the bracket on the rear of the chassis, as shown.

**Step 2**   Insert three M3 x 8-mm Phillips screws, and tighten slightly with your finger.

**Step 3**   Use a Phillips Number 1 screwdriver to tighten all three screws.

**Step 4**   Repeat Step 1 through Step 3 for the second bracket.

**Step 5**   Route the interface cables through the brackets.

## ① Install the Hardware

## Connect the Power Supply

The Cisco 7505 router supports AC-input and DC-input power supplies. The power supply is already installed in the router when you receive it. You connect the power to it.

**Note** The AC-input power supply is the shipped as the default if no power supply is specified at the time of purchase.

## Connect the AC-Input Power Supply



DC OK LED

On/off switch

AC receptacle

Cable retention clip

H1998

**Step 1**   Push the cable retention clip away from the power supply receptacle, and push the power cable in until the cable retention clip snaps into place.
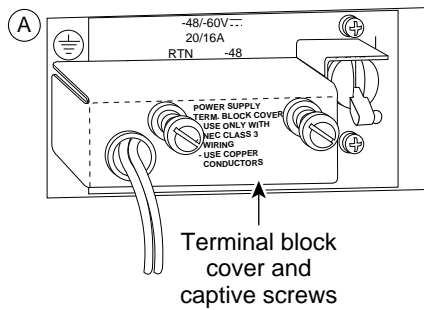
**Step 2**   Connect the opposite end of the power cable to an appropriate power source.

## Connect the DC-Input Power Supply



On/off switch

DC OK LED
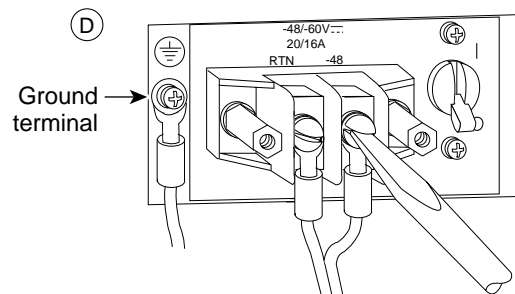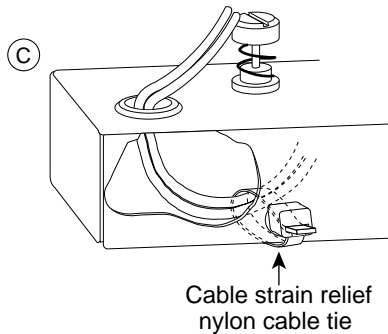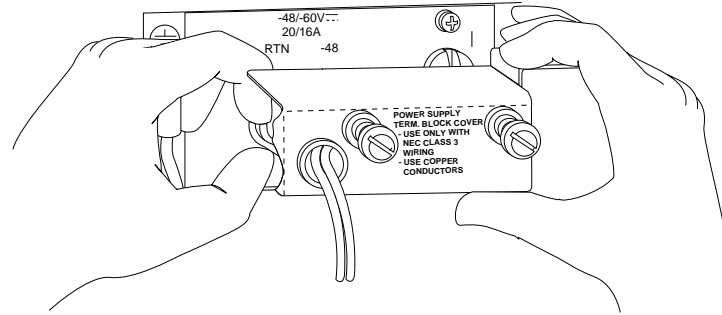
Terminal block (cover removed)

H9713
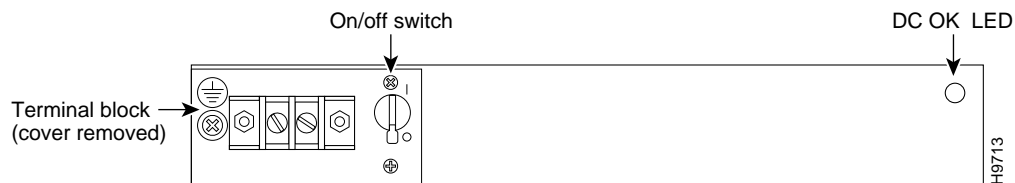
**Step 1**   Turn off the power source. Locate the circuit breaker on the panel board that services the DC circuit, and switch it off, then tape the switch handle of the circuit breaker in the off position.

# 1 Install the Hardware



(A) -48/-60V⎓
20/16A
RTN   -48

POWER SUPPLY
TERM. BLOCK COVER
- USE ONLY WITH
  NEC CLASS 3
  WIRING
- USE COPPER
  CONDUCTORS

Terminal block
cover and
captive screws

(B) Caution:  Do not strain the connection at the terminal block

-48/-60V⎓
20/16A
RTN   -48

POWER SUPPLY
TERM. BLOCK COVER
- USE ONLY WITH
  NEC CLASS 3
  WIRING
- USE COPPER
  CONDUCTORS

(C) Cable strain relief
nylon cable tie

(D) -48/-60V⎓
20/16A
RTN   -48

Ground
terminal

53422

**Step 2**   Loosen the two captive screws that secure the terminal block cover, as shown in A.

**Step 3**   Pull the terminal block cover away from the terminal block, as shown in B.

**Step 4**   Feed the return (RTN) and –48V wires through the large hole in the terminal block cover, as shown in C.

**Step 5**   Attach a nylon cable tie to secure the cables to the terminal block cover.

**Step 6**   Attach the RTN and –48 leads to the terminal block, as shown in C.

**Note**   Match the color coding at the DC source. Typically, green or green/yellow is used for ground, black is used for RTN, and red or white is used for –48V.

