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# Release Notes for Cisco IOS Release 11.3(6)T Software Feature Packs—Cisco AS5200 Access Servers

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**December 7, 1998**

These release notes discuss the Cisco IOS Release 11.3(6)T feature packs for Cisco AS5200 access servers.

These release notes contain the following topics:

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- System Requirements, page 10
- Modem Code Installation, page 11
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- Documentation Updates, page 16
- Related Documentation, page 16
- Service and Support, page 18
- Cisco Connection Online, page 19
- Documentation CD-ROM, page 20

## Introduction

This section explains how to use this document, describes feature pack components, and has tables that define the aspects of a feature pack.

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## How to Use These Release Notes

The tables in these release notes contain details about the Cisco feature packs. Use these tables to perform the following tasks before loading a software image onto a router:

- 1 Use Table 1, “Feature Pack Product Numbers Quick-Reference List,” to identify the software image you want to load.
- 2 Use Table 2, “Cisco Feature Pack Image Filenames and Memory Requirements,” to identify your feature pack and the memory required for your feature set, based on the image you load.
- 3 Use Table 4, “Cisco IOS Software Feature Sets for the Cisco AS5200 Access Server,” to identify which features are supported in a feature set image.
- 4 Use Table 5, “Cisco AS5200 Memory and Upgrade Options,” to check the memory required for your feature set, determine the factory-default memory on the router, and view the available memory upgrades.

## What Is a Feature Pack?

This section describes:

- Feature Pack Components
- Product Numbers Quick-Reference List
- Feature Pack Overview Table
- Feature Set Tables

### Feature Pack Components

A feature pack is a small box that contains the following items:

- CD-ROM with the following software:
  - Cisco IOS feature set software images that can include bundled modem firmware
  - Router Software Loader (RSL) program (a Windows 95 application)
  - Trivial File Transfer Protocol (TFTP) server application (for Windows 95 only)
- *Getting Started with the Router Software Loader* CD booklet.
- Release notes that include alternatives to using the RSL for loading software images onto a router (this document)
- Software license for using Cisco software in-object code form on a single access server or router
- Cisco Documentation CD-ROM that contains all Cisco product documentation

The heart of a feature pack is the CD-ROM that contains software images and the Router Software Loader (RSL), which is a Windows 95 application that loads an image onto an access router or server. Each feature pack CD-ROM contains at least one Cisco IOS feature set. The CD booklet, *Getting Started with the Router Software Loader*, explains how to use the RSL to install the router image. If you cannot use the RSL to load images, you can follow the instructions in the “Installing Software Images Using a TFTP Server Application” section on page 13.

Before running the RSL, read the “Installing Software Images Using the RSL” section on page 12. If you are loading software on a preconfigured router, you should save the router configuration file on your PC before beginning the image download process, as described in *Getting Started with the Router Software Loader*.

## Product Numbers Quick-Reference List

Table 1 lists the Cisco product numbers of the feature packs supported in this release.

**Table 1 Feature Pack Product Numbers Quick-Reference List**

Product Number	Feature Pack Description
CD52-C-11.3=	Cisco AS5200 IP Feature Pack
CD52-CP-11.3=	Cisco AS5200 IP Plus Feature Pack
CD52-B-11.3=	Cisco AS5200 Desktop Feature Pack
CD52-BP-11.3=	Cisco AS5200 Desktop Plus Feature Pack
CD52-A-11.3=	Cisco AS5200 Enterprise Feature Pack
CD52-AP-11.3=	Cisco AS5200 Enterprise Plus Feature Pack

## Feature Pack Overview Table

Table 2 identifies each feature pack as specified on the router software CD-ROM label, describes the feature sets in each feature pack, and lists the following: UNIX and DOS filenames of the images, memory requirements, and RSL installer description.

**Table 2 Cisco Feature Pack Image Filenames and Memory Requirements**

Model No. and CD-ROM Title	Image Included	UNIX Image Name	DOS Image Name	Flash Memory Req'd	Main Memory Req'd	Boot Flash Memory Req'd	Shared Memory Req'd	Software Description
CD52-C-11.3= Cisco AS5200 IP Feature Pack Release 11.3(6)T RSL Version 7.2	IP	c5200-i-1.113-6.T1	80257306	16 MB	8 MB	8 MB	4 MB	Cisco AS5200 IP Feature Set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40
CD52-CP-11.3= Cisco AS5200 IP Plus Feature Pack Release 11.3(6)T RSL Version 7.2	IP Plus	c5200-is-1.113-6.T1	80257006	16 MB	8 MB	8 MB	4 MB	Cisco AS5200 IP Plus feature set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40

