

Standards Supported in Cisco IOS Software Release 12.0/12.0T

IOS Product Marketing

This product bulletin lists the major industry standards supported by Cisco IOS[®] software through releases 12.0, 12.0S, and 12.0T. It is arranged in reverse chronological order, each section beginning with the most recent standards supported. Note that, given the evolving nature of the standardization procedures, this document may not reflect specific drafts or revisions of particular standards. Questions of this nature or regarding standards not shown below should be directed to the appropriate IOS[™] product marketing manager.

IETF Requests for Comments (RFCs)

The full text for each RFC may be obtained from the World Wide Web at: <http://www.rfc-editor.org/>

Table 1 IETF RFCs supported in Cisco IOS software

Standard Number	Standard Title
RFC 2364	PPP over ATM AAL5
RFC 2332	NBMA Next Hop Resolution Protocol (NHRP)
RFC 2283	Multiprotocol Extensions for BGP-4
RFC 2328	OSPF Version 2
RFC 2281	Cisco Hot Standby Router Protocol (HSRP)
RFC 2275	View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
RFC 2274	User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
RFC 2273	SNMPv3 Applications
RFC 2272	Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
RFC 2271	An Architecture for Describing SNMP Management Frameworks
RFC 2236	Internet Group Management Protocol, Version 2
RFC 2206	RSVP Management Information Base Using SMIv2
RFC 2205	Resource ReSerVation Protocol (RSVP)
RFC 2166	DLSw + V2
RFC 2125	PPP Bandwidth Allocation Protocol (BAP) The PPP Bandwidth Allocation Control Protocol (BACP)
RFC 2127	ISDN Management Information Base Using SMIv2
RFC 2118	Microsoft Point-to-Point Compression (MPPC) Protocol
RFC 2117	Protocol Independent Multicast-Sparse Mode (PIM-SM) - Protocol Specification
RFC 2091	Triggered Extensions to RIP to Support Demand Circuits

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Standard Number	Standard Title
RFC 2037	Entity MIB, Phase I
RFC 2024	DLSw + MIB Enhancements
RFC 2022	IP Multicast over ATM Point-to-Multipoint VCs
RFC 2018	TCP Selective Acknowledgment
RFC 2012	SNMP 2C
RFC 2006	The Definitions of Managed Objects for IP Mobility Support Using SMIv2
RFC 2003	IP Encapsulation within IP
RFC 2002	IP Mobility Support
RFC 1997	BGP Communities Attribute
RFC 1974	LZS STAC Compression
RFC 1973	PPP in Frame Relay
RFC 1967	PPP LZS-DCP Compression Protocol (LZS-DCP)
RFC 1966	BGP Route Reflection
RFC 1962	The PPP Compression Control Protocol (CCP)
RFC 1918	Address Allocation for Private Internets
RFC 1829	The ESP DES-CBC Transform
RFC 1828	IP Authentication Using Keyed MD5
RFC 1827	IP Encapsulating Security Payload (ESP)
RFC 1826	IP Authentication Header
RFC 1825	Security Architecture for Internet Protocol
RFC 1812	Requirements for IP Version 4 Routers
RFC 1795 (makes RFC 1434 obsolete)	Data Link Switching(DLSw): Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Version 1.0
RFC 1793	Extending OSPF to Support Demand Circuits
RFC 1771 (supersedes RFC 1654)	A Border Gateway Protocol (BGP-4)
RFC 1757 (supersedes RFC 1271)	Remote Network Monitoring (RMON) Management Information Base
RFC 1755	ATM Signaling Support for IP over ATM
RFC 1745	BGP4/IDRP for IP—OSPF Interaction
RFC 1724	RIP Version 2 MIB Extension
RFC 1723	RIP Version 2 Carrying Additional Information
RFC 1722	RIP Version 2 Protocol Applicability Statement
RFC 1717	The PPP Multilink Protocol (MP)
RFC 1701	Generic Route Encapsulation (GRE)
RFC 1702	Generic Routing Encapsulation over IPv4 networks
RFC 1695	Definitions of Management Objects for ATM Management Version 8.0 Using SMIv2
RFC 1662 (bit-oriented/async only)	PPP in HDLC-like Framing
RFC 1661	PPP (Point-to-Point Protocol)
RFC 1657	Definitions of Managed Objects for Version 4 of the Border Gateway Protocol (BGP-4) Using SMIv2
RFC 1647	TN3270 Enhancements
RFC 1646 (LU Name Selection only)	TN3270 Extensions for LUname and Printer Selection
RFC 1638	PPP Bridging Control Protocol (BCP)
RFC 1634 (supersedes 1362 and 1551)	Novell Routing over Various WAN Media (IPXWAN)
RFC 1631	The IP Network Address Translator (NAT)
RFC 1619	PPP over SONET
RFC 1618	PPP over ISDN
RFC 1613	X.25 over TCP, XOT