**Step 7**   Attach the ground cable to the ground terminal.

**Step 8**   Replace the terminal block cover, as shown in B.

**Step 9**   Tighten the captive screws on the terminal block cover, as shown in A.

# **2** Connect the RSP
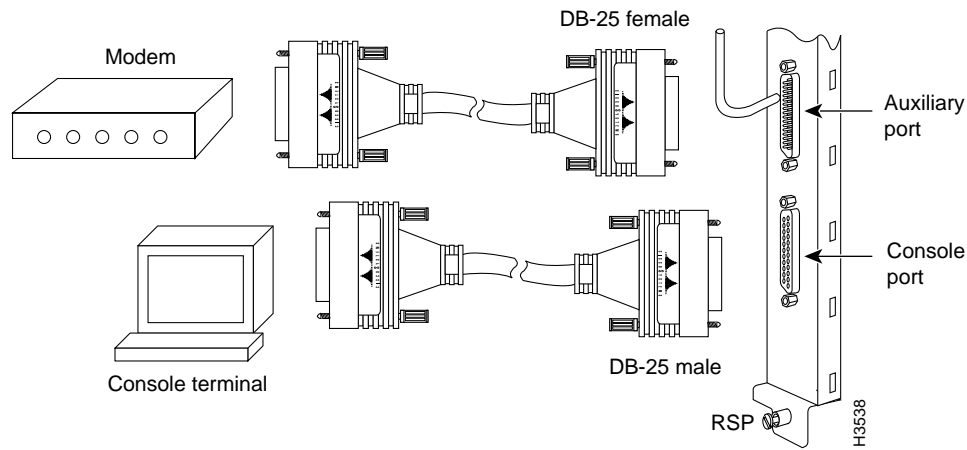


## Connect the Console Port

The system console port on the RSP is a DB-25 receptacle DCE port for connecting a data terminal, which allows you to configure and manage the system. The console port is labeled *Console*.

**Step 1** Connect the console cable from the terminal to the console port on the RSP.

**Step 2** Check your terminal's documentation to determine the baud rate of the terminal you will be using.

**Note** The baud rate of the terminal you are using must match the default baud rate (9600 baud).

**Step 3** Set up the terminal as follows: 9600 baud, 8 data bits, no parity, and 2 stop bits (9600, 8N2).

## Connect the Auxiliary Ports

The auxiliary port on the RSP is an ETA/TIA DTE DB-25 plug to which you can attach external equipment in order to access the router from the network. The port is located next to the console port on the RSP and is labeled *AUX.*

**Step 1** Connect the cable from the auxiliary device to the auxiliary port on the RSP.

**Step 2** Check your terminal's documentation to determine the baud rate of the terminal.

**Note** The baud rate of the terminal must match the default baud rate (9600 baud).

**Step 3** Set up the terminal as follows: 9600 baud, 8 data bits, no parity, and 2 stop bits (9600, 8N2).

# 3 Start and Configure the System

**Step 1** Check the following components to make sure they are secure:

- Each interface processor is inserted all the way into its slot, and the captive installation screws are tightened.

- All interface cable connections are secured, and any Flash memory cards are secured in their PC slots.

- The system power cable is connected.

**Step 2** Check the console terminal to make sure it is connected to the console port and turned on.

**Step 3** Turn the system power switch to the on (|) position. The green AC (or DC) OK and fan OK LEDs on each power supply should go on. After a few seconds, the red output fail LED will turn off.

**Step 4** Listen for the system blower; you should immediately hear it operating.

**Step 5** Observe the normal LED indicator on the RSP. If this indicator is not on after system initialization, an error has occurred. If necessary, refer to Appendix A in the *Cisco 7500 Series Installation and Configuration Guide*.

**Step 6** Wait until the system boot is complete before attempting to verify the status of interface processor indicators. During the boot process, the LED indicators on most of the interfaces go on and off in irregular sequence.

**Step 7** Observe the LED indicators on the interface processors in your system. When the system boot is complete (a few seconds), the RSP begins to initialize the interface processors. During this initialization, the indicators on each interface processor behave differently (most flash on and off).

The enabled LED on each interface processor goes on when initialization has been completed, and the console screen displays a script and system banner similar to the following:

```
GS Software (RSP-K ), Version 11.1(8)CA
Copyright (c) 1986-1995 by Cisco Systems, Inc.
This RSP2 is system master
Other RSP2 is not plugged in
Compiled Wed 10-May-95 11:06
```

**Step 8** Observe the system startup banner. When you start up the router for the first time, the system automatically enters the setup command facility, which determines which interfaces are installed and prompts you for configuration information for each one. On the console terminal, after the system displays the system banner and hardware configuration, you will see the following System Configuration Dialog prompt:

```
--- System Configuration Dialog ---
At any point you may enter a questions mark
`?' for help.
Refer to the `Getting Started' Guide for
additional help.
Default settings are in square brackets `[]'.
continue with configuration dialog? [yes]:
```

# **3** Start and Configure the System

## Start a Basic Configuration

Many privileged-level EXEC commands are used to set operating parameters. To enter the privileged-level:

**Step 1**   Enter the enable command at the EXEC prompt (>), and then enter a privileged-level password, as follows:

```
Router> enable
Password:
Router#
```

**Step 2**   Enter the configure terminal command to enter configuration mode:

```
Router# configure terminal
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#
```

**Step 3**   Enter the config-register *value* configuration command, where *value* is a hexadecimal number preceded by 0x, as in the following example:

```
Router(config)# config-register 0x010F
```

**Step 4**   Press Ctrl-Z to exit configuration mode.

**Step 5**   Save the new settings to NVRAM. Enter the copy running-config startup-config command.

**Note**   The new settings do not take effect until the system software is reloaded by rebooting the router.

**Step 6**   Enter the show version command to view the configuration register value currently in effect. The value is displayed on the last line of the screen display:

```
Configuration register is 0x141 (will be 0x101
at next reload)
```

**Step 7**   Reboot the router, and then perform a basic configuration using:

- AutoInstall (proceed to Step 8)

- Setup facility (proceed to the "Perform a Basic Configuration Using Setup" section on page 11)

- Configuration mode (proceed to the "Perform a Basic Configuration Using Configuration Mode" section on page 13)

**Note**   Configuration register changes take effect only when the system reloads, such as when you issue a reload command from the console.