## Introduction

**Table 2 Cisco Feature Pack Image Filenames and Memory Requirements (continued)**

Model No. and CD-ROM Title	Image Included	UNIX Image Name	DOS Image Name	Flash Memory Req'd	Main Memory Req'd	Boot Flash Memory Req'd	Shared Memory Req'd	Software Description
CD52-B-11.3= Cisco AS5200 Desktop Feature Pack Release 11.3(6)T RSL Version 7.2	Desktop	c5200-d-1.113-6.T1	80257406	16 MB	16 MB	8 MB	4 MB	Cisco AS5200 Desktop feature set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40
CD52-BP-11.3= Cisco AS5200 Desktop Plus Feature Pack Release 11.3(6)T RSL Version 7.2	Desktop Plus	c5200-ds-1.113-6.T1	80257106	16 MB	16 MB	8 MB	4 MB	Cisco AS5200 Desktop Plus feature set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40
CD52-A-11.3= Cisco AS5200 Enterprise Feature Pack Release 11.3(6)T RSL Version 7.2	Enterprise	c5200-j-1.113-6.T1	80257206	16 MB	16 MB	8 MB	4 MB	Cisco AS5200 Enterprise feature set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40
CD52-AP-11.3= Cisco AS5200 Enterprise Plus Feature Pack Release 11.3(6)T RSL Version 7.2	Enterprise Plus	c5200-js-1.113-6.T1	80256906	16 MB	16 MB	8 MB	4 MB	Cisco AS5200 Enterprise Plus feature set Release 11.3(6)T1
	MICA Modem Portware	mica-modem- portware.2.5.1.0.bin	80310301					MICA Modem Portware Version 2.5.1.0
	Microcom Modem Firmware	mcom-modem-code. 5.0.40.bin	80306201					Microcom Modem Firmware Version 5.0.40

Feature Set Tables

The Cisco IOS software is packaged in feature sets (also called software images) depending on the platform. Each feature set contains a specific set of Cisco IOS features. This section shows the feature set matrix and the features supported by each feature set.

The following list shows which feature sets are supported on the Cisco AS5200 series access servers. These feature sets only apply to Cisco IOS Release 11.3 T:

- IP
- IP Plus
- Desktop
- Desktop Plus
- Enterprise
- Enterprise Plus

The feature set matrices (see Table 3 and Table 4) show the new feature set organization and list which feature sets are available on the Cisco AS5200 access servers for Cisco IOS Release 11.3 T. The tables use the following terms:

**Table 3 Feature Set Matrix for AS5200**

Standard Feature Sets	Cisco AS5200
IP	Basic, Plus
Desktop	Basic, Plus
Enterprise	Basic, Plus

To determine what features are available with each feature set (software image), see Table 4. The table summarizes the features you can use when running a specific feature set on the Cisco AS5200 access servers for Cisco IOS Release 11.3 T. Table 4 uses these terms:

Feature Set Matrix Term	Description
Yes	This feature is offered.
No	This feature is not offered.
In	The “In” column lists the Cisco IOS release that first introduces a feature. For example, (2) means a feature is introduced in 11.3(2)T. If a cell is empty in this column, the feature was included in the initial, base release.

**Table 4 Cisco IOS Software Feature Sets for the Cisco AS5200 Access Server**

Feature	Feature Set						
	In <sup>1</sup>	IP	IP Plus	Desktop	Desktop Plus	Enterprise	Enterprise Plus
<b>IBM Support</b>							
APPN High Performance Routing	No	No	No	No	No	No	No
APPN MIB Enhancements	No	No	No	No	No	No	No
APPN over Ethernet LAN Emulation	No	No	No	No	No	No	No
APPN Scalability Enhancements	No	No	No	No	No	No	No
Bisync Enhancements, includes: — Bisync 3780 Support — BSC Extended Addressing — Block Serial Tunneling (BSTUN) over Frame Relay	No	No	No	No	No	Yes	Yes
Cisco MultiPath Channel (CMPC)	No	No	No	No	No	No	No
DLSw+ Enhancements, includes: — Backup Peer Extensions for Encapsulation Types — DLSw+ Border Peer Caching — DLSw+ MIB Enhancements — DLSw+ SNA Type of Service — LLC2-to-SDLC Conversion between PU4 Devices — NetBIOS Dial-on-Demand Routing — UDP Unicast Enhancement	No	No	No	No	No	Yes	Yes
FRAS Enhancements, includes: — FRAS Boundary Network Node Enhancement — FRAS Dial Backup over DLSw+ — FRAS DLCI Backup — FRAS Host — FRAS MIB — SRB over Frame Relay	No	No	No	No	No	Yes	Yes
SRB over FDDI on Cisco 4000, 4500, and 4700 Series Routers	No	No	No	No	No	No	No
RIF Passthru in DLSw+	(3)	No	No	No	No	Yes	Yes
TN3270 LU Nailing	No	No	No	No	No	No	No
TN3270 Server Enhancements	No	No	No	No	No	No	No
Token Ring LANE	No	No	No	No	No	No	No
Tunneling of Asynchronous Security Protocols	No	No	No	No	No	Yes	Yes

