



Configuration Fundamentals Overview

This introduction chapter provides an overview of the *Cisco IOS Configuration Fundamentals Configuration Guide* for Cisco IOS Release 12.1, including descriptions of the parts and chapters of this document, and suggestions on which parts of the documentation to read based on common tasks.

Organization of This Guide

This section gives a overview of how this document is organized, including parts and chapters.

The *Cisco IOS Configuration Fundamentals Configuration Guide* is divided into three main parts:

- Cisco IOS User Interfaces
- File Management
- System Management

Cisco IOS User Interfaces

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

- “Using the Command-Line Interface (CLI)”
Discusses the different command modes, context-sensitive help, and editing features of the command-line interface.
- “Using Configuration Tools”
Discusses using AutoInstall to configure a new router or change the existing configuration, and mentions other configuration tools that are available.
- “Configuring Operating Characteristics for Terminals”
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. This chapter gives details on how to do so.

- “Managing Connections, Menus, and System Banners”
Gives details on managing connections you make to other hosts, displaying messages to users connecting to your router, and setting up user menus.
- “Using the Cisco Web Browser”
Provides detailed information on using the Cisco IOS Web Browser interface to configure and monitor your router, instead of using the CLI. Also explains how to configure the Web Browser interface for other users.

File Management

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

- “Using the Cisco IOS File System”
Focuses on managing files using the Cisco IOS File System (IFS) feature, which provides a single user interface to all the file systems including Flash memory file systems, network file systems (such as TFTP, rcp, and FTP), and any other endpoint for reading data from or writing data to (such as NVRAM or modems).
- “Modifying, Downloading, and Maintaining Configuration Files”
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.
- “Loading and Maintaining System Images and Microcode”
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 want to change image booting procedures, you do not need to read this chapter.
- “Maintaining Router Memory”
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.
- “Rebooting a Router”
Focuses on tasks related to the rebooting procedure. Read this chapter if you want 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.
- “Configuring Additional File Transfer Functions”
Describes how to configure your router to be a server, or use the remote shell (rsh) and remote copy (rcp) functions. As a TFTP server, your router can provide other routers with images and configuration files over the network. The rsh and rcp functions allow users to remotely execute commands or copy files to or from another host. This chapter also addresses optional configuration of Maintenance Operation Protocol (MOP) and Boot Operation Protocol (BOOTP) requests.

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. The first four chapters of this part deal with router and network monitoring tools used for gathering information about connected devices and network performance.

- “Configuring Simple Network Management Protocol (SNMP)”
Describes the steps for configuring Simple Network Management Protocol (SNMP) on your router.
- “Configuring RMON Support”
Describes the Remote Monitoring (RMON) features available on Cisco routers to supplement SNMP use.
- “Configuring Cisco Discovery Protocol”
Describes the Cisco Discovery Protocol (CDP), and how to use CDP to discover other local devices.
- “Network Monitoring Using Cisco Service Assurance Agent”
Describes the Cisco Service Assurance Agent (SA Agent), and how to use SA Agent operations to monitor network performance and ensure levels of service.
- “Troubleshooting the Router”
Provides an introduction to troubleshooting techniques (including use of **show** commands), 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* provides more detailed troubleshooting information.
- “Performing Basic System Management”
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.
- “System Management Using System Controllers”
Describes the system controller, a Cisco IOS-based device that aids in the monitoring and management of certain Cisco Universal Access Servers.
- “Configuring Web Cache Services Using WCCP”
Describes the Web Cache Control Protocol, a Cisco-developed content-routing technology that allows you to utilize cache engines (such as the Cisco Cache Engine 550) and web-caches in your network.
- “Managing Dial Shelves”
Discusses configuration and monitoring tasks for dial shelves and dial shelf controllers (DSCs), particularly on Cisco AS5800 Universal Access Servers.

Task-Oriented Documentation Approaches

The above parts and chapters of the *Cisco IOS Configuration Fundamentals Configuration Guide* suggest a framework for learning configuration and maintenance tasks. This section provides some suggestions on alternate paths you can take through the documentation to learn about particular topics or tasks, focusing on common configuration topics that span multiple chapters of this book.