## Configure Using AutoInstall

**Step 8**   Connect to the network using a serial (WAN) cable to the channel service unit/data service unit (CSU/DSU).

**Step 9**   Contact your system administrator to verify that the TCP/IP host on your network is preconfigured.

**Step 10**   Press Ctrl-Z to exit configuration mode.

**Step 11**   At the # prompt, enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

This completes the procedure for performing a basic configuration using AutoInstall.

## Perform a Basic Configuration Using Setup

**Note** The router's serial (WAN) cable should *not* be connected to the CSU/DSU unless you are planning to use AutoInstall. If you are using the console Y-cable that shipped with your router, use either of the two DB-25 male plug ends of the Y-cable.

**Step 1** Select the protocols supported on your interfaces. For Internet Protocol (IP)-only installations, accept the default values. A typical minimal configuration using IP, IPX, and AppleTalk follows:

```
Configuring global parameters:

Enter host name [Router]: Router
```

**Step 2** Enter the enable secret password and the enable password when the following is displayed:

```
The enable secret is a one-way cryptographic
secret used
instead of the enable password when it exists.

Enter enable secret: barney

The enable password is used when there is no
enable secret
and when using older software and some boot
images.

Enter enable password: betty
```

**Step 3** Enter yes or no to accept or refuse SNMP management:

```
Configure SNMP Network Management? [yes]: yes
Community string [public]:
```

**Step 4** Enter no to refuse to enable CLNS:

```
Configure CLNS? [no]: no
```

**Step 5** Enter yes to enable routing on AppleTalk and IPX:

```
Configure AppleTalk? [no]: yes
Multizone networks? [no]: yes
Configure IPX? [no]: yes
```

**Step 6** Enter no to refuse to enable Vines, XNS, DECnet, or bridging:

```
Configure Vines? [no]: no
Configure XNS? [no]: no
Configure DECnet? [no]: no
Configure bridging? [no]: no
```

**Step 7** Enter yes or press Return to configure IP, and then select an interior routing protocol for IP, if you are using IP routing:

```
Configure IP? [yes]: yes
Configure IGRP routing? [yes]: yes
Your IGRP autonomous system number [1]: 15
```

**Step 8** At the # prompt, enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

**Note** Consult your network administrator to obtain network addresses and subnet mask information.

# Start and Configure the System

## Configure an Ethernet Interface

**Step 1**  To configure your system for an Ethernet LAN, respond to the prompts as follows, using your own IP address and subnet mask information:

```
Configuring interface parameters:

Configuring interface Ethernet0/0:
Is this interface in use? [no]: yes
Configure IP on this interface? [no]: yes
IP address for this interface: 1.1.1.10
Number of bits in subnet field [0]:
Class A network is 1.0.0.0, 0 subnet bits;
mask is 255.0.0.0
```

**Step 2**  Enter yes to enable IPX on this interface, using the IPX network number:

```
Configure IPX on this interface? [no]: yes
IPX network number [2]:
```

**Step 3**  Enter yes to enable AppleTalk on this interface, to configure for extended AppleTalk networks, and then enter the cable range number. Enter the zone name and any other additional zones that will be associated with your local zone:

```
Configure AppleTalk on this interface? [no]:
yes
Extended AppleTalk network? [no]: yes
AppleTalk starting cable range [0]:
```

**Step 4**  At the # prompt, enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

## Configure a Synchronous Serial Interface

**Step 1**  Enter yes to configure serial port 0:

```
Configuring interface Serial1/0:
Is this interface in use? [no]: yes
```

**Step 2**  Determine which protocols you want to allow on the synchronous serial interface and enter the appropriate responses:

```
Configure IP unnumbered on this interface?
[no]:
IP address for this interface: 1.1.1.20
Number of bits in subnet field [0]:
Class A network is 1.0.0.0, 0 subnet bits;
mask is 255.0.0.0

Configure IPX on this interface? [no]: yes
IPX network number [2]:

Configure AppleTalk on this interface? [no]:
yes
Extended AppleTalk network? [no]:
AppleTalk network number [1]:
```

**Step 3**  Press Ctrl-Z to exit configuration mode.

**Step 4**  At the # prompt, enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

Your Cisco 7505 router is now minimally configured and ready to use. If you want to modify the parameters after the initial configuration, use the setup command. To perform more complex configurations, use the configure command. For more information on additional interface configuration and information on more specific system configurations, refer to the *Cisco 7500 Series Installation and Configuration Guide*.

