



Preface

This software configuration guide provides instructions for using the Cisco command-line interface (CLI) to configure features of the following Cisco 1800 series integrated services fixed-configuration routers:

- Cisco 1801, Cisco 1802, and Cisco 1803 DSL Access Routers
- Cisco 1811 and Cisco 1812 Ethernet Access Routers

This preface describes the intended audience, the organization of this guide, and the text and command conventions used throughout the guide. The preface includes the following topics:

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Audience

This guide is intended for network administrators whose backgrounds vary from having no or little experience in configuring routers to having a high level of experience. You can use this guide in the following situations:

- You have configured the software by using the Cisco Router Web Setup tool, and you want to configure additional advanced software features by using the command-line interface (CLI).
- You want to configure the software using only the CLI.



Note

We strongly recommend that network administrators with minimal familiarity with Cisco routers use the Cisco Router and Security Device Manager (SDM)—a web-based configuration tool that allows you to configure LAN and WAN interfaces, routing, Network Address Translation (NAT), firewalls, VPNs, and other features on your router. To obtain the SDM release notes and other SDM documentation, go to <http://www.cisco.com/go/sdm> and click the **Technical Documentation** link.

See the “[Organization](#)” section of this preface to help you decide which chapters contain the information you need to configure your router.

Organization

[Table 1](#) lists the topics covered by this guide.

Table 1 Document Organization

Chapter	Title	Description
Chapter 1	Basic Router Configuration	Describes how to configure basic router features and interfaces.
Chapter 2	Sample Network Deployments	Provides a road map for possible network deployments.
Chapter 3	Configuring PPP over Ethernet with NAT	Provides instructions on how to configure PPPoE with Network Address Translation (NAT) on your Cisco router.
Chapter 4	Configuring PPP over ATM with NAT	Provides instructions on how to configure PPPoA with Network Address Translation (NAT) on your Cisco router.
Chapter 5	Configuring a LAN with DHCP and VLANs	Provides instructions on how to configure your Cisco router with multiple VLANs and to act as a DHCP server.
Chapter 6	Configuring a VPN Using Easy VPN and an IPSec Tunnel	Provides instructions on how to configure a virtual private network (VPN) with a secure IP tunnel using the Cisco Easy VPN.
Chapter 7	Configuring VPNs Using an IPSec Tunnel and Generic Routing Encapsulation	Provides instructions on how to configure a VPN with a secure IP tunnel and generic routing encapsulation (GRE).
Chapter 8	Configuring a Simple Firewall	Provides instructions on how to configure a basic firewall on your Cisco router.
Chapter 9	Configuring a Wireless LAN Connection	Provides instructions on how to configure a wireless LAN.
Chapter 10	Sample Configuration	Presents a summary configuration example showing features configured in the preceding chapters of this part of the guide.
Chapter 11	Additional Configuration Options	Provides a road map for Part 3.
Chapter 12	Configuring Security Features	Explains basic configuration of Cisco IOS security features, including firewall and VPN configuration.
Chapter 13	Configuring Dial Backup and Remote Management	Provides instructions on how to configure your Cisco router for dial backup and remote management.
Chapter 14	Troubleshooting	Provides information on identifying and solving problems, such as how to recover a lost software password.
Appendix A	Cisco IOS Software Basic Skills	Explains what you need to know about Cisco IOS software before you begin to configure it.
Appendix B	Concepts	Provides general concept explanations of features.
Appendix C	ROM Monitor	Describes the use of the ROM Monitor (ROMMON) utility.
Appendix D	Common Port Assignments	Describes the currently assigned Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) port numbers.
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Conventions

This guide uses the conventions described in the following sections for instructions and information.

Notes, Cautions, and Timesavers

Notes, cautions and time-saving tips use the following conventions and symbols:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this guide.



Caution

This caution symbol means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Timesaver

This symbol means *the described action saves time*.

Command Conventions

[Table 2](#) describes the command syntax used in this guide.

Table 2 **Command Syntax Conventions**

Convention	Description
boldface	Commands and keywords.
<i>italic</i>	Command input that is supplied by you.
[]	Optional keywords and default responses to system prompts appear within square brackets.
{ x x x }	A choice of keywords (represented by x) appears in braces separated by vertical bars. You must select one.
^ or Ctrl	Represents the key labeled <i>Control</i> . For example, when you read ^D or Ctrl-D, you should hold down the Control key while you press the D key.
screen font	Examples of information displayed on the screen.
boldface screen font	Examples of information that you must enter.

Related Documents

Table 3 lists publications that provide related information on these routers:

Table 3 **Related and Referenced Documents**

Cisco Product	Document Title
Cisco 1800 series fixed-configuration routers	Cisco 1811 and Cisco 1812 Integrated Services Router Cabling and Installation
	Cisco 1801, Cisco 1802, and Cisco 1803 Integrated Services Router Cabling and Installation
	Cisco 1800 Series Integrated Services Router (Fixed) Hardware Installation Guide
	Regulatory Compliance and Safety Information for Cisco 1800 Integrated Services Routers (Fixed)
	Cisco Modular Access Router Cable Specifications
Cisco access router wireless LAN documentation	Cisco Access Router Wireless Configuration Guide
	Cisco access router antenna documentation
	Declarations of Conformity and Regulatory Information for Cisco Access Products with 802.11a/b/g and 802.11b/g Radios
Network management system	Cisco Router and Security Device Manager (SDM) Quick Start Guide
	Network management software documentation
Cisco IOS software	Cisco IOS software documentation , all releases. See the documentation for the Cisco IOS software release installed on your router.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

<http://www.cisco.com/en/US/partner/ordering/>

Cisco Marketplace:

<http://www.cisco.com/go/marketplace/>

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:
<http://www.cisco.com/en/US/partner/ordering/>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.

- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com
- Nonemergencies—psirt@cisco.com



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

<http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on>

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>