



# About Cisco IOS Software Documentation

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**Last Updated: November 20, 2009**

This document describes the objectives, audience, conventions, and organization used in Cisco IOS software documentation. Also included are resources for obtaining technical assistance, additional documentation, and other information from Cisco. This document is organized into the following sections:

- [Documentation Objectives, page i](#)
- [Audience, page i](#)
- [Documentation Conventions, page i](#)
- [Documentation Organization, page iii](#)
- [Additional Resources and Documentation Feedback, page xi](#)

## Documentation Objectives

Cisco IOS documentation describes the tasks and commands available to configure and maintain Cisco networking devices.

## Audience

The Cisco IOS documentation set is intended for users who configure and maintain Cisco networking devices (such as routers and switches) but who may not be familiar with the configuration and maintenance tasks, the relationship among tasks, or the Cisco IOS commands necessary to perform particular tasks. The Cisco IOS documentation set is also intended for those users experienced with Cisco IOS software who need to know about new features, new configuration options, and new software characteristics in the current Cisco IOS release.

## Documentation Conventions

In Cisco IOS documentation, the term *router* may be used to refer to various Cisco products; for example, routers, access servers, and switches. These and other networking devices that support Cisco IOS software are shown interchangeably in examples and are used only for illustrative purposes. An example that shows one product does not necessarily mean that other products are not supported.

This section contains the following topics:

- [Typographic Conventions, page ii](#)
- [Command Syntax Conventions, page ii](#)
- [Software Conventions, page iii](#)
- [Reader Alert Conventions, page iii](#)

## Typographic Conventions

Cisco IOS documentation uses the following typographic conventions:

Convention	Description
^ or Ctrl	Both the ^ symbol and Ctrl represent the Control (Ctrl) key on a keyboard. For example, the key combination <b>^D</b> or <b>Ctrl-D</b> means that you hold down the Control key while you press the D key. (Keys are indicated in capital letters but are not case sensitive.)
<i>string</i>	A string is a nonquoted set of characters shown in italics. For example, when setting a Simple Network Management Protocol (SNMP) community string to <i>public</i> , do not use quotation marks around the string; otherwise, the string will include the quotation marks.

## Command Syntax Conventions

Cisco IOS documentation uses the following command syntax conventions:

Convention	Description
<b>bold</b>	Bold text indicates commands and keywords that you enter as shown.
<i>italic</i>	Italic text indicates arguments for which you supply values.
[x]	Square brackets enclose an optional keyword or argument.
...	An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated.
	A vertical line, called a pipe, that is enclosed within braces or square brackets indicates a choice within a set of keywords or arguments.
[x   y]	Square brackets enclosing keywords or arguments separated by a pipe indicate an optional choice.
{x   y}	Braces enclosing keywords or arguments separated by a pipe indicate a required choice.
[x {y   z}]	Braces and a pipe within square brackets indicate a required choice within an optional element.

## Software Conventions

Cisco IOS software uses the following program code conventions:

Convention	Description
Courier font	Courier font is used for information that is displayed on a PC or terminal screen.
<b>Bold Courier font</b>	Bold Courier font indicates text that the user must enter.
< >	Angle brackets enclose text that is not displayed, such as a password. Angle brackets also are used in contexts in which the italic font style is not supported; for example, ASCII text.
!	An exclamation point at the beginning of a line indicates that the text that follows is a comment, not a line of code. An exclamation point is also displayed by Cisco IOS software for certain processes.
[ ]	Square brackets enclose default responses to system prompts.

## Reader Alert Conventions

Cisco IOS documentation uses the following conventions for reader alerts:



**Caution**

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



**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.



**Timesaver**

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

## Documentation Organization

This section describes the Cisco IOS documentation set, how it is organized, and how to access it on Cisco.com. It also lists the configuration guides, command references, and supplementary references and resources that comprise the documentation set. It contains the following topics:

- [Cisco IOS Documentation Set, page iv](#)
- [Cisco IOS Documentation on Cisco.com, page iv](#)
- [Configuration Guides, Command References, and Supplementary Resources, page v](#)

## Cisco IOS Documentation Set

The Cisco IOS documentation set consists of the following:

- Release notes and caveats provide information about platform, technology, and feature support for a release and describe severity 1 (catastrophic), severity 2 (severe), and select severity 3 (moderate) defects in released Cisco IOS software. Review release notes before other documents to learn whether updates have been made to a feature.
- Sets of configuration guides and command references organized by technology and published for each standard Cisco IOS release.
  - Configuration guides—Compilations of documents that provide conceptual and task-oriented descriptions of Cisco IOS features.
  - Command references—Compilations of command pages in alphabetical order that provide detailed information about the commands used in the Cisco IOS features and the processes that comprise the related configuration guides. For each technology, there is a single command reference that supports all Cisco IOS releases and that is updated at each standard release.
- Lists of all the commands in a specific release and all commands that are new, modified, removed, or replaced in the release.
- Command reference book for **debug** commands. Command pages are listed in alphabetical order.
- Reference book for system messages for all Cisco IOS releases.

## Cisco IOS Documentation on Cisco.com

The following sections describe the organization of the Cisco IOS documentation set and how to access various document types.

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

### New Features List

The New Features List for each release provides a list of all features in the release with hyperlinks to the feature guides in which they are documented.

### Feature Guides

Cisco IOS features are documented in feature guides. Feature guides describe one feature or a group of related features that are supported on many different software releases and platforms. Your Cisco IOS software release or platform may not support all the features documented in a feature guide. See the Feature Information table at the end of the feature guide for information about which features in that guide are supported in your software release.

### Configuration Guides

Configuration guides are provided by technology and release and comprise a set of individual feature guides relevant to the release and technology.

### Command References

Command reference books contain descriptions of Cisco IOS commands that are supported in many different software releases and on many different platforms. The books are organized by technology. For information about all Cisco IOS commands, use the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or the *Cisco IOS Master Command List, All Releases*, at [http://www.cisco.com/en/US/docs/ios/mcl/allreleasemcl/all\\_book.html](http://www.cisco.com/en/US/docs/ios/mcl/allreleasemcl/all_book.html).

### Cisco IOS Supplementary Documents and Resources

Supplementary documents and resources are listed in [Table 2 on page xi](#).

## Configuration Guides, Command References, and Supplementary Resources

[Table 1](#) lists, in alphabetical order, Cisco IOS software configuration guides and command references, including brief descriptions of the contents of the documents. The Cisco IOS command references contain commands for Cisco IOS software for all releases. The configuration guides and command references support many different software releases and platforms. Your Cisco IOS software release or platform may not support all these technologies.

[Table 2](#) lists documents and resources that supplement the Cisco IOS software configuration guides and command references. These supplementary resources include release notes and caveats; master command lists; new, modified, removed, and replaced command lists; system messages; and the debug command reference.

For additional information about configuring and operating specific networking devices, and to access Cisco IOS documentation, go to the Product/Technologies Support area of Cisco.com at the following location:

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

**Table 1** *Cisco IOS Configuration Guides and Command References*

Configuration Guide and Command Reference Titles	Features/Protocols/Technologies
<ul style="list-style-type: none"> <li>• <i>Cisco IOS AppleTalk Configuration Guide</i></li> <li>• <i>Cisco IOS AppleTalk Command Reference</i></li> </ul>	AppleTalk protocol.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Asynchronous Transfer Mode Configuration Guide</i></li> <li>• <i>Cisco IOS Asynchronous Transfer Mode Command Reference</i></li> </ul>	LAN ATM, multiprotocol over ATM (MPoA), and WAN ATM.