# **3** Start and Configure the System

## Perform a Basic Configuration Using Configuration Mode

At the reboot, the following example appears:

```
Any interface listed with OK? value "NO" does
not have a valid configuration.

Interface IP-Address OK? Method Status
Protocol
Ethernet0/0 unassigned NO not set down down
Serial1/0 unassigned NO not set down down
```

**Step 1**    Enter the configure terminal command at the enable prompt to enter configuration mode from the terminal, as follows:

```
Router# configure terminal
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#
```

**Step 2**    Enter the interface *type slot/port* command at the enable prompt to enter interface configuration mode, as follows:

```
Router(config)# interface serial slot/port
Router(config-if)#
```

**Step 3**    Press Ctrl-Z to exit configuration mode.

**Step 4**    At the # prompt, enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

Your Cisco 7505 router is now minimally configured and ready to use. If you want to modify the parameters after the initial configuration, use the setup command. To perform more complex configurations, use the configure command. For more information on additional interface configuration and information on more specific system configurations, refer to the *Cisco 7500 Series Installation and Configuration Guide.*

# 4 Install Field Replaceable Units (FRUs)
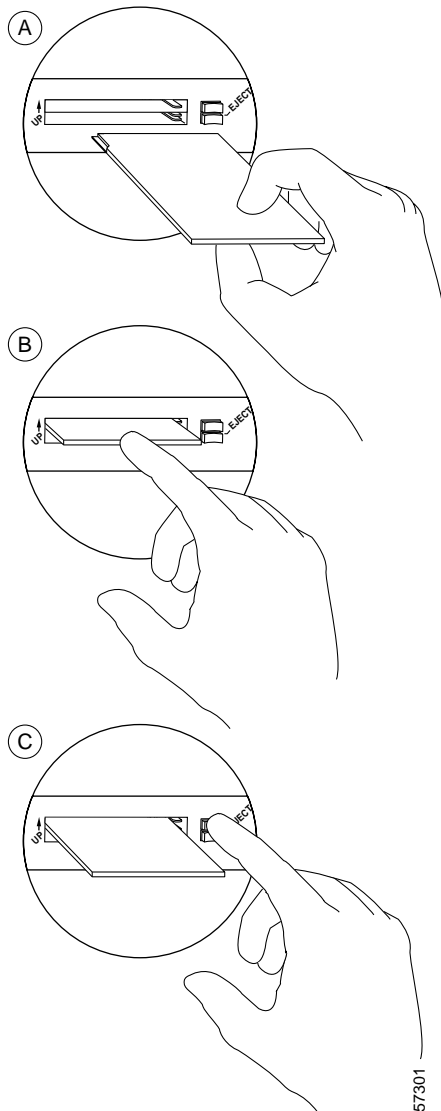
## Flash Memory Cards

A Flash memory card that ships with your Cisco 7505 contains the Cisco IOS software image to boot your router. You do not need to format it.

The RSP has two PC Card slots—slot 0 and slot 1—into which you can install a Flash memory card. PC Card slot 0 is on the top and slot 1 is on the bottom.

**Note** A Flash memory card can be inserted and removed with the system power on. Both PC Card slots can be used at the same time.

**Step 1** To eject the card, press the appropriate eject button until the card is free of the connector at the back of the slot.

**Step 2** Remove the card from the slot and place it in an antistatic bag to protect it.

**Step 3** Face the front panel of the RSP, and hold the Flash memory card with the connector end of the card toward the slot.

**Note** The Flash memory card is keyed and cannot be seated the wrong way. The eject button will not pop out if the card is not properly inserted.

**Step 4** Insert the card into the appropriate slot until the card completely seats in the connector at the back of the slot and the eject button pops out toward you.

**Note** The card does not insert all the way inside the RSP; a portion of the card remains outside of the slot. Do not attempt to force the card past this point.

57301

# ④ Install Field Replaceable Units (FRUs)

## Format a Flash Memory Card

Flash memory cards shipped as spare parts must be formatted. Use only Intel Series 2+ Flash memory cards.

**Step 1** Enter format slot0: (or format slot1:) to format the Flash memory card, as follows:

```
Router# format slot0:
```

**Step 2** At the erase all sectors prompt, press Enter to proceed.

```
All sectors will be erased, proceed? [confirm]
```

**Step 3** At the volume ID prompt, enter the ID name:

```
Enter volume id (up to 30 characters):
MyNewCard
Formatting sector 1
Format device slot0 completed
Router#
```

## Copy Files to Flash Memory

To upgrade to a new Cisco IOS image, copy the image file to Flash memory. Upgrade images one at a time; do not delete all known good images at one time. You cannot copy an image while the system is running from Flash memory.

Use the command copy tftp:*filename* [bootflash | slot0 | slot1]: *filename* for the copy procedure, where tftp:*filename* is the source of the file and [bootflash | slot0 | slot1]: *filename* is the destination in bootflash memory or on either of the Flash memory cards.

An example of the copy tftp:*filename* command follows for a file in the Flash memory card in PC Card slot 0:

```
Router# copy tftp:myfile1 slot0:myfile1

20575008 bytes available on device slot0,
proceed? [confirm]
Address or name of remote host [1.1.1.1]?
Loading new.image from 1.1.1.1 (via
Ethernet1/0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!![OK -
7799951/15599616 bytes]
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Router#
```

# 4 Install Field Replaceable Units (FRUs)

## Make a Flash Memory Card Image Bootable

**Note** In this example, the filename is new.image, and the Flash memory card is located in slot 0.

**Step 1** Enter the configure terminal command at the enable prompt, as follows:

```
Router# configure terminal
```

**Step 2** Enter the no boot system command, as follows.

```
Router(config)# no boot system
```

**Step 3** Enter the boot system flash slot0:new.image command, as follows:

```
Router(config)# boot system flash
slot0:new.image
```

**Step 4** Enter the config-register 0x2102 command to enable loading an image from Flash memory:

```
Router(config)# config-register 0x2102
```

**Step 5** Press Ctrl-Z to exit configuration mode.

**Step 6** Enter the copy running-config startup-config command to save the configuration to NVRAM as follows:

```
Hostname# copy running-config startup-config
```

**Step 7** Enter the reload command. When the system reloads, it will boot the image new.image from the Flash memory card in slot 0.

```
Router# reload
```

## Enable Booting from Flash Memory

To enable booting from Flash memory, set configuration register bits 3, 2, 1, and 0 to a value between 2 and 15 in conjunction with the boot system flash *device:filename* configuration command, where *device* is bootflash:, slot0:, or slot1:, and *filename* is the name of the file from which you want to boot the system. In the following example, the Flash memory card is in slot 0.

