



# Start Here: Cisco IOS Software Release Specifics for IPv6 Features

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This document lists the IP version 6 (IPv6) features supported in the 12.0S, 12.xT, 12.2S family, 12.3, 12.4, and 15.0M Cisco IOS software release trains.

The IPv6 for Cisco IOS software feature documentation provides implementation and command reference information for IPv6 features supported in the Cisco IOS software. This Start Here document details only the Cisco IOS software release specifics for IPv6 features. Not all IPv6 features may be supported in your Cisco IOS software release. We strongly recommend that you read this entire document before reading the other IPv6 for Cisco IOS software feature documentation.

## Finding Feature Information

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.

The *Cisco IOS IPv6 Configuration Guide* is located at the following website:

<http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide>

The *Cisco IOS IPv6 Command Reference* is located at the following website:

<http://www.cisco.com/en/US/docs/ios/ipv6/command/reference>

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# Cisco IOS Software Platform Dependencies and Restrictions

IPv6 features are supported in the 12.0S, 12.xT, 12.2S, 12.2SB, 12.2SE, 12.2SG, 12.2SR, 12.2SX, 12.3, 12.4, and 15.0M Cisco IOS software release trains, starting at Cisco IOS Release 12.0(22)S, 12.2(2)T, 12.2(14)S, 12.2(28)SB, 12.2(25)SEA, 12.2(33)SRA, 12.2(17a)SX1, 12.3, 12.4, and 15.0(1)M, respectively. See [Table 1](#) to determine which IPv6 features are supported in each release of the Cisco IOS software trains.

- IPv6 was introduced on the 12.0(21)ST Cisco IOS software release train, which was merged with the 12.0S Cisco IOS software release train starting at Cisco IOS Release 12.0(22)S. The 12.0S Cisco IOS software release train provides IPv6 support on Cisco 12000 series Internet routers and Cisco 10720 Internet routers only.
- The 12.2S Cisco IOS release train comprises a family of release trains, each supporting different platforms as follows:
  - The 12.2SB Cisco IOS release train comprises the Cisco 10000, 7304, 7301, and 7200 series. As of Cisco IOS Release 12.2(33)SB, the Cisco 7200 and 7301 series are not supported on the 12.2SB release train.
  - The 12.2SE Cisco IOS release train consists of the Cisco Catalyst 3560, 3750, 3560E, and 3750E series.
  - The 12.2SG Cisco IOS release train consists of the Cisco Catalyst 4500 and Cisco Catalyst 4900 series.
  - The 12.2SR Cisco IOS release train consists of the Cisco 7600 and 7200 series routers.
  - The 12.2SX Cisco IOS release train consists of the Cisco Catalyst 6500. Before the 12.2SR Cisco IOS release train, the 12.2SX release train also included the Cisco 7600 series.
- The 15.0MS Cisco IOS release train is a continuation of the 12.2, 12.3, and 12.4 Cisco IOS release trains.
- IPv6 is also supported in some special software release trains.

## Cisco IOS IPv6 Features and Supported Software Releases

[Table 1](#) lists the IPv6 features supported in the 12.0S, 12.xT, 12.2S, 12.2SB, 12.2SR, 12.2SX, 12.3, 12.4, and 15.0M Cisco IOS software release trains.



### Note

[Table 1](#) identifies the earliest release for each software release train in which the feature became available. Unless noted otherwise in [Table 1](#), subsequent releases of that Cisco IOS software release train also support that feature.

**Table 1**      **Supported IPv6 Feature**

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
<b>IPv6</b>		(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6 address types: Unicast	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28)	(25)SEA	—	(33)SRA	(17a)SX1
IPv6: uRPF	Implementing IPv6 Addressing and Basic Connectivity	(31)	—	—	—	—	—	—	—
IPv6: ICMPv6	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28) <sup>1</sup>	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: IPv6 neighbor discovery	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: IPv6 stateless autoconfiguration	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28)	—	(25)	(33)SRA	(17a)SX1
IPv6: IPv6 MTU path discovery	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: ping	Implementing IPv6 for Network Management	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: Telnet, DNS, TFTP client, traceroute	Implementing IPv6 Addressing and Basic Connectivity, Implementing IPv6 for Network Management	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6: ICMPv6 redirect	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(4)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: ICMP rate limiting	Implementing IPv6 Addressing and Basic Connectivity	—	12.2(8)	12.3	—	—	—	—	—
IPv6: neighbor discovery duplicate address detection	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(4)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6: IPv6 static cache entry for neighbor discovery	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(8)	12.3	(28)	(25)SEA	—	(33)SRA	(17a)SX1
IPv6 address types: Anycast	Implementing IPv6 Addressing and Basic Connectivity	—	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6: NetFlow for IPv6 unicast traffic	Implementing NetFlow for IPv6	—	12.3(7)	12.4	—	—	—	(33)SRB	(33)SXH
IPv6: NetFlow: Flexible NetFlow for IPv6 replaces IPv6 NetFlow	Implementing NetFlow for IPv6	—	12.4(20)	—	—	—	—	—	—
IPv6: Mobile IPv6 home agent	Implementing Mobile IPv6	—	12.3(14)	12.4	—	—	—	—	—
IPv6: IPv6 default router preferences	Implementing IPv6 Addressing and Basic Connectivity	—	12.4(2)	—	(33)	—	—	(33)SRA	(33)SXH
IPv6: IPv6 ACL extensions for Mobile IPv6	Implementing Mobile IPv6	—	12.4(2)	—	—	—	—	(33)SRB	(33)SXI