**Table 1** Cisco IOS Configuration Guides and Command References (continued)

Configuration Guide and Command Reference Titles	Features/Protocols/Technologies
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i></li> <li>• <i>Cisco IOS Bridging Command Reference</i></li> <li>• <i>Cisco IOS IBM Networking Command Reference</i></li> </ul>	<p>Transparent and source-route transparent (SRT) bridging, source-route bridging (SRB), Token Ring Inter-Switch Link (TRISL), and token ring route switch module (TRRSM).</p> <p>Data-link switching plus (DLSw+), serial tunnel (STUN), block serial tunnel (BSTUN); logical link control, type 2 (LLC2), synchronous data link control (SDLC); IBM Network Media Translation, including Synchronous Data Logical Link Control (SDLLC) and qualified LLC (QLLC); downstream physical unit (DSPU), Systems Network Architecture (SNA) service point, SNA frame relay access, advanced peer-to-peer networking (APPN), native client interface architecture (NCIA) client/server topologies, and IBM Channel Attach.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Broadband Access Aggregation and DSL Configuration Guide</i></li> <li>• <i>Cisco IOS Broadband Access Aggregation and DSL Command Reference</i></li> </ul>	<p>PPP over ATM (PPPoA) and PPP over Ethernet (PPPoE).</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Carrier Ethernet Configuration Guide</i></li> <li>• <i>Cisco IOS Carrier Ethernet Command Reference</i></li> </ul>	<p>Connectivity fault management (CFM), Ethernet Local Management Interface (ELMI), IEEE 802.3ad link bundling, Link Layer Discovery Protocol (LLDP), media endpoint discovery (MED), and Operation, Administration, and Maintenance (OAM).</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Configuration Fundamentals Configuration Guide</i></li> <li>• <i>Cisco IOS Configuration Fundamentals Command Reference</i></li> </ul>	<p>Autoinstall, Setup, Cisco IOS command-line interface (CLI), Cisco IOS file system (IFS), Cisco IOS web browser user interface (UI), basic file transfer services, and file management.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS DECnet Configuration Guide</i></li> <li>• <i>Cisco IOS DECnet Command Reference</i></li> </ul>	<p>DECnet protocol.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Dial Technologies Configuration Guide</i></li> <li>• <i>Cisco IOS Dial Technologies Command Reference</i></li> </ul>	<p>Asynchronous communications, dial backup, dialer technology, dial-in terminal services and AppleTalk remote access (ARA), dial-on-demand routing, dial-out, ISDN, large scale dial-out, modem and resource pooling, Multilink PPP (MLP), PPP, and virtual private dialup network (VPDN).</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Flexible NetFlow Configuration Guide</i></li> <li>• <i>Cisco IOS Flexible NetFlow Command Reference</i></li> </ul>	<p>Flexible NetFlow.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS High Availability Configuration Guide</i></li> <li>• <i>Cisco IOS High Availability Command Reference</i></li> </ul>	<p>A variety of high availability (HA) features and technologies that are available for different network segments (from enterprise access to service provider core) to facilitate creation of end-to-end highly available networks. Cisco IOS HA features and technologies can be categorized in three key areas: system-level resiliency, network-level resiliency, and embedded management for resiliency.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Integrated Session Border Controller Command Reference</i></li> </ul>	<p>A VoIP-enabled device that is deployed at the edge of networks. An SBC is a toolkit of functions, such as signaling interworking, network hiding, security, and quality of service (QoS).</p>

**Table 1 Cisco IOS Configuration Guides and Command References (continued)**

<b>Configuration Guide and Command Reference Titles</b>	<b>Features/Protocols/Technologies</b>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Intelligent Services Gateway Configuration Guide</i></li> <li>• <i>Cisco IOS Intelligent Services Gateway Command Reference</i></li> </ul>	Subscriber identification, service and policy determination, session creation, session policy enforcement, session life-cycle management, accounting for access and service usage, and session state monitoring.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Interface and Hardware Component Configuration Guide</i></li> <li>• <i>Cisco IOS Interface and Hardware Component Command Reference</i></li> </ul>	LAN interfaces, logical interfaces, serial interfaces, virtual interfaces, and interface configuration.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Addressing Services Configuration Guide</i></li> <li>• <i>Cisco IOS IP Addressing Services Command Reference</i></li> </ul>	Address Resolution Protocol (ARP), Network Address Translation (NAT), Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), and Next Hop Address Resolution Protocol (NHRP).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Application Services Configuration Guide</i></li> <li>• <i>Cisco IOS IP Application Services Command Reference</i></li> </ul>	Enhanced Object Tracking (EOT), Gateway Load Balancing Protocol (GLBP), Hot Standby Router Protocol (HSRP), IP Services, Server Load Balancing (SLB), Stream Control Transmission Protocol (SCTP), TCP, Web Cache Communication Protocol (WCCP), User Datagram Protocol (UDP), and Virtual Router Redundancy Protocol (VRRP).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Mobility Configuration Guide</i></li> <li>• <i>Cisco IOS IP Mobility Command Reference</i></li> </ul>	Mobile ad hoc networks (MANet) and Cisco mobile networks.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Multicast Configuration Guide</i></li> <li>• <i>Cisco IOS IP Multicast Command Reference</i></li> </ul>	Protocol Independent Multicast (PIM) sparse mode (PIM-SM), bidirectional PIM (bidir-PIM), Source Specific Multicast (SSM), Multicast Source Discovery Protocol (MSDP), Internet Group Management Protocol (IGMP), and Multicast VPN (MVPN).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: BFD Configuration Guide</i></li> </ul>	Bidirectional forwarding detection (BFD).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: BGP Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: BGP Command Reference</i></li> </ul>	Border Gateway Protocol (BGP), multiprotocol BGP, multiprotocol BGP extensions for IP multicast.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: EIGRP Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: EIGRP Command Reference</i></li> </ul>	Enhanced Interior Gateway Routing Protocol (EIGRP).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: ISIS Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: ISIS Command Reference</i></li> </ul>	Intermediate System-to-Intermediate System (IS-IS).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: ODR Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: ODR Command Reference</i></li> </ul>	On-Demand Routing (ODR).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: OSPF Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: OSPF Command Reference</i></li> </ul>	Open Shortest Path First (OSPF).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: Protocol-Independent Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: Protocol-Independent Command Reference</i></li> </ul>	IP routing protocol-independent features and commands. Generic policy-based routing (PBR) features and commands are included.