**Step 1** Enter the configure terminal command at the enable prompt, as follows:

```
Router# configure terminal
```

**Step 2** At the prompt, enter configuration commands, one per line.

```
Enter configuration commands, one per line.
```

**Step 3** Press Ctrl-Z to exit configuration.

**Step 4** Enter the boot system flash bootflash:slot0: *filename* command, as follows:

```
Router(config)# boot system flash
blootflash:slot0:filename
```

**Step 5** Enter the config-register command with the value shown in the following example:

```
Router(config)# config-reg 0x0102
Ctrl-Z
Router#
```

**Step 6** Press Ctrl-Z to exit enable booting mode.

# 4 Install Field Replaceable Units (FRUs)
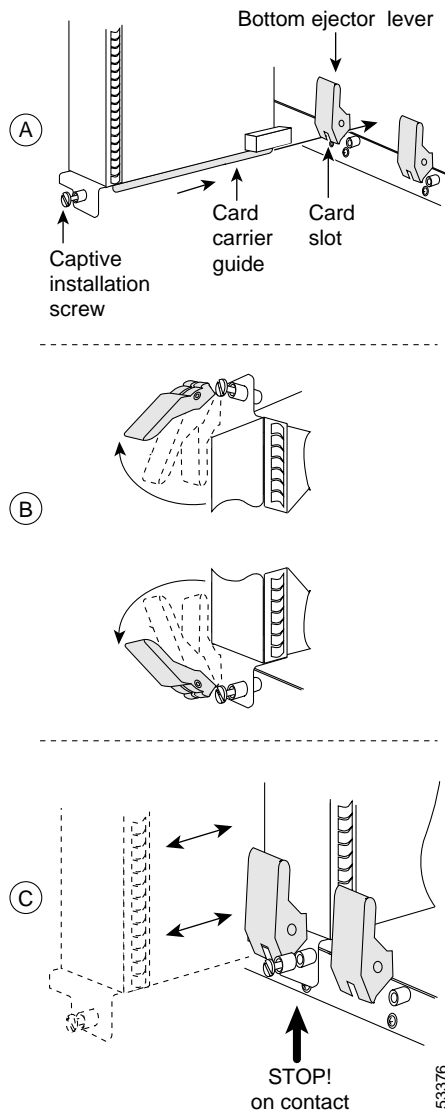
## Prepare to Remove and Install an RSP

To remove and install an RSP, you will perform the following steps:

- Copy the configuration file using a Trivial File Transfer Protocol (TFTP) server

- Remove the RSP

- Install the RSP

- Connect the console terminal and ensure that it is connected

- Turn the system power back on

- Retrieve the configuration file

# 4 Install Field Replaceable Units (FRUs)

## Remove and Install an Interface Processor, Filler, VIP, or RSP



**A** — Bottom ejector lever, Captive installation screw, Card carrier guide, Card slot

**B**

**C** — STOP! on contact

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**Note** Do not shut down the system power when removing an interface processor or VIP. However, if you are removing the RSP, first copy the configuration file to a TFTP server (see the "Copy the Configuration File for an RSP" section on page 21), and then return to this section to complete the procedure.

**Step 1** Attach an ESD-preventive wrist strap between you and any unpainted chassis surface.

**Step 2** Disconnect all cables from the interface processor, VIP, or RSP port adapters. If you are only moving a carrier, skip this step.

**Step 3** Use a screwdriver to loosen the captive installation screws, as shown in A.

**Step 4** Place your thumbs on both ejector levers and simultaneously pull them both outward, as shown in B.

**Step 5** Grasp the interface processor, filler, VIP, or RSP handle with one hand and pull the carrier straight out of the slot, keeping your other hand under the carrier to guide it.

**Step 6** Store the interface processor, VIP, or RSP in an antistatic bag.

**Step 7** Repeat Step 2 through Step 6 to remove any additional interface processors, fillers, VIPs, or RSPs. Refer to the "Install Interface Processors, Fillers, VIPs, and RSPs" section on page 4 to install an interface processor, filler, VIP, or RSP.

# 4  Install Field Replaceable Units (FRUs)

## Check the RSP Installation

**Step 1**  Check the RSP connections to make sure they are secure:

- The RSP is inserted all the way into its slot, and both the captive installation screws are tightened.

- The console terminal is turned on and is connected to the console port.

**Step 2**  Observe the RSP LEDs. While the system initializes, the CPU halt LED on the RSP stays on. It goes off when the boot process is complete. As the RSP initializes each interface processor, the status LEDs on each interface processor go on and off in irregular sequence.

**Step 3**  Verify that the console terminal displays the system banner and startup screen as the system restarts.

**Step 4**  Verify that all the enabled LEDs (on the interface processors) are on.

**Step 5**  When you have verified all the conditions in Step 1 through Step 4, the installation is complete.

If you replaced the RSP and saved your configuration file to a remote server before doing so, proceed to the "Retrieve the Configuration File for RSPs" section on page 23.

An error condition exists if no LEDs go on at power up or after initialization, or if the boot error or CPU halt LEDs go on and remain on. If this happens, see Appendix A in the *Cisco 7500 Series Installation and Configuration Guid*e.