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6: Mobile IP—Mobile v6—Basic NEMO	<a href="#">Implementing Mobile IPv6</a>	—	12.4(20)	—	—	—	—	—	—
IPv6: IP Receive ACL for IPv6 traffic	<a href="#">IP Receive ACL</a>	(32)	—	—	—	—	—	—	—
IPv6: syslog over IPv6	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(4)	—	(33)	—	—	(33)SRB	(33)SXI
IPv6: IPv6 VPN over MPLS	<a href="#">Implementing IPv6 VPN over MPLS</a>	—	12.4(20)	—	(33)	—	—	(33)SRB	(33)SXI
IPv6: MPLS VPN 6VPE support over IP tunnels	<a href="#">Implementing IPv6 VPN over MPLS (6VPE)</a>	—	—	—	—	—	—	(33)SRB1	(33)SXI
IPv6: CNS agents for IPv6	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—
IPv6: IP SLAs for IPv6	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—
IPv6: IPv6 for config logger	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—
IPv6: IPv6 Netconf support	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—
IPv6: IPv6 support for TCL	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	—	—	—	(33)SRC	—
IPv6: IPv6 support in SOAP	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—
IPv6: HTTP(S) IPv6 support (Infrastructure)	<a href="#">Implementing IPv6 for Network Management</a>	—	12.4(20)	—	(33)	—	—	(33)SRC	—

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6: no ipv6 source-route command	<a href="#">Cisco IOS IPv6 Command Reference</a>	—	12.3(4)	12.4	—	—	—	(33)SRB1	—

**IPv6 Switching Services**

IPv6 switching: automatic 6to4 tunnels	<a href="#">Implementing Tunneling for IPv6</a>	(22) <sup>2</sup>	12.2(2)	12.3	(28)SB	—	—	(33)SRA	(17a)SX1
IPv6 switching: Cisco Express Forwarding/distributed Cisco Express Forwarding support	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(13)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6 switching: CEFv6 switched configured IPv6 over IPv4 tunnels	<a href="#">Implementing Tunneling for IPv6</a>	—	12.2(13)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 switching: provider edge router over MPLS (6PE) <sup>3 4</sup>	<a href="#">Implementing IPv6 over MPLS</a>	(22)	12.2(15)	12.3	(31)	—	—	(33)SRA	(17b)SXA
IPv6 switching: CEFv6 switched ISATAP tunnels	<a href="#">Implementing Tunneling for IPv6</a>	—	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(17a)SX1
IPv6 switching: CEFv6 switched automatic IPv4-compatible tunnels	<a href="#">Implementing Tunneling for IPv6</a>	—	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(17a)SX1