Overview of Router Configuration Tasks

To configure your router or access server, you must perform several tasks. Initially, 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)

Then, refer to the *Cisco Product Catalog* and the platform-specific release notes for a list of Cisco-supported protocols, interfaces, and platforms. Set up the hardware as described in the documentation shipped with your product. Configure any user interface, file management, or interface management tasks as described in this book. Configure protocol-specific features on your router or access server as described in the appropriate chapters of the other Cisco IOS software configuration guides.

Understanding 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:

- Understanding Cisco IOS Command Modes
- Using the No and Default Forms of Commands
- Getting Context-Sensitive Help Within a Command Mode
- Checking Command Syntax
- Using CLI Command History
- Using Command-Line Editing Features and Shortcuts

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

- Displaying Configuration File Information
- Understanding Configuration Files
- Entering Configuration Mode and Selecting a Configuration Source
- Configuring Cisco IOS from the Terminal
- Reexecuting the Configuration Commands in Startup Configuration
- Clearing the Configuration Information

In the “Performing Basic System Management” chapter:

- Setting the Router Name

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 software 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:

- Copying Configuration Files from the Router to a Network Server
- Copying Configuration Files from a Network Server to the Router
- Maintaining Configuration Files Larger than NVRAM
- Copying Configuration Files Between Different Locations

In the “Maintain Router Memory” chapter:

- Partitioning Flash Memory
- Using Flash Load Helper to Upgrade Software on Run-from-Flash Systems

Changing the Image or Configuration File Loaded by the Router

If you want 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:

- Specifying the Startup Configuration File

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

- Specifying the Startup System Image in the Configuration File

In the “Rebooting a Router” chapter:

- Displaying Booting Information
- Rebooting Procedures
- Modifying the Configuration Register Boot Field
- Setting Environment Variables

New Features in Cisco IOS Release 12.1

For a complete list of new features in Cisco IOS Release 12.1, see the “Cross Platform Release Notes”. The Release 12.1 *Cisco IOS Configuration Fundamentals Configuration Guide* includes information about the following new features in the Cisco IOS software (organized by chapter):

“Using the Command-Line Interface (CLI)” Chapter

- CLI String Search features;
 - documented in the “Searching and Filtering CLI Output” section on page 27

“Managing Connections, Menus, and System Banners” Chapter

- SLIP-PPP Banners;
 - documented in the “Configuring an SLIP-PPP Banner Message” section on page 85

- Banner Tokens;
 - documented in the “Using Banner Tokens” section on page 83

“Configuring Simple Network Management Protocol (SNMP)” Chapter

- SNMP Version 3;
 - documented in the “Versions of SNMP” section on page 260
- RSVP MIB and HSRP MIB support added for SNMP;
 - documented in the “Configuring the Router to Send Traps” section on page 266

“Configuring RMON Support” Chapter

- RMON MIB support added for SNMP;
 - documented in the “Configuring RMON Support” section on page 271

“Configuring Cisco Discovery Protocol” Chapter

- Cisco Discovery Protocol (CDP) Version 2;
 - documented in the “Enabling CDP Version-2 Advertisements” section on page 279

“Network Monitoring Using Cisco Service Assurance Agent” Chapter

This chapter describes the Cisco Service Assurance Agent, a new Cisco IOS feature, which includes Response Time Reporter (RTR) enhancements.

“Performing Basic System Management” Chapter

- Defining Time Ranges for use by IP and IPX access lists;
 - documented in the “Configuring Time Ranges” section on page 338

“Configuring Web Cache Services Using WCCP” Chapter

This chapter describes the new Web Cache Communication Protocol Version 2 (WCCPv2).

Supporting Documentation for This Guide

The Release 12.1 *Cisco IOS Configuration Fundamentals Configuration Guide* is only one small part of available Cisco documentation.

- For complete descriptions of the configuration commands introduced in this guide, see the Release 12.1 *Cisco IOS Configuration Fundamentals Command Reference*, which is the second book of this documentation module.
- Refer to the documentation shipped with your platform for hardware and platform-specific information.
- For the latest information about the software, including new features in a particular release, updates on software releases, and the status of caveats (bugs) in the software, refer to the cross-platform and platform specific release notes.
- The full text of referenced Requests For Comments (RFCs) may be obtained on the World Wide Web at: <http://www.rfc-editor.org/>.
Further information on RFC Repositories can be obtained at:
<http://www.cisco.com/warp/public/459/1.html>

- For lists of supported Management Information Bases (MIBs) by platform and release, and to download MIB files, see Cisco's MIB website on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