**Table 4 Cisco IOS Software Feature Sets for the Cisco AS5200 Access Server (continued)**

Feature	In <sup>1</sup>	Feature Set					
		IP	IP Plus	Desktop	Desktop Plus	Enterprise	Enterprise Plus
<b>Internet</b>							
DRP Server Agent		Yes	Yes	Yes	Yes	Yes	Yes
DRP Server Agent Enhancements	(2)	Yes	Yes	Yes	Yes	Yes	Yes
<b>IP Routing</b>							
Easy IP (Phase 1)		No	Yes	No	Yes	No	Yes
Hot Standby Router Protocol (HSRP) over ISL in Virtual LAN Configurations		No	No	No	No	No	No
IP Enhanced IGRP Route Authentication		Yes	Yes	Yes	Yes	Yes	Yes
IP Type of Service and Precedence for GRE Tunnels (CSCdj88415)	(4)	Yes	Yes	Yes	Yes	Yes	Yes
TCP Enhancements, includes: — TCP Selective Acknowledgment — TCP Timestamp		Yes	Yes	Yes	Yes	Yes	Yes
<b>LAN Support</b>							
AppleTalk Access List Enhancements		No	No	Yes	Yes	Yes	Yes
DECnet Accounting		No	No	Yes	Yes	Yes	Yes
IPX Named Access Lists		No	No	Yes	Yes	Yes	Yes
IPX SAP-after-RIP		No	No	Yes	Yes	Yes	Yes
NLSP Enhancements		No	No	No	No	Yes	Yes
NLSP Multicast Support		No	No	Yes	Yes	Yes	Yes
<b>Management</b>							
Cisco Call History MIB Command Line Interface		Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS Internationalization		Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB, Phase 1		Yes	Yes	Yes	Yes	Yes	Yes
SNMPv2C		Yes	Yes	Yes	Yes	Yes	Yes
Virtual Profiles		Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB and Syslog Facility	(3)	No	Yes	No	Yes	Yes	Yes
<b>Multimedia</b>							
IP Multicast Load Splitting across Equal-Cost Paths		Yes	Yes	Yes	Yes	Yes	Yes
IP Multicast over ATM Point-to-Multipoint Virtual Circuits		No	No	No	No	No	No
IP Multicast over Token Ring LANs		No	No	No	No	No	No

**Table 4 Cisco IOS Software Feature Sets for the Cisco AS5200 Access Server (continued)**

Feature	In <sup>1</sup>	Feature Set					
		IP	IP Plus	Desktop	Desktop Plus	Enterprise	Enterprise Plus
PIM Version 2		Yes	Yes	Yes	Yes	Yes	Yes
Stub IP Multicast Routing		Yes	Yes	Yes	Yes	Yes	Yes
<b>Quality of Service</b>							
RTP Header Compression		Yes	Yes	Yes	Yes	Yes	Yes
<b>Security</b>							
Named Method Lists for AAA Authorization and Accounting	(3)	Yes	Yes	Yes	Yes	Yes	Yes
Additional Vendor-Proprietary RADIUS Attributes	(3)	Yes	Yes	Yes	Yes	Yes	Yes
Automated Double Authentication	(3)	Yes	Yes	Yes	Yes	Yes	Yes
Double Authentication		Yes	Yes	Yes	Yes	Yes	Yes
Encrypted Kerberized Telnet		No	No	No	No	No	No
HTTP Security		Yes	Yes	Yes	Yes	Yes	Yes
MS-CHAP Support	(3)	No	No	No	No	Yes	Yes
Per-User Configuration		Yes	Yes	Yes	Yes	Yes	Yes
Reflexive Access Lists		Yes	Yes	Yes	Yes	Yes	Yes
TCP Intercept		No	No	No	No	Yes	Yes
Vendor-Proprietary RADIUS Attributes		Yes	Yes	Yes	Yes	Yes	Yes
<b>Switching</b>							
AppleTalk Routing over ISL and IEEE 802.10 in Virtual LANs		No	No	No	No	No	No
CLNS and DECnet Fast Switching over PPP		No	No	No	No	Yes	Yes
DECnet/VINES/XNS over ISL, includes: — Banyan VINES Routing over ISL Virtual LANs — DECnet Routing over ISL Virtual LANs — XNS Routing over ISL Virtual LANs		No	No	No	No	Yes	Yes
Fast-Switched Policy Routing		Yes	Yes	Yes	Yes	Yes	Yes
IPX Routing over ISL Virtual LANs		No	No	No	No	No	No
VIP Distributed Switching Support for IP Encapsulated in ISL		No	No	No	No	No	No
<b>Terminal Services</b>							
Telnet Extensions to Dialout <sup>2</sup>		Yes	Yes	Yes	Yes	Yes	Yes
Virtual Templates for Protocol Translation		No	Yes	No	Yes	Yes	Yes