# 4 Install Field Replaceable Units (FRUs)

## Check the Interface Processor or VIP Installation

**Note**  When a new VIP is inserted or when a VIP is moved to a new slot, the system recognizes the new interfaces, but leaves them in the shutdown state until you configure them. After the system reinitializes all interfaces, the enabled LED on the port adapters and on all interface processors, VIPs, and RSPs should go on, depending on your connections and configuration.

**Step 1**  Observe the console display messages when the system reinitializes each interface as follows:

- For a new interface processor or VIP, the system should recognize all new interfaces, but leave them configured as *down*.

- For a replaced interface processor or VIP, the system should recognize each interface and place it in the same state (*up* or *down*) each was in when you removed the interface processor or VIP.

**Step 2**  Verify that the enabled LED on each port adapter goes on and remains on.

If the enabled LED on a port adapter fails to go on, the interface processor or VIP may not be fully seated in the backplane. Refer to Appendix A in the *Cisco 7500 Series Installation and Configuration Guide.*

**Step 3**  If the VIP is new, configure the new interfaces.

- Enter the enable command at the EXEC prompt (>), and then enter a privileged-level password, as follows:

```
Router> enable
Password:
Router#
```

- Use the configure command to configure the interface processor or VIP.

- Refer to the appropriate configuration section of your port adapter documentation to configure the port adapter.

**Step 4**  If the VIP is a replacement, use the show interfaces *type slot/port adapter/port* or show controllers cbus command to verify the status of the interfaces.

If you replaced a VIP with a new VIP with a greater number of ports (for example, if you replaced a single-port adapter VIP with a dual-port adapter VIP), the system will recognize the interfaces on the previously configured port adapter, but will not recognize the additional port adapter interfaces. The new interfaces will remain in the shutdown state until you configure them.

**Step 5**  When the interfaces are up, check the activity of each interface by observing the status LEDs, which are described in the LED section of your port adapter documentation.

# **4** Install Field Replaceable Units (FRUs)

## Copy the Configuration File for an RSP

Refer to the appropriate Cisco IOS software documentation for the configuration options available, and for specific configuration instructions, as needed.

Before you copy (save) the running configuration to a TFTP file server, ensure the following:

- You have a connection to the router either with a console terminal connected to the RSP console port or remotely through a Telnet session.

- The router is connected to a network supporting a file server (remote host).

- The remote host supports the TFTP application.

- You have the interface processor address or name of the remote host available.

**Step 1**    Enter the enable command at the EXEC prompt (>), and then enter a privileged-level password, as follows:

```
Router> enable
Password:
Router#
```

**Step 2**    Enter the ping command followed by the name or IP address of the remote server, and then press Return to check the connection between the router and the remote host.

**Step 3**    Enter the show running-config command to display the currently running configuration on the terminal and ensure that the configuration information is

complete and correct. If it is not, use the configure command to add or modify the existing configuration.

**Step 4**    Create a file on the TFTP server.

**Note**   Before you can save a file to a TFTP server, a file must first exist on the TFTP server. Create this file. Ensure that the filename matches the filename you will copy from the router. Also, ensure that the server permissions are set so the router can copy to this file.

**Step 5**    Issue the copy startup-config tftp command. The EXEC command interpreter prompts you for the name or interface processor address of the remote host that is to receive the configuration file. (The prompt might include the name or address of a default file server.)

```
Router# copy startup-config tftp

Remote host []?
```

**Step 6**    Enter the name or IP address of the remote host. In the following example, the name of the remote server is *servername*:

```
Router# copy startup-config tftp

Remote host []? servername
Translating "servername"...domain server
(1.1.1.1) [OK]
```

# Install Field Replaceable Units (FRUs)

**Step 7** Enter the name of the configuration file. The default is to use the name of the router with the suffix *-confg.* Press Return to accept the default filename, or enter a different name for the file, then press Return. In the following example, the default is accepted:

```
Name of configuration file to write
[Router-confg]?
Write file Router-confg on host 1.1.1.1?
[confirm]
Writing Router-confg .....
```

**Step 8** The system displays the instructions you entered for confirmation. If the instructions are not correct, enter n (no), and then press Return to cancel the process. To accept the instructions, press Return, or press y and then press Return. In the following example, the default is accepted:

```
Write file Router-confg on host 1.1.1.1?
[confirm]
Writing Router-confg: !!!! [ok]
```

The system displays a series of exclamation points (! ! !) or periods (. . .) during the copy process. The !!!! and [ok] indicate that the operation was successful. A series of periods (...) and [timed out] or [failed] indicates a failure of the process. If the display indicates that the process was successful, the copy process is complete. The configuration is stored on the remote file server.

If the display indicates that the process failed, the configuration was not saved (see the following example):

```
Writing Router-confg .....
```

Repeat the preceding steps, or select a different remote file server and repeat the preceding steps.

After you upload the configuration file, continue with the "Remove and Install an Interface Processor, Filler, VIP, or RSP" section on page 18 to install the RSP. If you are unable to copy the configuration to a remote host successfully, contact your network administrator or contact Cisco technical assistance.

## Retrieve the Configuration File for RSPs

Retrieve the saved configuration and copy it to NVRAM by accessing the router through a console terminal, or from a remote terminal.

**Step 1** Enter the enable command at the EXEC prompt (>), and then enter a privileged-level password, as follows:

```
Router> enable
Password:
Router#
```

**Note** The router runs from the default configuration in NVRAM until the previous configuration is retrieved. Passwords configured on the previous system are not valid until they are retrieved.

**Step 2** Enter the ping command followed by the name or IP address of the remote server, and then press Return to check the connection between the router and the remote host.