**IPv6 Routing**

IPv6 routing: RIP for IPv6 (RIPng)	<a href="#">Implementing RIP for IPv6</a>	(22)	12.2(2) <sup>5</sup>	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
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Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 routing: static routing	<a href="#">Implementing Static Routes for IPv6</a>	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6 routing: route redistribution	<a href="#">Implementing IS-IS for IPv6, Implementing RIP for IPv6</a>	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(18)SXE
IPv6 routing: multiprotocol BGP extensions for IPv6	<a href="#">Implementing Multiprotocol BGP for IPv6</a>	(22)	12.2(2) <sup>6</sup>	12.3	(28)	—	(25)	(33)SRA	(17a)SX1
IPv6 routing: multiprotocol BGP link-local address peering	<a href="#">Implementing Multiprotocol BGP for IPv6</a>	(22)	12.2(4)	12.3	(28)	—	(25)	(33)SRA	(17a)SX1
IPv6 routing: IS-IS support for IPv6	<a href="#">Implementing IS-IS for IPv6</a>	(22)	12.2(8)	12.3	(28)	—	(25)	(33)SRA	(17a)SX1
IPv6 routing: IS-IS multitopology support for IPv6	<a href="#">Implementing IS-IS for IPv6</a>	(26)	12.2(15)	12.3	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 routing: OSPF for IPv6 (OSPFv3)	<a href="#">Implementing OSPF for IPv6</a>	(24)	12.2(15)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6 routing: OSPF for IPv6 authentication support with IPsec	<a href="#">Implementing OSPF for IPv6</a>	—	12.3(4)	12.4	—	—	—	—	—
IPv6 Routing: OSPF IPv6 (OSPFv3) IPsec ESP Encryption and Authentication	<a href="#">Implementing OSPF for IPv6</a>	—	12.4(9)	—	—	—	—	—	—
OSPFv3 dynamic interface cost support	<a href="#">Implementing OSPF for IPv6</a>	—	12.4(15)	—	—	—	—	—	—
IPv6 routing: IPv6 policy-based routing	<a href="#">Implementing Policy-Based Routing for IPv6</a>	—	12.3(7)	12.4	—	—	—	—	—

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 routing: EIGRP support	Implementing EIGRP for IPv6	—	12.4(6)	—	—	(40)SE	—	(33)SRB	(33)SXI
IPv6 routing: OSPFv3 Fast Convergence - LSA and SPF throttling	Implementing OSPF for IPv6	—	—	15.0(1)M	(33)	—	—	(33)SRC	—
OSPFv3 for BFD	Implementing OSPF for IPv6, Implementing Bidirectional Forwarding Detection for IPv6	—	—	—	—	—	—	(33)SRE	—
BFD IPv6 Encapsulation Support	Implementing Bidirectional Forwarding Detection for IPv6	—	—	—	—	—	—	(33)SRE	—

### IPv6 Services and Management

IPv6 services: AAAA DNS lookups over an IPv4 transport	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(17a)SX1
IPv6 services: standard access control lists	Implementing Traffic Filters and Firewalls for IPv6 Security	(22)	12.2(2)	12.3	(28)	(25)SED	(25)	(33)SRA	(17a)SX1
IPv6 services: IPv6 ACL extensions for IPsec authentication header	Implementing Traffic Filters and Firewalls for IPv6 Security	—	12.4(20)	—	—	—	—	—	—
IPv6 services: DNS lookups over an IPv6 transport	Implementing IPv6 Addressing and Basic Connectivity	(22)	12.2(8)	12.3	(28)	(25)SED	(25)	(33)SRA	(17a)SX1
IPv6 services: Secure Shell (SSH) support over IPv6	Implementing IPv6 for Network Management	(22)	12.2(8)	12.3	(28)	(25)SEE	(25)	(33)SRA	(17a)SX1

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 services: Cisco Discovery Protocol—IPv6 address family support for neighbor information	Implementing IPv6 Addressing and Basic Connectivity	—	12.2(8)	12.3	(28)	(25)SEE	(25)	(33)SRA	(18)SXE
IPv6 services: CISCO-IP-MIB support	Implementing IPv6 for Network Management	(22)	12.2(15)	12.3	(28)	(25)SEE	(25)	(33)SRA	(18)SXE
IPv6 services: CISCO-IP-FORWARDING-MIB support	Implementing IPv6 for Network Management	(22)	12.2(15)	12.3	(28)	(25)SEE	(25)	(33)SRA	(18)SXE
IPv6 services: IP tunnel MIB support	Implementing IPv6 Addressing and Basic Connectivity	—	—	—	—	—	—	(33)SRB	—
IPv6 services: RFC 4293 IP-MIB (IPv6 only) and RFC 4292 IP-FORWARD-MIB (IPv6 only)	Implementing IPv6 for Network Management	—	—	—	(33)	—	—	(33)SRC	—
IPv6 services: extended access control lists <sup>4</sup>	Implementing Traffic Filters and Firewalls for IPv6 Security	(23)	12.2(13)	12.3	(28)	(25)SED	(25)	(33)SRA	(17a)SX1
IPv6 services: generic prefix	Implementing IPv6 Addressing and Basic Connectivity	—	12.3(4)	12.4	—	—	—	—	—
IPv6 services: SNMP over IPv6 <sup>7</sup>	Implementing IPv6 for Network Management	(27)	12.3(14)	12.4	(33)	—	—	(33)SRB	(33)SXI
SNMPv3 - 3DES and AES Encryption Support	Implementing IPv6 for Network Management	—	12.4(2)	—	(33)	—	—	(33)SRB	(33)SXI