**Table 4 Cisco IOS Software Feature Sets for the Cisco AS5200 Access Server (continued)**

Feature	In <sup>1</sup>	Feature Set					
		IP	IP Plus	Desktop	Desktop Plus	Enterprise	Enterprise Plus
<b>WAN Optimization</b>							
ATM MIB Enhancements		No	No	No	No	No	No
PAD Enhancements		No	Yes	No	Yes	Yes	Yes
PAD Subaddressing		Yes	Yes	Yes	Yes	Yes	Yes
<b>WAN Services</b>							
Always On/Dynamic ISDN (AO/DI)	(3)	No	No	No	No	Yes	Yes
Bandwidth Allocation Control Protocol		Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	(2)	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Enhancements		Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay MIB Extensions		Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Router ForeSight		Yes	Yes	Yes	Yes	Yes	Yes
ISDN Advice of Charge		Yes	Yes	Yes	Yes	Yes	Yes
ISDN Caller ID Callback		Yes	Yes	Yes	Yes	Yes	Yes
ISDN NFAS		Yes	Yes	Yes	Yes	Yes	Yes
Layer 2 Forwarding—Fast Switching		No	Yes	No	Yes	Yes	Yes
Leased Line ISDN at 128 kbps		No	No	No	No	No	No
MS Callback	(2)	Yes	Yes	Yes	Yes	Yes	Yes
Microsoft Point-to-Point Compression (MPPC)	(3)	Yes	Yes	Yes	Yes	Yes	Yes
Multiple ISDN Switch Types	(3)	Yes	Yes	Yes	Yes	Yes	Yes
National ISDN Switch Types for BRI and PRI Interfaces (NI2)	(3)	Yes	Yes	Yes	Yes	Yes	Yes
PPP over ATM		No	No	No	No	No	No
Stackable Home Gateway	(3)	No	Yes	No	Yes	Yes	Yes
Telnet Extensions for Dialout		Yes	Yes	Yes	Yes	Yes	Yes
X.25 Enhancements		Yes	Yes	Yes	Yes	Yes	Yes
X.25 on ISDN		Yes	Yes	Yes	Yes	Yes	Yes
X.25 Switching between PVCs and SVCs		Yes	Yes	Yes	Yes	Yes	Yes
X.28 Emulation		Yes	Yes	Yes	Yes	Yes	Yes

<sup>1</sup> The “In” column lists the Cisco IOS release that first introduces a feature.

<sup>2</sup> All platforms with integrated MICA modems will support dialout in future releases.

## System Requirements

This section describes the following:

- Memory Requirements, page 10
- Hardware Supported, page 10
- Software Compatibility, page 11
- Determining Your Software Release, page 11

## Memory Requirements

Table 5 lists the memory delivered by default and the available memory upgrades.

**Table 5 Cisco AS5200 Memory and Upgrade Options**

Type of Memory	Default	Upgrade Options
Flash	16 MB	8-MB to 16-MB (Dual Bank) upgrade: MEM-1X16-AS52
Boot Flash	8 MB	4-MB to 8-MB upgrade: MEM-8BF-52=
DRAM	8 MB	8-MB to 16-MB upgrade: MEM-16M-52
Shared DRAM	4 MB	4-MB to 8-MB upgrade: MEM-8S-52 4-MB to 16-MB upgrade: MEM-16S-52

## Hardware Supported

The following LAN interfaces are supported on the Cisco AS5200:

- Ethernet (AUI)
- MultiChannel Interface (Channelized E1/T1)

The following WAN data rates are supported on the Cisco AS5200:

- 48/56/64 kbps
- 1.544/2.048 Mbps

The following WAN interfaces are supported on the Cisco AS5200:

- EIA/TIA-232
- X.21
- V.35
- EIA/TIA-449
- EIA-530
- ISDN PRI
- E1-G.703/G.704
- Channelized T1
- Channelized E1
- Serial

## Software Compatibility

The feature packs described in these release notes contain Cisco IOS Release 11.3(6)T software images, some earlier images, and Router Software Loader (RSL) Version 7.2. Before running RSL, read the “Installing Software Images Using the RSL” section on page 12.

