

Configuration Fundamentals Overview

This chapter provides an overview of Cisco IOS software configuration, describes the chapters in this document, and suggests sections to read based on various situations. This chapter contains the following sections:

- Overview of Router Configuration Tasks
- Cisco IOS User Interfaces
- File Management
- Interface Configuration
- System Management
- Guide to This Book
- Other Documentation

Overview of Router Configuration Tasks

To configure your router or access server, perform the following steps:

Step 1 Before configuring your router or access server, you must determine the following:

- Which network protocols you are supporting (for example, AppleTalk, IP, Novell IPX, and so on)
- The addressing plan for each network protocol
- Which routing protocol you will use for each network protocol
- Which WAN protocols you will run on each interface (for example, Frame Relay, HDLC, SMDS, X.25, and so on)

Refer to the *Cisco Product Catalog* and the release notes for a list of Cisco-supported protocols, interfaces, and platforms.

Step 2 Set up the hardware as described in the documentation shipped with your product.

Step 3 Initially configure the software as described in the documentation shipped with your product.

Note The Cisco IOS documentation set is intended for network administrators who have already completed the setup and configuration tasks described in the documentation shipped with individual products. The Cisco IOS documentation set describes advanced configuration tasks, not hardware setup and initial software configuration. Refer to the documentation shipped with your product for this information.

- Step 4** Configure any user interface, file management, or interface management tasks as described in this book.
- Step 5** Configure protocol-specific features on your router or access server as described in the appropriate chapters of the other Cisco IOS software configuration guides.
- Step 6** If desired, perform system management tasks to monitor and fine-tune the performance of your router in the network.

Cisco IOS User Interfaces

The user interface chapters describe the different methods of entering commands into the router and altering the user environment.

The Cisco IOS software provides a command line interface that allows you to configure and manage the router or access server. If you are unfamiliar with the Cisco IOS command line interface, you should read the “Using the Command Line Interface” chapter. This chapter discusses the different command modes, context-sensitive help, and editing features. This chapter also described the Web browser interface, which can be used to configure and monitor the router as well.

Cisco provides some configuration alternatives to the command line interface. If you wish to use AutoInstall to configure a new router or setup to change the configuration, read the “Using Configuration Tools” chapter. This chapter also mentions other configuration tools that are available, but it does not provide detailed documentation.

To use the command line interface, your terminal must be connected to the router through the console port or one of the TTY lines. By default, the terminal is configured to a basic configuration, which should work for most terminal sessions. However, you may want to alter the terminal settings. Refer to the “Configuring Operating Characteristics for Terminals” chapter for information.

You can also make connections to other hosts from the router. The “Managing Connections and System Banners” chapter describes how to manage these connections. Alternately, users can connect to your router. You can display messages to the terminals of these users. These tasks are also described in the “Managing Connections and System Banners” chapter.

File Management

The file management chapters describe the different types of files you can manipulate on the router, such as configuration files, images, and microcode.

The “Modifying, Downloading, and Maintaining Configuration Files” chapter discusses how to modify configuration files, download configuration files for servers, store configuration files on servers, and configure the router to load a configuration file at system startup. In order to customize your router’s operation to your needs, you will need to alter the configuration file. This chapter describes how to do this task, while the other chapters in the Cisco IOS documentation set describe the specific commands that are added to the configuration.

The “Loading and Maintaining System Images and Microcode” chapter discusses how to download images from servers, store images on servers, specify which image is loaded at system startup, and specify which microcode images to use. If you are not storing or upgrading your system image and you do not wish to change image booting procedures, you do not need to read this chapter.

The “Maintaining Router Memory” chapter deals with the different types of memory your router may have and how to use this memory to manage files. This chapter also contains information on how to upgrade images on some platforms. Read this chapter if you are upgrading your system image or deleting files in Flash memory.

The “Rebooting a Router” chapter focuses on tasks related to the rebooting procedure. Read this chapter if you wish to change which image or configuration file is loaded at system startup. This chapter also discusses ROM Monitor mode, which allows you to boot the router manually.

The “Configuring Additional File Transfer Functions” chapter describes how to configure your router to be a server or use rsh and rcp. As a TFTP server, your router can provide other routers with images and configuration files over the network. The remote shell and remote copy functions allow users to remotely execute commands or copy files to or from another host.