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 services: IPv6 IOS Firewall	<a href="#">Implementing Traffic Filters and Firewalls for IPv6 Security</a>	—	12.3(7)	12.4	—	—	—	—	—
IPv6 services: IPv6 IOS Firewall FTP application support	<a href="#">Implementing Traffic Filters and Firewalls for IPv6 Security</a>	—	12.3(11)	—	—	—	—	—	—
IPv6 services: IPv6 IPsec VPN	<a href="#">Implementing IPsec in IPv6 Security</a>	—	12.4(4)	—	—	—	—	—	—
IPv6 Secure Neighbor Discovery (SeND)	<a href="#">Implementing Secure Neighbor Discovery in IPv6</a>	—	12.4(24)	—	—	—	—	—	—
IPv6 services: IPv6 over DMVPN	<a href="#">Implementing Dynamic Multipoint VPN over IPv6</a>	—	12.4(20)	—	—	—	—	—	—
IPv6 services: HSRP for IPv6	<a href="#">Configuring First Hop Redundancy Protocols in IPv6</a>	—	12.4(4)	—	—	—	—	(33)SRB	(33)SXI
IPv6 services: FHRP - GLBP for IPv6	<a href="#">Configuring First Hop Redundancy Protocols in IPv6</a>	—	12.4(6)	—	—	—	—	—	(33)SXI
IPv6 over Frame Relay	<a href="#">Implementing IPv6 over Frame Relay</a>	(33)	—	—	—	—	—	—	—
NTPv4 in IPv6	<a href="#">Implementing NTPv4 in IPv6</a>	—	12.4(20)	—	—	—	—	—	—

**IPv6 Broadband Access**

IPv6 access services: PPPoA	<a href="#">Implementing ADSL and Deploying Dial Access for IPv6</a>	—	12.2(13)	12.3	—	—	—	(33)SRC <sup>8</sup>	—
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Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 access services: PPPoE	Implementing ADSL and Deploying Dial Access for IPv6	—	12.2(13)	12.3	—	—	—	(33)SRC <sup>8</sup>	—
IPv6 access services: prefix pools	Implementing ADSL and Deploying Dial Access for IPv6	—	12.2(13)	12.3	—	—	—	(33)SRC <sup>8</sup>	—
IPv6 access services: AAA support for Cisco VSA IPv6 attributes	Implementing ADSL and Deploying Dial Access for IPv6	—	12.2(13)	12.3	—	—	—	(33)SRC <sup>8</sup>	—
IPv6 access services: remote bridged encapsulation	Implementing IPv6 Addressing and Basic Connectivity	—	12.3(4)	12.4	—	—	—	(33)SRC <sup>8</sup>	—
IPv6 access services: AAA support for RFC 3162 IPv6 RADIUS attributes	Implementing ADSL and Deploying Dial Access for IPv6	—	12.3(4)	12.4	—	—	—	(33)SRC <sup>8</sup>	—
<b>DHCP for IPv6</b>									
IPv6 access services: stateless DHCPv6	Implementing DHCP for IPv6	(32) <sup>9</sup>	12.3(4)	12.4	(28)	—	—	(33)SRA	(18)SXE
IPv6 access services: DHCPv6 prefix delegation	Implementing DHCP for IPv6, Implementing ADSL and Deploying Dial Access for IPv6	(32) <sup>9</sup>	12.3(4)	12.4	(28)	—	—	(33)SRA	(18)SXE
IPv6 access services: DHCP for IPv6 relay agent	Implementing DHCP for IPv6	—	12.3(11)	12.4	(28)	(46)	(50)	(33)SRC	(33)SXI

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 access services: DHCPv6 prefix delegation via AAA	<a href="#">Implementing ADSL and Deploying Dial Access for IPv6</a>	—	12.3(14)	12.4	(28) <sup>10</sup>	—	—	—	—
IPv6 access services: DHCPv6 Server Stateless Auto Configuration	<a href="#">Implementing DHCP for IPv6</a>	—	12.4(15)	—	—	—	—	—	—
IPv6 access services: DHCPv6 Client Information Refresh Option	<a href="#">Implementing DHCP for IPv6</a>	—	12.4(15)	—	—	—	—	—	—
IPv6 access services: DHCPv6 relay agent notification for prefix delegation <sup>11</sup>	<a href="#">Implementing DHCP for IPv6</a>	—	—	—	—	(46)	—	(33)SRC	(33)SXI
IPv6 access services: DHCPv6 relay - reload persistent interface ID option	<a href="#">Implementing DHCP for IPv6</a>	—	—	—	(33)	(46)	—	(33)SRC	(33)SXI
IPv6 access services: DHCPv6 Ethernet remote ID option	<a href="#">Implementing DHCP for IPv6</a>	—	—	—	—	(46)	—	(33)SRC	(33)SXI
DHCP— DHCPv6 Individual Address Assignment	<a href="#">Implementing DHCP for IPv6</a>	—	12.4(24)	—	—	(46)	—	—	—
DHCP— DHCPv6 Relay SSO/ISSU	<a href="#">Implementing DHCP for IPv6</a>	—	—	—	—	—	—	(33)SRE	—