## Determining Your Software Release

To view the version of Cisco IOS software that is running on your Cisco AS5200 access server, log in to the access server and enter the **show version** user EXEC command:

```
router> show version
```

An output begins similar to the following. The Cisco IOS version appears in the second line.

```
Cisco Internetwork Operating System Software  
IOS (tm) AS5200 (C5200-IS-L), Version 11.3(6)T, RELEASE SOFTWARE
```

The output includes more information including processor revision numbers, memory amounts, hardware IDs, and partition information.

## Modem Code Installation

If you are running Microsoft Windows 95 on a PC, we recommend using the RSL to download modem code. For detailed steps, refer to the RSL online help topic “Downloading Modem Files.” If you are running Windows NT, UNIX, or Macintosh, use a TFTP or RCP to download modem code. TFTP server instructions are in the document titled “Downloading Modem Code.”

Both RSL and TFTP instructions for downloading modem code are available at the follow URL: <http://www.cisco.com/public/sw-center/sw-access.shtml>  
Click on the link “Cisco Channel Modem Software Upgrade.”

For complete information about firmware download, refer to “Installing 56K 12-Port Modules in Cisco AS5200 Universal Access Servers,” which is available at <http://www.cisco.com> (click on Products & Ordering and then Documentation). The section “Decisions about Downloading 56K Modem Code” contains background information, and the section “Downloading Modem Code for Releases Requiring a Single File” contains download procedures for Cisco IOS Release 11.3(6)T.

See the sections “Cisco Connection Online” and “Documentation CD-ROM” for information on accessing customer documentation.

## Installation Notes

This section provides solutions to problems you might encounter when using the RSL to load Cisco IOS software on a router. It also describes special cases that might require you to use an alternative to the RSL.

## Installing Software Images Using the RSL

This section describes some solutions to problems you might encounter when using the RSL. These solutions are additions to the RSL online help.

### Recovering From a Connection Error

This installation tip provides a possible recovery solution if you are unable to connect to your access server or router. You can ignore this section if you are not experiencing a connection error.

In some cases, you might receive the following error message while connecting to the target access server:

```
"Failed to configure the router to enable the Cisco IOS software image and configuration file upload and download operations. You may want to check the router to make sure that the selected interface exists."
```

If you encounter this message, try increasing the Short Timeout value in the Options dialog box from the default 25 seconds, especially if one of the following situations applies:

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**Note** Increasing the Short Timeout value might increase the time it takes for RSL to connect to the target access server.

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- You are connecting to an access server that has a large configuration file.
- You are connecting to a Cisco AS5200 access server. A Cisco AS5200 requires up to 45 seconds to write a configuration to nonvolatile random-access memory (NVRAM) because of the amount of interfaces that must be checked during this process. Increase the Short Timeout value to 60 seconds.
- You are connecting to a Cisco MC3810 Multiservice Access Concentrator. A Cisco MC3810 requires up to 45 seconds to write a configuration to nonvolatile random-access memory (NVRAM) due to the amount of interfaces that must be checked during this process. Increase the Short Timeout value to 60 seconds.

### Restoring the Startup Configuration

In some cases, RSL is unable to restore the startup configuration. If this happens, take the following steps:

- Step 1** Ensure that all cables are properly attached to both the access server and the PC.
- Step 2** Restart RSL and connect using the **Preconfigured router** option.
- Step 3** When asked if you want to overwrite the existing startup configuration file, choose **no**.
- Step 4** When asked if you want to continue, choose **yes**.
- Step 5** When the router is connected, select **Download Router Configuration** in the Router Software Loader dialog box.
- Step 6** Select the appropriate file, and click the radio button beside **Copy configuration to the router nonvolatile memory**.

The access server should now contain the startup configuration it had before the initial RSL connection. You can now exit RSL.

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**Note** In the previous situation, the access server's configuration register (**config-register 0xnnnn**) is not restored.