**Table 1 Cisco IOS Configuration Guides and Command References (continued)**

<b>Configuration Guide and Command Reference Titles</b>	<b>Features/Protocols/Technologies</b>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Routing: RIP Configuration Guide</i></li> <li>• <i>Cisco IOS IP Routing: RIP Command Reference</i></li> </ul>	Routing Information Protocol (RIP).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP SLAs Configuration Guide</i></li> <li>• <i>Cisco IOS IP SLAs Command Reference</i></li> </ul>	Cisco IOS IP Service Level Agreements (IP SLAs).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP Switching Configuration Guide</i></li> <li>• <i>Cisco IOS IP Switching Command Reference</i></li> </ul>	Cisco Express Forwarding, fast switching, and Multicast Distributed Switching (MDS).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IPv6 Configuration Guide</i></li> <li>• <i>Cisco IOS IPv6 Command Reference</i></li> </ul>	For IPv6 features, protocols, and technologies, go to the IPv6 <a href="#">“Start Here”</a> document.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS ISO CLNS Configuration Guide</i></li> <li>• <i>Cisco IOS ISO CLNS Command Reference</i></li> </ul>	ISO Connectionless Network Service (CLNS).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS LAN Switching Configuration Guide</i></li> <li>• <i>Cisco IOS LAN Switching Command Reference</i></li> </ul>	VLANs, Inter-Switch Link (ISL) encapsulation, IEEE 802.10 encapsulation, IEEE 802.1Q encapsulation, and multilayer switching (MLS).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Mobile Wireless Gateway GPRS Support Node Configuration Guide</i></li> <li>• <i>Cisco IOS Mobile Wireless Gateway GPRS Support Node Command Reference</i></li> </ul>	Cisco IOS Gateway GPRS Support Node (GGSN) in a 2.5-generation general packet radio service (GPRS) and 3-generation universal mobile telecommunication system (UMTS) network.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Mobile Wireless Home Agent Configuration Guide</i></li> <li>• <i>Cisco IOS Mobile Wireless Home Agent Command Reference</i></li> </ul>	Cisco Mobile Wireless Home Agent, an anchor point for mobile terminals for which mobile IP or proxy mobile IP services are provided.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Mobile Wireless Packet Data Serving Node Configuration Guide</i></li> <li>• <i>Cisco IOS Mobile Wireless Packet Data Serving Node Command Reference</i></li> </ul>	Cisco Packet Data Serving Node (PDSN), a wireless gateway that is between the mobile infrastructure and standard IP networks and that enables packet data services in a code division multiple access (CDMA) environment.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Mobile Wireless Radio Access Networking Configuration Guide</i></li> <li>• <i>Cisco IOS Mobile Wireless Radio Access Networking Command Reference</i></li> </ul>	Cisco IOS radio access network products.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Multiprotocol Label Switching Configuration Guide</i></li> <li>• <i>Cisco IOS Multiprotocol Label Switching Command Reference</i></li> </ul>	MPLS Label Distribution Protocol (LDP), MPLS Layer 2 VPNs, MPLS Layer 3 VPNs, MPLS traffic engineering (TE), and MPLS Embedded Management (EM) and MIBs.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Multi-Topology Routing Configuration Guide</i></li> <li>• <i>Cisco IOS Multi-Topology Routing Command Reference</i></li> </ul>	Unicast and multicast topology configurations, traffic classification, routing protocol support, and network management support.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS NetFlow Configuration Guide</i></li> <li>• <i>Cisco IOS NetFlow Command Reference</i></li> </ul>	Network traffic data analysis, aggregation caches, and export features.