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
DHCPv6 Relay - Source Configuration	Implementing DHCP for IPv6	—	—	—	—	—	—	(33)SRE	—
DHCPv6 Repackaging	Implementing DHCP for IPv6	—	—	—	—	—	—	(33)SRE	—
<b>IPv6 Multicast</b>		(26) <sup>12</sup>	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: Multicast Listener Discovery (MLD) protocol, versions 1 and 2	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: PIM sparse mode (PIM-SM)	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: PIM Source Specific Multicast (PIM-SSM)	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: scope boundaries	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(2)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: MLD access group	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: PIM accept register	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: PIM embedded RP support	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: RPF flooding of bootstrap router (BSR) packets	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: routable address hello option	Implementing IPv6 Multicast	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 multicast: static multicast routing (mroute)	<a href="#">Implementing IPv6 Multicast</a>	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	—	(33)SRA	(33)SXH
IPv6 multicast: address family support for multiprotocol Border Gateway Protocol (MBGP)	<a href="#">Implementing IPv6 Multicast</a>	(26) <sup>12</sup>	12.3(4)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: Explicit tracking of receivers	<a href="#">Implementing IPv6 Multicast</a>	—	12.3(7)	12.4	(28)	—	(25)	(33)SRA	(33)SXH
IPv6 multicast: IPv6 bidirectional PIM	<a href="#">Implementing IPv6 Multicast</a>	—	12.3(7)	12.4	(28)	—	(25)	(33)SRA	—
IPv6 multicast: MFIB display enhancements	<a href="#">Implementing IPv6 Multicast</a>	—	12.3(7)	12.4	—	—	—	—	—
IPv6 multicast: IPv6 BSR	<a href="#">Implementing IPv6 Multicast</a>	(28)	12.3(11)	12.4	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 multicast: IPv6 BSR bidirectional support	<a href="#">Implementing IPv6 Multicast</a>	—	12.3(14)	12.4	—	—	—	(33)SRE	—
IPv6 multicast: IPv6 BSR scoped-zone support	<a href="#">Implementing IPv6 Multicast</a>	—	—	—	—	—	—	—	(18)SXE
IPv6 multicast: SSM mapping for MLDv1 SSM	<a href="#">Implementing IPv6 Multicast</a>	—	12.4(2)	—	—	—	—	(33)SRA	(18)SXE
IPv6 multicast: IPv6 BSR—ability to configure RP mapping	<a href="#">Implementing IPv6 Multicast</a>	—	12.4(2)	—	—	—	—	(33)SRE	—
IPv6 multicast: MLD group limits	<a href="#">Implementing IPv6 Multicast</a>	—	12.4(2)	—	—	—	—	(33)SRE	—

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 multicast: multicast user authentication and profile support	<a href="#">Implementing IPv6 Multicast</a>	—	12.4(4)	—	—	—	—	—	—
IPv6 multicast: MLD snooping	<a href="#">Implementing IPv6 Multicast</a>	—	—	—	—	(25)SED	—	(33)SRA	(18)SXE
IPv6 multicast: Address Group Range Support	<a href="#">Implementing IPv6 Multicast</a>	—	—	15.0(1)M	—	—	—	(33)SRE	(33)SXI
IPv6 Multicast: Bandwidth-Based Call Admission Control (CAC)	<a href="#">Implementing IPv6 Multicast</a>	—	—	—	—	—	—	(33)SRE	—
<b>NAT Protocol Translation (NAT-PT)</b>		—	12.2(13)	12.3	—	—	—	—	—
NAT-PT: support for DNS ALG	<a href="#">Implementing NAT Protocol Translation</a>	—	12.2(13)	12.3	—	—	—	—	—
NAT-PT: support for overload (PAT)	<a href="#">Implementing NAT Protocol Translation</a>	—	12.3(2)	12.4	—	—	—	—	—
NAT-PT: support for FTP ALG	<a href="#">Implementing NAT Protocol Translation</a>	—	12.3(2)	12.4	—	—	—	—	—
NAT-PT: support for fragmentation	<a href="#">Implementing NAT Protocol Translation</a>	—	12.3(2)	12.4	—	—	—	—	—
<b>IPv6 Tunnel Services</b>									
IPv6 tunneling: automatic 6to4 tunnels	<a href="#">Implementing Tunneling for IPv6</a>	(22)	12.2(2)	12.3	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 tunneling: automatic IPv4-compatible tunnels	<a href="#">Implementing Tunneling for IPv6</a>	(22)	12.2(2)	12.3	(28)	—	(25)	(33)SRA	(18)SXE
IPv6 tunneling: manually configured IPv6 over IPv4 tunnels	<a href="#">Implementing Tunneling for IPv6</a>	(23) <sup>2</sup>	12.2(2)	12.3	(28)	—	(25)	(33)SRA	(17a)SXI