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**Note** If you press **Ctrl-Alt-Delete** to terminate RSL, the access server's configuration and configuration register are not restored. However, in this case the configuration file is not deleted from the PC, so it can be restored using the previous steps.

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## Helpful Hints

The following information about RSL operations can help you with the installation process:

- If you have added any static entries to the PC's Address Resolution Protocol (ARP) table, one of them might be deleted by RSL. This entry will need to be manually reentered into the PC's ARP table.
- If the access server's running configuration at connection time is not the same as the access server's startup configuration, the exact configuration will not be restored. Any changes that you have made since the last time a **copy running-config startup-config** or **write memory** command was entered will be lost.
- RSL will restore the access server's running configuration, but some configuration commands will not be restored. However, the startup configuration will be correct. You can restore the exact running configuration by rebooting the access server. Commands not restored to the running configuration include the following interface configuration commands: **no shutdown**, **no ringspeed**, and **media-type aui**.

## Installing Software Images Using a TFTP Server Application

We recommend using the Router Software Loader application to install the software images; however, the CD-ROM is designed to work with a PC running Microsoft Windows 95. For other operating systems, an alternative is available using a TFTP server application to install access server software. You can perform this procedure using a PC (running Microsoft Windows 95 or Microsoft Windows 3.1), a Macintosh, or a UNIX system. You can use either the **copy tftp flash** or **copy rcp flash** command to download the software to the access server.

First, obtain a TFTP application or a remote copy protocol (rcp) application to set up your computer as a TFTP server or an rcp server. You can use the RSL or the TFTP server included on the feature pack CD-ROM to install the software only if you are using a PC running Windows 95. For other operating systems, a number of TFTP or rcp applications are available from independent software vendors or as shareware from public sources on the World Wide Web.

## Installation Process

This section describes how to use TFTP on a PC to install the access server software on a PC.

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**Note** To use an RCP application, follow this same procedure, but substitute RCP for TFTP in the instructions; for example, use the **copy rcp flash** command instead of the **copy tftp flash** command.

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**Step 1** Install any TFTP server application on the PC. (The PC application included on the feature pack CD-ROM is for Microsoft Windows 95 only.)

**Step 2** Launch the TFTP server application on the PC, usually by double-clicking the application icon or its .exe filename.

**Step 3** Set up the PC as a TFTP server by using the TFTP server application setup or configuration facility.

Most TFTP server applications include a setup facility that allows you to specify the PC as a server. For example, from the TFTP menu of one application, you can select **Settings** to display a panel that includes a check box beside the word **Server**. To configure the local PC as a server, click this check box.

The TFTP server also allows the selection of a “root” directory. You must select the directory in which the Cisco IOS files reside, for example, d:\cpswinst\images.



**Caution** Make sure you set up your local PC as a TFTP server. If you overlook this step, you cannot perform the copy procedure. This reminder also applies if you are using RCP instead of TFTP.

**Step 4** Establish a console session from your local PC (which is now configured as a TFTP server) to the access server by using one of these methods:

- Connect the PC com port to the access server console port.

This is the recommended method. When you reload the access server with the new image in Step 13, you remain connected to the access server. (If you use Telnet, you lose connection to the access server.)

- Establish a Telnet session from the PC to the access server.

**Step 5** Connect your PC Ethernet port to the access server Ethernet port. Use an Ethernet crossover cable.

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**Note** Use straight-through cables if you are connecting via a 10BaseT hub or a 100BaseT hub.

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For systems without a LAN interface, make sure that the access server and the PC have IP connectivity through the available interface (that is, the access server and PC can ping each other with IP traffic).

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**Note** We recommend that you back up the access server configuration before upgrading the access server software.

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**Step 6** Enter the following commands to enter privileged mode, change the config-reg to 0x2101, and reload:

```
router> enable
Password: <password>
router# configure terminal
config-reg 0x2101
ctrl-Z
router# reload
```

The access server will reload in bootstrap mode, which is necessary for copying images into Flash memory.

- Step 7** Enter the following commands to enter enable mode and copy the new software image from the PC (set up as a TFTP server) to the access server:

```
(boot)> enable
Password: <password>
(boot)#
(boot)# copy tftp flash
```

In the next series of steps, you download the Cisco IOS Release 11.3 images that you want installed on your access server.

- Step 8** When prompted, enter the IP address of your PC, as in the following example:

```
Address or name of remote host [255.255.255.255]? 172.16.1.1
```

This is the IP address of your local PC, not that of the access server.