**Table 1 Cisco IOS Configuration Guides and Command References (continued)**

Configuration Guide and Command Reference Titles	Features/Protocols/Technologies
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Network Management Configuration Guide</i></li> <li>• <i>Cisco IOS Network Management Command Reference</i></li> </ul>	Basic system management; system monitoring and logging; troubleshooting, logging, and fault management; Cisco Discovery Protocol; Cisco IOS Scripting with Tool Control Language (Tcl); Cisco networking services (CNS); DistributedDirector; Embedded Event Manager (EEM); Embedded Resource Manager (ERM); Embedded Syslog Manager (ESM); HTTP; Remote Monitoring (RMON); SNMP; and VPN Device Manager Client for Cisco IOS software (XSM Configuration).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Novell IPX Configuration Guide</i></li> <li>• <i>Cisco IOS Novell IPX Command Reference</i></li> </ul>	Novell Internetwork Packet Exchange (IPX) protocol.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Optimized Edge Routing Configuration Guide</i></li> <li>• <i>Cisco IOS Optimized Edge Routing Command Reference</i></li> </ul>	Optimized edge routing (OER) monitoring; Performance Routing (PfR); and automatic route optimization and load distribution for multiple connections between networks.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Quality of Service Solutions Configuration Guide</i></li> <li>• <i>Cisco IOS Quality of Service Solutions Command Reference</i></li> </ul>	Traffic queueing, traffic policing, traffic shaping, Modular QoS CLI (MQC), Network-Based Application Recognition (NBAR), Multilink PPP (MLP) for QoS, header compression, AutoQoS, Resource Reservation Protocol (RSVP), and weighted random early detection (WRED).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Command Reference</i></li> </ul>	Access control lists (ACLs); authentication, authorization, and accounting (AAA); firewalls; IP security and encryption; neighbor router authentication; network access security; network data encryption with router authentication; public key infrastructure (PKI); RADIUS; TACACS+; terminal access security; and traffic filters.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide: Securing the Data Plane</i></li> </ul>	Access Control Lists (ACLs); Firewalls: Context-Based Access Control (CBAC) and Zone-Based Firewall; Cisco IOS Intrusion Prevention System (IPS); Flexible Packet Matching; Unicast Reverse Path Forwarding (uRPF); Threat Information Distribution Protocol (TIDP) and TMS.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide: Securing the Control Plane</i></li> </ul>	Control Plane Policing, Neighborhood Router Authentication.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide: Securing User Services</i></li> </ul>	AAA (includes 802.1x authentication and Network Admission Control [NAC]); Security Server Protocols (RADIUS and TACACS+); Secure Shell (SSH); Secure Access for Networking Devices (includes Autosecure and Role-Based CLI access); Lawful Intercept.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide: Secure Connectivity</i></li> </ul>	Internet Key Exchange (IKE) for IPsec VPNs; IPsec Data Plane features; IPsec Management features; Public Key Infrastructure (PKI); Dynamic Multipoint VPN (DMVPN); Easy VPN; Cisco Group Encrypted Transport VPN (GETVPN); SSL VPN.

Table 1 Cisco IOS Configuration Guides and Command References (continued)