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 tunneling: IPv6 over IPv4 GRE tunnels	<a href="#">Implementing Tunneling for IPv6</a>	(22) <sup>13</sup>	12.2(4)	12.3	(28)	—	—	(33)SRA	(17a)SX1
IPv6 tunneling: IPv6 over UTI using a tunnel line card <sup>14</sup>	<a href="#">Implementing Tunneling for IPv6</a>	(23) <sup>2</sup>	—	—	—	—	—	—	—
IPv6 tunneling: ISATAP tunnel support	<a href="#">Implementing Tunneling for IPv6</a>	—	12.2(15)	12.3	(28)SB	—	(25)	(33)SRA	(17a)SX1
IPv6 tunneling: IPv6 over IPv6 tunnels	<a href="#">Implementing Tunneling for IPv6</a>	—	12.3(7)	12.4	—	—	—	—	—
IPv6 tunneling: IP over IPv6 GRE tunnels	<a href="#">Implementing Tunneling for IPv6</a>	—	12.3(7)	12.4	—	—	—	—	—
IPv6 tunneling: IPv6 GRE tunnels in CLNS	<a href="#">Implementing Tunneling for IPv6</a>	—	12.3(7)	12.4	(28)SB	—	—	(33)SRA	—
<b>IPv6 Quality of Service QoS)</b>		(28)	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: MQC packet classification	<a href="#">Implementing QoS for IPv6</a>	—	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: MQC traffic shaping	<a href="#">Implementing QoS for IPv6</a>	(28)	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: MQC traffic policing	<a href="#">Implementing QoS for IPv6</a>	(28)	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: MQC packet marking/re-marking	<a href="#">Implementing QoS for IPv6</a>	(28)	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: queueing	<a href="#">Implementing QoS for IPv6</a>	—	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE
IPv6 QoS: MQC weighted random early detection (WRED)-based drop	<a href="#">Implementing QoS for IPv6</a>	(28)	12.2(13)	12.3	—	—	—	(33)SRA	(18)SXE

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
<b>IPv6 High Availability</b>									
IPv6: Base protocols high availability	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	—	—	—	—	—	—	(33)SRE	—
IPv6 routing: RIPng nonstop forwarding	<a href="#">Implementing RIP for IPv6</a>	—	—	—	—	—	—	(33)SRE	—
IPv6 routing: NSF and graceful restart for MP-BGP IPv6 address family	<a href="#">Implementing Multiprotocol BGP for IPv6</a>	—	—	—	—	—	—	(33)SRE	—
OSPFv3 graceful restart	<a href="#">Implementing OSPF for IPv6</a>	—	—	15.0(1)M	—	—	—	(33)SRE	—
NSF/SSO—IPv6 Multicast	<a href="#">Implementing IPv6 Multicast</a>	—	—	—	—	—	—	(33)SRE	—
<b>IPv6 Voice</b>									
RTP/RTCP over IPv6	<a href="#">Implementing Voice over IPv6</a>	—	12.4(22)	—	—	—	—	—	—
<b>IPv6 Data Link Layer</b>									
IPv6 data link: ATM PVC and ATM LANE	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22) <sup>15</sup>	12.2(2)	12.3	(28)	—	—	(33)SRA	—
IPv6 data link: Ethernet, Fast Ethernet, Gigabit Ethernet, and 10-Gigabit Ethernet	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(2)	12.3	(28)	(25)SEA	—	(33)SRA	—
IPv6 data link: Frame Relay PVC	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22) <sup>16</sup>	12.2(2)	12.3	(28)	—	—	(33)SRA	—
IPv6 data link: High-Level Data Link Control	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(2)	12.3	(28)	—	—	(33)SRA	—