**Step 3** Enter the copy tftp startup-config command and press Return to enter the configuration mode and specify that you will configure the system from a network device (instead of from the console terminal, which is the default).

```
Router# copy tftp startup-config
```

**Step 4** Enter the IP address or name of the remote host (the remote TFTP server to which you originally saved the configuration file).

```
Address of remote host [255.255.255.255]?
10.1.1.1
```

**Step 5** Enter the name of the configuration file. The default is to use the name of the router with the suffix *-confg* (Router-confg in the following example). If you specified a different filename when you copied the configuration, enter the filename; otherwise, press Return to accept the default.

```
Name of configuration file [Router-confg]?
```

**Step 6** Before the system reloads the new configuration file in NVRAM, it displays the instructions you entered for confirmation. If the instructions are not correct, enter n (no), and then press Return to cancel the process. To accept the instructions, press Return, or press y and then press Return. Output similar to the following appears:

```
Configure using Router-confg from 10.1.1.1?
[confirm]
Loading Router-confg from 10.1.1.1: ! ! [OK -
1186/126927 bytes]
Warning: distilled config is not generated
[OK]
%SYS-5-CONFIG_NV: Non-volatile store
configured from Router-confg

by console tftp from 10.1.1.1
```

The console display indicates whether or not the operation was successful. A series of exclamation points (!!!!) and [OK] (as shown in the preceding example) indicates that the operation was successful. A series of periods (. . .) and [timed out] or [failed] indicates a failure due to a network fault or an incorrect server name, address, or filename. The following is an example of a failed attempt to boot from a remote server:

```
Booting Router-confg ..... [timed out]
```

If the display indicates that the process was successful, as shown in Step 6, proceed to the next step.

If the display indicates that the process failed, verify the name or IP address of the remote server and the filename, and repeat the preceding steps. If the process fails again, contact your network administrator.

**Step 7**    Enter the show startup-config command to confirm that the configuration file was retrieved correctly. Look at the first line for the configuration file size. Compare it with the file you retrieved from the TFTP server to confirm that it is correct. Following is an example:

```
Router# show startup-config

Using 1186 out of 126968 bytes
!
version 12.0(9)S
hostname Router
!
Router#
```

**Step 8**    To ensure that the startup configuration file stored in NVRAM is the default running configuration file used by the system, enter the copy system:running-config nvram:startup-config command:

```
Router# copy system:running-config
nvram:startup-config

Router#
%SYS-5-CONFIG_I: Configured from memory by
console
Router#
```

This completes the process for retrieving the configuration file for the RSP.

# 4 Install Field Replaceable Units (FRUs)

## Remove and Install Port Adapters

Screw

Carrier

Lower edge    Upper edge

Captive installation screw

53377
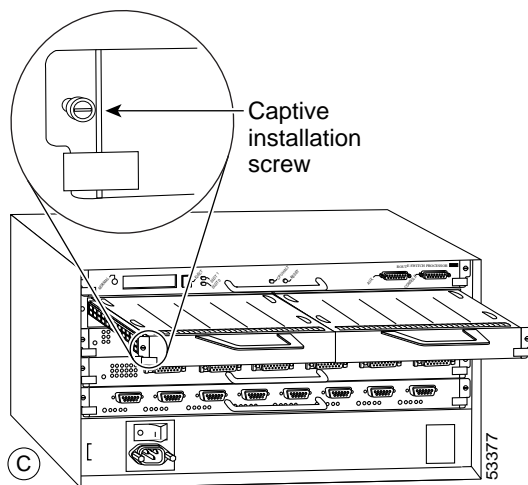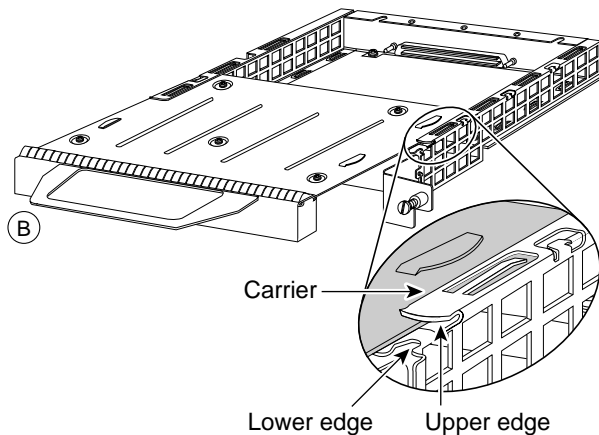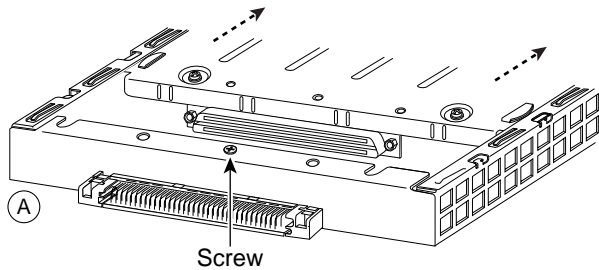
**Note**   First remove the VIP from the chassis before removing the port adapter from the VIP. See the "Remove and Install an Interface Processor, Filler, VIP, or RSP" section on page 18 for instructions.

**Step 1**   Remove the screw that secures the port adapter (or blank port adapter), as shown in A.

**Step 2**   Grasp the handle and carefully pull it out of its slot, away from the edge connector at the rear of the slot. (See A.)

**Step 3**   To insert the port adapter, align the carrier between the upper and the lower edges of the port adapter slot. (See B.)

**Step 4**   Carefully slide the port adapter into the slot until the connector is completely seated in the connector at the rear of the port adapter slot, as shown in B.