- Step 9** When prompted, enter the filename of the Cisco IOS Release 11.3 image to be copied to the access server, as in the following example:

```
Source file name? 80257306.bin
```

This example specifies the DOS image name of the IP feature set for a Cisco AS5200 access server, as listed in Table 1.

- Step 10** In response to the prompt, enter the destination UNIX image filename, and press **Enter**.

This is the name of the image file on the access server, not the full path name of the image on the CD-ROM attached to the PC. Refer to Table 2 in the section, “System Requirements” for the UNIX image filename.

```
Destination file name [80257306.bin]? c5200-i-1.113-6.T
```

- Step 11** Enter **yes** in response to the prompt asking if you want to erase the existing image copy resident in the access server Flash memory before copying the new one:

```
Erase flash device before writing? [confirm] yes
```

The entire copying process takes several minutes and differs from network to network.

During the transfer process, the software displays messages indicating that it has accessed the file you have specified and is loading it.

The exclamation point (!) indicates that the copy process is taking place. Each exclamation point (!) indicates that ten packets have been transferred successfully. A checksum verification of the image occurs after the image is written to Flash memory.

- Step 12** Enter the following commands to change the config-reg back to 0x2102. This will force the access server to reload to the image running from Flash memory.

```
(boot)# configure terminal
config-reg 0x2102
(boot)(config)#
(boot)(config)# end
(boot)#
```

- Step 13** Enter the **reload** command to reload the access server:

```
(boot)# reload
```

After reload is complete, the access server should be running the desired Cisco IOS image. Use the **show version** command to verify.

## Documentation Updates

Due to a production problem, many source-route bridging commands were omitted from the printed version of the *Cisco IOS Software Command Summary* (78-4746-xx, DOC-CIOSCS11.3=). For complete documentation of all source-route bridging commands, refer to the *Bridging and IBM Networking Command Reference* (78-4743-xx). You can also obtain the most current documentation on the Documentation CD-ROM or Cisco Connection Online (CCO).

## Related Documentation

This section describes the documentation related to the Cisco AS5200, typically including hardware installation guides, software installation guides, Cisco IOS configuration and command references, system error messages, and feature modules that are updates to the Cisco IOS documentation set. Documentation is available as printed manuals or electronic documents, except for the feature modules that are available online only.

The most up-to-date documentation can be found on the Web via Cisco Connection Online (CCO) and on the latest Documentation CD-ROM. These electronic documents might contain updates and modifications made after the paper documents were printed. For information on CCO, refer to the “Cisco Connection Online” section later in this document. For more information on to the CD-ROM, refer to the “Documentation CD-ROM” section later in this document.

## Hardware-Specific Documentation

The following Cisco AS5200 documents are available:

- *Cisco AS5200 Universal Access Server Software Configuration Guide*
- *Cisco AS5200 Universal Access Server Installation Guide*
- *Cisco AS5200 Manager Guide*
- Modem/Terminal Adapter Information
- Regulatory compliance and safety information
- Documentation for spare parts

To access Cisco AS5200 documentation on CCO, follow this path:

**Products and Ordering: Cisco Documentation: Access Servers and Access Routers: Access Servers: Cisco AS5200.**

To access Cisco AS5200 documentation on the Documentation CD-ROM, follow this path:

**Cisco Product Documentation: Access Servers and Access Routers: Access Servers: Cisco AS5200.**

## Cisco IOS Software Documents

Cisco IOS software documentation is listed below. Software documentation consists of the Cisco IOS configuration guides and command references and also includes several supporting documents. These documents are shipped with your order in electronic form on the Documentation CD-ROM, unless you specifically ordered the printed version of the documents.



The Cisco IOS configuration guides, command references, and chapter topics are as follows:

<b>Books</b>	<b>Chapter Topics</b>
<ul style="list-style-type: none"> <li>• <i>Configuration Fundamentals Configuration Guide</i></li> <li>• <i>Configuration Fundamentals Command Reference</i></li> </ul>	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management Interface Configuration System Management
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 1</i></li> <li>• <i>Network Protocols Command Reference, Part 1</i></li> </ul>	IP Addressing IP Services IP Routing Protocols
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 2</i></li> <li>• <i>Network Protocols Command Reference, Part 2</i></li> </ul>	AppleTalk Novell IPX
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 3</i></li> <li>• <i>Network Protocols Command Reference, Part 3</i></li> </ul>	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> <li>• <i>Wide-Area Networking Configuration Guide</i></li> <li>• <i>Wide-Area Networking Command Reference</i></li> </ul>	ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> <li>• <i>Security Configuration Guide</i></li> <li>• <i>Security Command Reference</i></li> </ul>	AAA Security Services Security Server Protocols Traffic Filtering Network Data Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options
<ul style="list-style-type: none"> <li>• <i>Dial Solutions Configuration Guide</i></li> <li>• <i>Dial Solutions Command Reference</i></li> </ul>	Dial Business Solutions and Examples Dial-In Port Setup DDR and Dial Backup Remote Node and Terminal Service Cost-Control and Large-Scale Dial Solutions VPDN