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Standard Number	Standard Title
RFC 1593	SNA APPN Node MIB
RFC 1587	The OSPF NSSA Option
RFC 1583 (supersedes 1247)	OSPF Version 2
RFC 1577	Classical IP and ARP over ATM
RFC 1576	TN3270 Current Practices
RFC 1573	Evolution of the Interfaces Group of MIB-II
RFC 1570	PPP LCP Extensions
RFC 1559	DECnet Phase IV MIB Extensions
RFC 1553	Compressing IPX Headers over WAN Media (CIPX)
RFC 1552	The PPP Internetwork Packet Exchange Control Protocol (IPXCP)
RFC 1549	PPP in HDLC Framing
RFC 1548	The Point-to-Point Protocol (PPP)
RFC 1542 (BOOTP relay agent)	Clarifications and Extensions for the Bootstrap Protocol
RFC 1531	Dynamic Host Configuration Protocol, Easy IP
RFC 1519	Classless Inter-Domain Routing(CIDR): an Address Assignment and Aggregation Strategy
RFC 1512 (supersedes RFC 1285)	FDDI Management Information Base
RFC 1510	The Kerberos Network Authentication Service (V5)
RFC 1497	BOOTP Vendor Extensions
RFC 1493 (supersedes RFC 1286)	Definitions of Managed Objects for Bridges
RFC 1492	Access Control Protocol or TACACS
RFC 1490	Multiprotocol Interconnect over Frame Relay (Annex G—X.25 encapsulation over Frame Relay)
RFC 1483	Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 1469	IP Multicast over Token Ring LANs
RFC 1450	MIB for SNMP Version 2
RFC 1449	Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1448	Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1447	Party MIB for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1445	Administrative Model for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1444	Conformance Statements for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1413	Identification Protocol
RFC 1406	Definitions of Managed Objects for the DS1 and E1 Interface Types
RFC 1403	BGP OSPF Interaction
RFC 1398	Definitions of Managed Objects for Ethernet-Like Interface Types
RFC 1395	BOOTP Extensions
RFC 1393	Traceroute Using an IP Option
RFC 1390	Transmission of IP and ARP over FDDI Networks
RFC 1382	SNMP MIB Extension for X.25 Packet Layer
RFC 1381	SNMP MIB Extension for X.25 LAPB
RFC 1378 (partial support)	PPP AppleTalk Control Protocol (ATCP)
RFC 1377	PPP OSI Network Layer Control Protocol (OSINLCP)
RFC 1376	PPP DECnet Phase IV Control Protocol (DNCP)
RFC 1370	Applicability Statement for OSPF
RFC 1362	Novell IPX Over Various WAN Media (IPXWAN)
RFC 1356	Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode
RFC 1350	TFTP Version 2