**Step 5**   Install the screw in the rear of the port adapter slot on the VIP. Do not overtighten the screw. (See A.)

**Step 6**   Carefully slide the VIP motherboard into the interface processor slot until the connectors at the rear of the VIP are completely seated in the connectors at the rear of the interface processor slot. Use the ejector levers to seat the VIP in the interface processor slot. Tighten the captive installation screws on the VIP. (See C.)

## Remove the Power Supply

DC OK LED

On/off switch

AC receptacle

Cable retention
clip

H1998
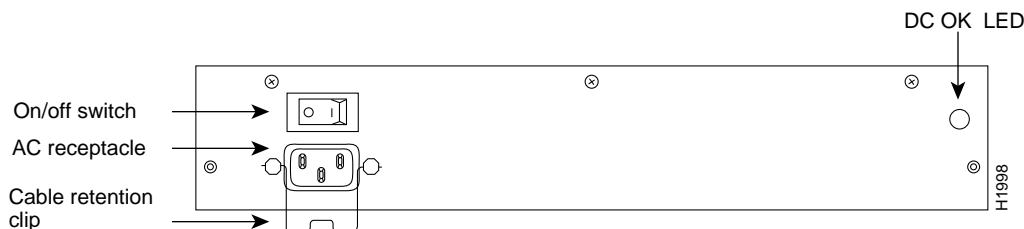
**Note** The following procedure assumes you have already removed the chassis cover panel, the fan tray, the power harness cover, and the power harness. If you have not, refer to the appropriate sections in the *Cisco 7500 Series Installation and Configuration Guide* for instructions.

**Note** AC-input power supply is shown above.

**Step 1** Turn off the system power switch.

⚠️ **Warning** Before working on the chassis or near power supplies, disconnect the power cable on AC units or disconnect the power at the circuit breaker on DC units.

**Step 2** Disconnect the power cable from the power supply.

*For the AC-input power supply*: Move the cable retention clip away from the power cable and disconnect the power cable from the AC receptacle.

*For the DC-input power supply*: Use a wire cutter to cut the nylon cable tie that provides strain relief for the DC power cable. (You must replace this nylon cable

tie with a new one after the new power supply is installed.) Remove the DC-input cable from the terminal block.

**Step 3** Attach an ESD-preventive strap between you and any unpainted chassis surface.

**Step 4** Disconnect the power harness plug from the backplane receptacle by pulling the polarized plug out of the receptacle; do not pull on the wires.

**Step 5** Use a Number 2 Phillips screwdriver to remove the two M4 x 10-mm Phillips panhead screws that secure the power supply ears (one on each side of the power supply) to the chassis frame.

**Step 6** Using both hands, grasp both of the power supply handles and pull the power supply about halfway out of the bay. Then grasp the sides of the power supply and pull it out of the chassis.

# 4 Install Field Replaceable Units (FRUs)

## Replace the Power Supply

Power supply ears

(A) Power harness →

Phillips
screws
(2 places)

(B)

Backplane
power
receptacle

Removing/replacing
power supply

(C)

Handling the
power supply

57097
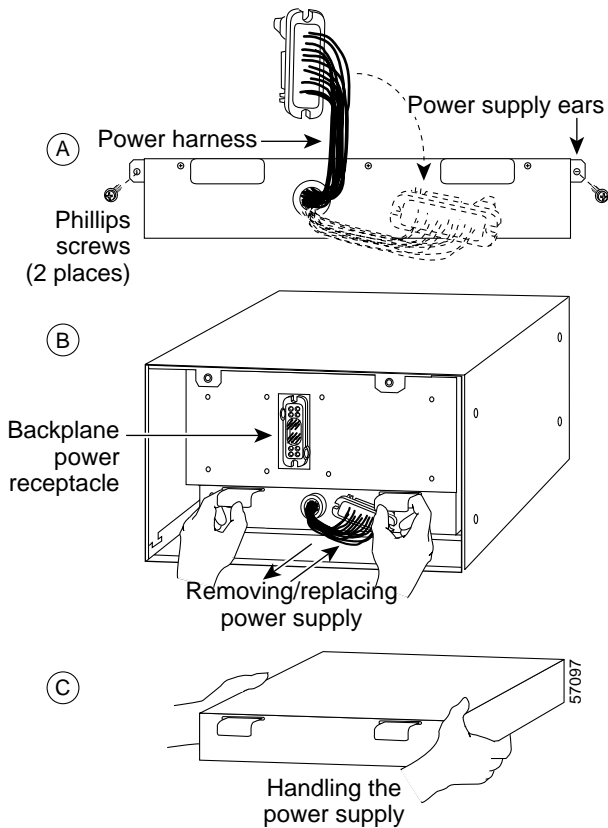
**Step 1** Hold the power supply as shown in C, and slide it into the bottom of the chassis. Use the handles to push the supply all the way into the chassis until the ears on both sides are flush against the chassis frame.

**Step 2** Use a Number 2 Phillips screwdriver to replace the two M4 x 10-mm Phillips panhead screws to secure the two power supply ears to the chassis frame.

**Step 3** Reattach the power harness plug to the backplane receptacle. Ensure that the plug is fully seated in the receptacle.

**Step 4** Replace the power harness cover.

**Step 5** Replace the fan tray.

**Step 6** Replace the cover panel.

**Step 7** *For AC-input power supplies*: On the interface processor side of the power supply, replace the cable retention clip on the AC input port by pinching the sides of the retention clip together and letting the ends of the retention clip snap outward into the holes in the jackscrews.

*For DC-input power supplies*: To provide strain relief for the DC-input cable, replace the nylon cable tie with a new nylon cable tie.

**CISCO SYSTEMS**

78-12949-01