Feature	Where Documented	12.0S Release	12.xT Release	12.x Release	12.2SB Release	12.2SE Release	12.2SG Release	12.2SR Release	12.2SX Release
IPv6 data link: PPP service over packet over SONET, ISDN, and serial (synchronous and asynchronous) interfaces	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(2)	12.3	(28) <sup>17</sup>	—	—	(33)SRA	—
IPv6 data link: VLANs using IEEE 802.1Q encapsulation	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(18)SXE
IPv6 data link: VLANs using Cisco Inter-Switch Link (ISL)	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(22)	12.2(2)	12.3	(28)	(25)SEA	(25)	(33)SRA	(18)SXE
IPv6 data link: dynamic packet transport (DPT)	<a href="#">Implementing IPv6 Addressing and Basic Connectivity</a>	(23)	—	—	—	—	—	—	—

- A ping in the fast-path mode is not supported. The support rate is limited to 10 pings per second per interface.
- In Cisco IOS Release 12.0(23)S, the Cisco 12000 series Internet router provides enhanced performance for IPv6 manually configured tunnels by processing traffic on the line card.
- The Cisco 10720 Internet router is supported in Cisco IOS Release 12.0(26)S.
- IPv6 extended access control lists and IPv6 provider edge routers over MPLS are implemented with IPv6 hardware acceleration on the Cisco 12000 series Internet router IP service engine (ISE) line cards in Cisco IOS routers in Cisco IOS Release 12.0(25)S and later releases.
- The RIP for IPv6 feature was updated in Cisco IOS Release 12.2(13)T.
- Enhancements were made to several multiprotocol BGP commands.
- SNMP versions 1, 2, and 3 are supported over an IPv6 transport.
- IPv6 Broadband Access features are on Cisco IOS 7200 series routers only in the 12.2(33)SRC release.
- In Cisco IOS Release 12.0(32)S, the Dynamic Host Configuration Protocol (DHCP) for IPv6 prefix delegation is supported on shared port adaptors (SPAs) in the 10G Engine 5 SPA Interface Processor (SIP) on the Cisco 12000 series Internet router only for stateless address assignment.
- This feature may not be useful without either the IPv6 over PPPoE or IPv6 over PPPoA features, and the IPv6 over PPPoE or IPv6 over PPPoA features are not supported in Cisco IOS Release 12.2(28)SB.
- Support for this feature is provided in Cisco IOS Release 12.2(33)SCA (see [Table 3](#)).
- Feature is supported on Cisco 12000 series Internet routers in Cisco IOS Release 12.0(26)S.
- IPv6 over IPv4 GRE tunnels are not supported on the Cisco 12000 series Internet router.
- Feature is supported on the Cisco 12000 series Internet router only.
- Only ATM PVCs are supported on the Cisco IOS 2.0S software release train. ATM LANE is not supported.
- Frame Relay PVCs are not supported by distributed Cisco Express Forwarding switching for IPv6 in the 12.0S Cisco IOS software train. In the Cisco 12000 series Internet routers, Frame Relay encapsulated IPv6 packets are process switched on the Route Processor.
- In 12.2(28)SB, PPPoA, PPPoE, and PPP over a VLAN are not supported. PPP over a serial link is supported.

# Cisco Platforms Supporting IPv6 Hardware Forwarding

## Supported Platforms

[Table 1](#) lists the Cisco platforms that have IPv6 hardware forwarding and the Cisco IOS software release trains that introduce the feature.



### Note

[Table 2](#) lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise in [Table 2](#), subsequent releases of that Cisco IOS software release train also support that feature.