Interface Configuration

The interface configuration chapters consist of the following:

- “Overview of Interface Configuration” provides an overview of configuring interfaces on Cisco routers. This chapter describes configuration tasks that can be performed on any type of interface.
- “Configuring LAN Interfaces” describes configuration processes for configuring interfaces related to local-area networks, including
 - Ethernet and Fast Ethernet interfaces
 - Fiber Distributed Data Interfaces (FDDI)
 - Hub interfaces
 - Packet OC-3 interfaces
 - Token Ring interfaces
- “Configuring Serial Interfaces” describes how to configure serial interfaces on Cisco IOS devices. Interfaces described in this chapter include
 - High-Speed Serial Interfaces (HSSI)
 - Low-speed serial interfaces
 - Serial interfaces for CSU/DSU service modules
 - Synchronous serial interfaces
- “Configuring Logical Interfaces” provides configuration guidelines for loopback, null, and tunnel interfaces.

For descriptions of dialer interfaces, virtual-access, and ISDN PRI interfaces, refer to the *Dial Solutions Configuration Guide*.

Commands used to illustrate configuration tasks in these chapters are documented in the “Interface Commands” chapter of the *Configuration Fundamentals Command Reference*.

System Management

The system management chapters discuss tasks that allow you to maintain your router after it is configured with the network, routing, and WAN protocols. These chapters discuss ways you can fine-tune the router and maintain it over time.

SNMP, RMON, Cisco Discovery Protocol, and Response Time Reporter are described in the “Monitoring the Router and Network” chapter. You can use these protocols to gather information about the router and network usage.

If you want to improve the basic performance of the router, read the “Managing System Performance” chapter. This chapter discusses queuing and congestion strategies, traffic shaping, switching and scheduling priorities, and other general system performance tasks.

The “Troubleshooting the Router” chapter provides an introduction to troubleshooting techniques, error message logging, and debugging commands. If you are troubleshooting a particular protocol, read this chapter to learn how to log system error messages and use debugging commands. Then, refer to the chapter in the documentation set that documents your protocol. The *Internetwork Troubleshooting Guide* also provides troubleshooting information.

The “Performing Basic System Management” chapter discusses basic optional tasks. For example, you can change the name of the router, create command aliases, enable minor services, and set time and calendar services.

Guide to This Book

The previous sections listed common tasks found in each chapter. However, some common tasks require information in more than one chapter. This section suggests sections in different chapters of the *Configuration Fundamentals Configuration Guide* that are useful to read based on your situation.

Learning the Cisco IOS Command Line Interface

If you are not familiar with the Cisco IOS command line interface, read the following sections to gain a basic understanding of the user interface and basic configuration tasks:

In the “Using the Command Line Interface” chapter:

- Access Each Command Mode
- Using the No and Default Forms of Commands
- Get Context-Sensitive Help
- Check Command Syntax
- Use the Command History Features
- Use the Editing Features

In the “Modifying, Downloading, and Maintaining Configuration Files” chapter:

- Display Configuration File Information
- Understand Configuration Files
- Enter Configuration Mode and Select a Configuration Source
- Configure the Cisco IOS Software from the Terminal
- Reexecute the Configuration Commands in Startup Configuration
- Clear the Configuration Information

In the “Performing Basic System Management” chapter:

- Set the Router Name

In addition, the “Overview of Interface Configuration” chapter provides an overview of configuring interfaces on Cisco routers.

Storing or Obtaining Configuration Files or Images from a Server

You might want to save a configuration or image on a server or upgrade your image to a different release. If you will be storing or obtaining configuration files or images from a server, read the following sections:

In the “Modifying, Downloading, and Maintaining Configuration Files” chapter:

- Copy Configuration Files from the Router to a Network Server
- Copy Configuration Files from a Network Server to the Router
- Copy Images from Flash Memory to a Network Server
- Copy Images from a Network Server to Flash Memory

In the “Maintain Router Memory” chapter:

- Partition Flash Memory
- Use Flash Load Helper to Upgrade Software on Run-from-Flash Systems

Changing the Image or Configuration File Loaded by the Router

If you wish to change the image or configuration file used when the system reloads, read the following sections:

In the “Modifying, Downloading, and Maintaining Configuration Files” chapter:

- Specify the Startup Configuration File

In the “Loading and Maintaining System Images and Microcode” chapter:

- Specify the Startup System Image in the Configuration File

In the “Rebooting a Router” chapter:

- Display Booting Information
- Rebooting Procedures
- Modify the Configuration Register Boot Field
- Set Environment Variables

Other Documentation

Other documentation for Cisco routers and access servers is available.

- Refer to the documentation shipped with your platform for hardware and platform-specific information.
- For the latest information about the software, including new features added since the documentation was printed and additional caveats about using the software, refer to the release note that accompanies the software.

Other Documentation

- Refer to the *Cisco IOS Software Command Summary* for summarized command information.
- Refer to the *System Error Messages* publication for information about system software, internal hardware, and communication line error messages.
- Refer to the *Debug Command Reference* for information about **debug** commands.