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Switching Services Configuration Guide</i></li> <li>• <i>Cisco IOS Switching Services Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Switching Paths for IP Networks</li> <li>Fast Switching</li> <li>Autonomous Switching</li> <li>NetFlow Switching</li> <li>Optimum Switching</li> <li>Virtual LAN (VLAN) Switching and Routing</li> <li>Inter-Switch Link Protocol Encapsulation</li> <li>IEEE 802.10 Encapsulation</li> <li>LAN Emulation</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Bridging and IBM Networking Configuration Guide</i></li> <li>• <i>Bridging and IBM Networking Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Transparent Bridging</li> <li>Source-Route Bridging</li> <li>Remote Source-Route Bridging</li> <li>DLSw+</li> <li>STUN and BSTUN</li> <li>LLC2 and SDLC</li> <li>IBM Network Media Translation</li> <li>DSPU and SNA Service Point</li> <li>SNA Frame Relay Access Support</li> <li>APPN</li> <li>NCIA Client/Server Topologies</li> <li>IBM Channel Attach</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Software Command Summary</i></li> <li>• <i>Dial Solutions Quick Configuration Guide</i></li> <li>• <i>System Error Messages</i></li> <li>• <i>Debug Command Reference</i></li> </ul>	

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**Note** The *Cisco Management Information Base (MIB) User Quick Reference* publication is no longer being published. For the latest list of MIBs supported by Cisco, see the *Cisco Network Management Toolkit* on Cisco Connection Online. On CCO, go to **Software and Support: Software Center: Network Management Products: Cisco Network Management Toolkit: Cisco MIBs**.

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## Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section “Service and Support” in the information packet that shipped with your product.

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**Note** If you purchased your product from a reseller, you can access CCO as a guest. CCO is Cisco Systems’ primary real-time support channel. Your reseller offers programs that include direct access to CCO services.

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For service and support for a product purchased directly from Cisco, use CCO.

## Software Configuration Tips on the Cisco TAC Home Page

The following URL contains links to access helpful tips on configuring your Cisco products:

[http://www.cisco.com/kobayashi/serv\\_tips.shtml](http://www.cisco.com/kobayashi/serv_tips.shtml)

This URL is subject to change without notice. If it changes, point your web browser to <http://www.cisco.com/>, and follow this path: Software & Support, Technical Tips (button on left margin).

“Hot Tips” are popular tips and hints gathered from the Cisco Technical Assistance Center (TAC). Most of these documents are available from the TAC FAX-on-demand service. To access FAX-on-demand and receive documents at your FAX machine from the USA, call 888-50-CISCO (888-502-4726). From other areas, call 415-596-4408.

The following sections are provided from the Technical Tips page:

- **Field Notices**—Designed to provide notification of any critical issues regarding Cisco products. These include problem descriptions, safety or security issues, and hardware defects.
- **Hardware**—Technical Tips related to specific hardware platforms.
- **Internetworking Features**—Tips on using and deploying Cisco IOS software features and services.
- **Sample Configurations**—Actual configuration examples complete with topology and annotations.
- **Software Products**—such as MultiNet & Cisco Suite 100, Network Management, and Cisco IOS Software Bulletins.
- **Special Collections**—Other Helpful Documents, Frequently Asked Questions, Security Advisories, References & RFCs, and Case Studies.

## Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems’ primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco’s customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- **WWW:** <http://www.cisco.com>
- **WWW:** <http://www-europe.cisco.com>
- **WWW:** <http://www-china.cisco.com>
- **Telnet:** [cco.cisco.com](http://cco.cisco.com)

- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact [cco-help@cisco.com](mailto:cco-help@cisco.com). For additional information, contact [cco-team@cisco.com](mailto:cco-team@cisco.com).

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**Note** If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or [tac@cisco.com](mailto:tac@cisco.com). To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or [cs-rep@cisco.com](mailto:cs-rep@cisco.com).

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## Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more current than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

If you are reading Cisco product documentation on the World Wide Web, you can submit comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco. We appreciate your comments.

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This document is to be used in conjunction with the *Related Documentation* section.

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