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Standard Number	Standard Title
RFC 1349	Type of Service in the Internet Protocol Suite
RFC 1348	DNS NSAP RRs
RFC 1334	PPP Authentication Protocols
RFC 1333	PPP Link Quality Monitoring
RFC 1332	PPP Internet Protocol Control Protocol (IPCP)
RFC 1331 (replaced by RFC 1548)	PPP for the Transmission of Multiprotocol Datagrams over Point-to-Point Links
RFC 1323	TCP Timestamp
RFC 1321	The MD5 Message-Digest Algorithm
RFC 1317	Definitions of Managed Objects for RS-232-like Hardware Devices
RFC 1315 (partial support)	MIB for Frame Relay DTEs
RFC 1305	Network Time Protocol (NTP) Version 3
RFC 1293	Inverse ARP
RFC 1286	Definitions of Managed Objects for Bridges
RFC 1268	Application of BGP in the Internet
RFC 1256	ICMP Router Discovery Messages
RFC 1253	MIB for OSPF Version 2
RFC 1243	AppleTalk Management Information Base
RFC 1236	IP to X.121 Address Mapping for DDN
RFC 1234	Tunneling IPX Traffic through IP Networks
RFC 1231 (partial support)	IEEE 802.5 Token Ring MIB
RFC 1220	Point-to-Point Protocol (PPP) Extensions for Bridging
RFC 1215	Convention for Defining Traps for Use with SNMP
RFC 1213	Management Information Base for Network Management of TCP/IP-Based Internets: MIB-II
RFC 1212	Concise MIB Definitions.
RFC 1209	Transmission of IP Datagrams over SMDS Service
RFC 1196	Finger User Information Protocol
RFC 1195	Use of OSI IS-IS for Routing in TCP/IP in Dual Environments
RFC 1191	Path MTU Discovery
RFC 1172	PPP Initial Configuration Options
RFC 1157	Simple Network Management Protocol (SNMP)
RFC 1144	Compressing TCP/IP Headers for Low-Speed Serial Links
RFC 1144	TCP/IP Header Compression (Van Jacobson Method)
RFC 1141	Incremental Updating of the Internet Checksum
RFC 1139	Echo Function for ISO 8473 (PING)
RFC 1136	Administrative Domains and Routing Domains: A Model for Routing in the Internet
RFC 1122	Requirements for Internet Hosts—Communication Layers
RFC 1112	Host Extensions for IP Multicasting
RFC 1108 (DCA Draft)	IP Security Option (IPSO)
RFC 1101	DNS Encoding of Network Names and Other Types
RFC 1091	Telnet Terminal-Type Option
RFC 1084	BOOTP Extensions
RFC 1080	Telnet Remote Flow Control Option
RFC 1079	Telnet Terminal Speed Option
RFC 1075	Distance Vector Multicast Routing Protocol
RFC 1070	Use of the Internet as a Subnetwork for Experimentation with the OSI Network Layer

