

Standards Supported in Cisco IOS Software Release 12.1/12.1T

IOS Product Management

This product bulletin lists the major industry standards supported by Cisco IOS® software through releases 12.1, 12.0S, and 12.1T. It is arranged in reverse chronological order, each section beginning with the ones most recently 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 regarding standards not shown below should be directed to the appropriate IOS product 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 **Table 1: IETF RFCs supported in Cisco IOS software**

RFC Number	Remarks	RFC Title
RFC 2796	Updates RFC 1966	BGP Route Reflection
RFC 2598		An Expedited Forwarding PHB
RFC 2597		Assured Forwarding PHB Group
RFC 2547		BGP/MPLS VPNs
RFC 2475		An Architecture for Differentiated Service
RFC 2474		Definition of the Differentiated Service Field (DS Field)
RFC 2453	Obsoletes RFC 1723	RIP Version 2
RFC 2439		BGP Route Flap Damping
RFC 2427		Multiprotocol Interconnect over Frame Relay
RFC 2390		Inverse Address Resolution Protocol
RFC 2370		The OSPF Opaque LSA Option
RFC 2365		(also BCP0023) Administratively Scoped IP Multicast
RFC 2364		PPP over ATM AAL5
RFC 2362	Obsoletes RFC2117	Protocol Independent Multicast-Sparse Mode (PIM-SM)
RFC 2337		Intra-LIS IP Multicast among routers over ATM using Sparse Mode PIM
RFC 2332		NBMA Next Hop Resolution Protocol (NHRP)
RFC 2328	Obsoletes RFC 2178	OSPF Version 2
RFC 2327		SDP: Session Description Protocol
RFC 2283		Multiprotocol Extensions for BGP-4

RFC Number	Remarks	RFC Title
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 2131	Obsoletes RFC 1541	Dynamic Host Configuration Protocol
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 2115		Management Information Base for Frame Relay DTEs
RFC 2091		Triggered Extensions to RIP to Support Demand Circuits
RFC 2037		Entity MIB, Phase I
RFC 2024		DLSw + MIB Enhancements
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 1889		RTP: A Transport for Real-Time Applications
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 Number	Remarks	RFC Title
RFC 1745		BGP4/IDRP for IP---OSPF Interaction
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 SMIPv2
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 SMIPv2
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
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 1534		Interoperation between DHCP and BOOTP
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 Number	Remarks	RFC Title
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
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 Number	Remarks	RFC Title
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	Interoperate	Distance Vector Multicast Routing Protocol
RFC 1070		Use of the Internet as a Subnetwork for Experimentation with the OSI Network Layer
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 Number	Remarks	RFC Title
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)

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

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:

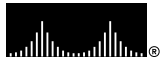
- User-to-Network (UNI) Implementation Agreement---FRF.1.2
- Frame Relay Network-to-Network (NNI) Implementation Agreement Version 2.1---FRF.2.1
- Multiprotocol Encapsulation Implementation Agreement (MEI)---FRF.3.2
- SVC User-to-Network Interface (UNI) Implementation Agreement---FRF.4.1
- Frame Relay / ATM Network Internetworking Implementation Agreement---FRF.5
- Frame Relay / ATM PVC Service Internetworking Implementation Agreement---FRF.8.1
- 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

CISCO SYSTEMS



Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems Europe s.a.r.l.
Parc Evolic, Batiment L1/L2
16 Avenue du Quebec
Villebon, BP 706
91961 Courtaboeuf Cedex
France
<http://www-europe.cisco.com>
Tel: 33 1 69 18 61 00
Fax: 33 1 69 28 83 26

Americas

Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-7660
Fax: 408 527-0883

Asia Headquarters

Nihon Cisco Systems K.K.
Fuji Building, 9th Floor
3-2-3 Marunouchi
Chiyoda-ku, Tokyo 100
Japan
<http://www.cisco.com>
Tel: 81 3 5219 6250
Fax: 81 3 5219 6001

Cisco Systems has more than 200 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the Cisco Connection Online Web site at <http://www.cisco.com/offices>.

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