Configuration Guide and Command Reference Titles	Features/Protocols/Technologies
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Service Advertisement Framework Configuration Guide</i></li> <li>• <i>Cisco IOS Service Advertisement Framework Command Reference</i></li> </ul>	Cisco Service Advertisement Framework.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Service Selection Gateway Configuration Guide</i></li> <li>• <i>Cisco IOS Service Selection Gateway Command Reference</i></li> </ul>	Subscriber authentication, service access, and accounting.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Software Activation Configuration Guide</i></li> <li>• <i>Cisco IOS Software Activation Command Reference</i></li> </ul>	An orchestrated collection of processes and components to activate Cisco IOS software feature sets by obtaining and validating Cisco software licenses.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Software Modularity Installation and Configuration Guide</i></li> <li>• <i>Cisco IOS Software Modularity Command Reference</i></li> </ul>	Installation and basic configuration of software modularity images, including installations on single and dual route processors, installation rollbacks, software modularity binding, software modularity processes, and patches.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Terminal Services Configuration Guide</i></li> <li>• <i>Cisco IOS Terminal Services Command Reference</i></li> </ul>	DEC, local-area transport (LAT), and X.25 packet assembler/disassembler (PAD).
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Virtual Switch Command Reference</i></li> </ul>	<p>Virtual switch redundancy, high availability, and packet handling; converting between standalone and virtual switch modes; virtual switch link (VSL); Virtual Switch Link Protocol (VSLP).</p> <p><b>Note</b> For information about virtual switch configuration, see the product-specific software configuration information for the Cisco Catalyst 6500 series switch or for the Metro Ethernet 6500 series switch.</p>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Voice Configuration Library</i></li> <li>• <i>Cisco IOS Voice Command Reference</i></li> </ul>	Cisco IOS support for voice call control protocols, interoperability, physical and virtual interface management, and troubleshooting. The library includes documentation for IP telephony applications.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS VPDN Configuration Guide</i></li> <li>• <i>Cisco IOS VPDN Command Reference</i></li> </ul>	Layer 2 Tunneling Protocol (L2TP) dial-out load balancing and redundancy; L2TP extended failover; L2TP security VPDN; multihop by Dialed Number Identification Service (DNIS); timer and retry enhancements for L2TP and Layer 2 Forwarding (L2F); RADIUS Attribute 82 (tunnel assignment ID); shell-based authentication of VPDN users; tunnel authentication via RADIUS on tunnel terminator.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Wide-Area Networking Configuration Guide</i></li> <li>• <i>Cisco IOS Wide-Area Networking Command Reference</i></li> </ul>	Frame Relay; Layer 2 Tunnel Protocol Version 3 (L2TPv3); L2VPN Pseudowire Redundancy; L2VPN Interworking; Layer 2 Local Switching; Link Access Procedure, Balanced (LAPB); and X.25.
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Wireless LAN Configuration Guide</i></li> <li>• <i>Cisco IOS Wireless LAN Command Reference</i></li> </ul>	Broadcast key rotation, IEEE 802.11x support, IEEE 802.1x authenticator, IEEE 802.1x local authentication service for Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), Multiple Basic Service Set ID (BSSID), Wi-Fi Multimedia (WMM) required elements, and Wi-Fi Protected Access (WPA).

Table 2 lists documents and resources that supplement the Cisco IOS software configuration guides and command references.

**Table 2** Cisco IOS Supplementary Documents and Resources

Document Title or Resource	Description
<i>Cisco IOS Master Command List, All Releases</i>	Alphabetical list of all the commands documented in all Cisco IOS releases.
<i>Cisco IOS New, Modified, Removed, and Replaced Commands</i>	List of all the new, modified, removed, and replaced commands for a Cisco IOS release.
<i>Cisco IOS System Message Guide</i>	List of Cisco IOS system messages and descriptions. System messages may indicate problems with your system, may be informational only, or may help diagnose problems with communications lines, internal hardware, or system software.
<i>Cisco IOS Debug Command Reference</i>	Alphabetical list of <b>debug</b> commands including brief descriptions of use, command syntax, and usage guidelines.
Release Notes and Caveats	Information about new and changed features, system requirements, and other useful information about specific software releases; information about defects in specific Cisco IOS software releases.
MIBs	Files used for network monitoring. To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use <a href="#">Cisco MIB Locator</a> .
RFCs	Standards documents maintained by the Internet Engineering Task Force (IETF) that Cisco IOS documentation references where applicable. The full text of referenced RFCs may be obtained at the following URL: <a href="http://www.rfc-editor.org/">http://www.rfc-editor.org/</a>

## Additional Resources and Documentation Feedback

*What's New in Cisco Product Documentation* is released monthly and describes all new and revised Cisco technical documentation. The *What's New in Cisco Product Documentation* publication also provides information about obtaining the following resources:

- Technical documentation
- Cisco product security overview
- Product alerts and field notices
- Technical assistance

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