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Standard Number	Standard Title
RFC 1069	Guidelines for the Use of Internet-IP Addresses in the ISO Connectionless-Mode Network Protocol
RFC 1058	Routing Information Protocol (RIP)
RFC 1055	Standard for the Transmission of IP Datagrams over Serial Lines: SLIP
RFC 1042	Standard for the Transmission of IP Datagrams over IEEE 802 Networks
RFC 1035	Domain Names—Implementation and Specification
RFC 1034	Domain Names—Concepts and Facilities
RFC 1027	Using ARP to Implement Transparent Subnet Gateways (Proxy ARP)
RFC 995 (replaced by ISO 9542)	ES-to-IS Routing Exchange Protocol for Use in Conjunction with ISO 8473
RFC 994 (replaced by ISO 8473)	Protocol for Providing the Connectionless-Mode Network Service
RFC 982	Guidelines for the Specification of the Top of the Structure of the Domain Specific Part (DSP) of the ISO standard NSAP address
RFC 951	Bootstrap Protocol (BootP)
RFC 950	Internet standard Subnetting Procedure
RFC 925	Multi-LAN Address Resolution (PROXY ARP)
RFC 922	Broadcasting Internet Datagrams in the Presence of Subnets (IP_BROAD)
RFC 919	Broadcasting Internet datagrams
RFC 906	Bootstrap Loading Using TFTP
RFC 904	Exterior Gateway Protocol (EGP) Formal Specification
RFC 903	Reverse Address Resolution Protocol (RARP)
RFC 896	Congestion Control in TCP/IP Internetworks
RFC 895	Standard for the Transmission of IP Datagrams over Experimental Ethernet Networks
RFC 894	Standard for the Transmission of IP Datagrams over Ethernet
RFC 891	Hello Protocol
RFC 879	The TCP Maximum Segment Size and Related Topics
RFC 877	Standard for the Transmission of IP Datagrams over Public Data Networks
RFC 874	Telnet Protocol Specification
RFC 863	Discard Service (TCP Discard)
RFC 862	Echo Service (TCP Echo)
RFC 860	Telnet Timing Mark Option
RFC 858	Telnet Suppress Go Ahead Option
RFC 857	Telnet Echo Option
RFC 856	Telnet Binary Transmission
RFC 855	Telnet Option Specification
RFC 854 (MIL STD 1782)	Telnet Protocol Specification
RFC 827	Exterior Gateway Protocol (EGP)
RFC 826	Address Resolution Protocol (ARP)
RFC 815	IP Datagram Reassembly Algorithms
RFC 813	Window and Acknowledgment Strategy in TCP/IP
RFC 793 (MIL STD 1778)	Transmission Control Protocol (TCP)
RFC 792	Internet Control Message Protocol (ICMP)
RFC 791 (MIL STD 1777)	Internetwork Protocol (IP)
RFC 783	Trivial File Transfer Protocol (TFTP) (Version 2)
RFC 779	Telnet Send-Location Option
RFC 768	User Datagram Protocol (UDP)

ATM Forum Standards

The full text for each standard may be obtained from the World Wide Web at: <http://www.atmforum.com>

Table 2 ATM Forum standards supported in Cisco IOS software

LMI (Integrated Local Management Interface)	ILMI 4.0 (af-ilmi-0065.000)
User-to-Network Interface	UNI 3.0 and 3.1 (af-uni-0010.002)
LAN Emulation (Version 2)	Ethernet and Token Ring (af-lane-0021.000)
Multiprotocol over ATM (Version 1)	MPOA (af-mpoa-0087.000)
Private Network-Network Interface	PNNI Version 1 (af-pnni-0055.000)
Frame-based User-to-Network Interface	FUNI

IEEE Standards

The full text for each standard may be obtained from the World Wide Web at: <http://www.ieee.com>

Table 3 IEEE standards supported in Cisco IOS software

802.1	LAN/MAN bridging and management
802.1Q	Virtual LANs
802.5	Token ring access method and physical layer specification
802.10	IEEE standards for local and metropolitan-area networks: interoperable LAN/MAN security (SILS)

Frame Relay Forum Standards

The full text for each standard may be obtained from the World Wide Web at: <http://www.frforum.com>

Frame Relay Forum standards supported in Cisco IOS software:

User-to-Network (UNI) Implementation Agreement—FRF.1.1

Frame Relay Network-to-Network (NNI) Implementation Agreement Version 2.1—FRF.2.1

Multiprotocol Encapsulation Implementation Agreement (MEI)—FRF.3.1

Switched Virtual Circuit Implementation Agreement (SVC)—FRF.4

Data Compression over Frame Relay Implementation Agreement —FRF.9

Voice over Frame Relay Implementation Agreement—FRF.11

Frame Relay Fragmentation Implementation Agreement—FRF.12

Frame Relay Forum Implementation Agreement FRF.11 for Data Compression

CCITT Standards

CCITT standards supported in Cisco IOS Software

X.3—ITU-T/CCITT 1993 mandatories

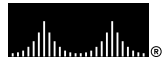
X.25—ITU-T/CCITT 1993

X.28—ITU-T/CCITT 1993

X.29—ITU-T/CCITT 1993

X.31—X.25 on ISDN

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