**Table 2** Minimum Required Release for Cisco Platforms Supporting IPv6 Hardware Forwarding

Hardware and Feature	Cisco IOS Software Release
<b>Cisco 12000 Series</b>	
IP ISE line card IPv6 forwarding	12.0(23)S
IP ISE line card extended ACLs	12.0(25)S
IP ISE line card IPv6 over MPLS (6PE)	12.0(25)S
IP ISE line card IPv6 Multicast assist	12.0(26)S
IP ISE line card IPv6 QoS	12.0(28)S
Engine 5 line card IPv6 hardware forwarding	12.0(31)S
IP Receive ACL for IPv6 traffic	12.0(32)S
<b>Cisco 10000 Series</b>	
Cisco 10000 series Performance Routing Engine 2 (PRE-2)	12.2(28)SB
Cisco 10000 series PRE-3	12.2(31)SB
Cisco 10000 series 6PE support	12.2(31)SB
Cisco 10000 series PRE-4	12.2(33)SB
<b>Cisco 10720 Series</b>	
PxF accelerated for IPv6 forwarding	12.0(26)S, 12.2(28)SB
PxF accelerated for IPv6 extended ACLs	12.0(26)S
PxF accelerated for IPv6 over MPLS (6PE)	12.0(26)S
PRE-2 hardware forwarding	12.2(28)SB
<b>Cisco 7600 Series, Cisco Catalyst 6500, Cisco Catalyst 3700, and Cisco Catalyst 3500</b>	
IPv6: Express setup	12.2(35)SE
Cisco Catalyst 3560 series	12.2(25)SEA
Cisco Catalyst 3750 series	12.2(25)SEA
IPv6: IPv6 and IPv4 TCAM templates	12.2(25)SEA
IPv6: IPv6 neighbor discovery throttling	12.2(25)SEA
Cisco Catalyst 3560E series	12.2(35)SE2
Cisco Catalyst 3570E series	12.2(35)SE2

**Table 2** Minimum Required Release for Cisco Platforms Supporting IPv6 Hardware Forwarding

Hardware and Feature	Cisco IOS Software Release
Cisco Catalyst 3560 series: IPv6 multicast hardware layer	12.2(25)SED
Supervisor Engines 720 and 720-3bxl	12.2(33)SRA
Route/switch processor 720 on Cisco 7600 series	12.2(33)SRB
Supervisor Engine 720 IPv6 forwarding	12.2(17a)SX1
Supervisor Engine 720 IPv6 extended ACLs	12.2(17a)SX1
Supervisor Engine 720 IPv6 over MPLS (6PE)	12.2(17b)SXA
Supervisor Engine 720 IPv6 multicast hardware forwarding	12.2(18)SXE
Supervisor Engine 720 IPv6 multicast RPR/RPR+ support	12.2(18)SXE
Supervisor Engine 720 IPv6 multicast hardware-assisted egress replication	12.2(18)SXE
Supervisor Engine 32/MSFC2A	12.2(18)SXF

## Additional 12.2S Release Trains

Several early-deployment Cisco IOS software Release 12.2S trains synchronize to the Cisco IOS software mainline Release 12.2S train. The following table lists information about the release trains on which IPv6 hardware is used.

**Table 3** Minimum Required Release for IPv6 Hardware on Early-Deployment 12.2S Cisco IOS Software Release Trains

Early-Deployment Cisco IOS Software Release and Hardware	Release Description
12.2(28)SB and 12.2(33)SB on Cisco 10000 series	Not all features for Cisco IOS Release 12.2(28)SB or Cisco IOS Release 12.2(33)SB are supported on the Cisco 10000 series routers. For further information on Cisco IOS Release 12.2(28)SB or Cisco IOS Release 12.2(33)SB, see the release notes at the following URLs: <a href="http://www.cisco.com/en/US/docs/ios/12_2sb/release/notes/122SB.html">http://www.cisco.com/en/US/docs/ios/12_2sb/release/notes/122SB.html</a>
12.2(25)SEA on Cisco Catalyst 3560 and 3570 series	12.2(25)SEA supports a subset of the 12.2S IPv6 feature set. IPv6 multicast is not supported.
12.2(33)SRA on Cisco 7600 series	12.2(33)SRA includes all IPv6 features from Cisco IOS software releases 12.2S and 12.2SX.
12.2SX on Cisco Catalyst 6500	12.2(17)SX includes the entire Cisco IOS software Release 12.2(14)S feature set, plus OSPFv3.
12.2(17d)SXB on Cisco Catalyst 6500 Supervisor Engine 2/MSFC2	IPv6 support provided on 12.2(17)SXB for Cisco Catalyst 6500 Supervisor Engine 2/MSFC2.
12.2(18)SXE on Cisco Catalyst 6500 and Cisco 7600 series	12.2(18)SXE supports IPv6 multicast hardware forwarding.
12.2(18)SXF on Supervisor Engine 32/MSFC2A	
12.2(35)SE2 on Cisco Catalyst 3560E and 3570E series	

**Table 3** Minimum Required Release for IPv6 Hardware on Early-Deployment 12.2S Cisco IOS Software Release Trains

Early-Deployment Cisco IOS Software Release and Hardware	Release Description
12.2(40)SE on Cisco Catalyst 2960	IPv6 support provided for MLD snooping.
12.2(33)SCA on UBR	Support is provided for DHCPv6 relay agent notification for prefix delegation.

## Additional References

The following sections provide references related to Cisco IOS IPv6 features:

### Related Documents

Related Topic	Document Title
IPv6 commands: complete command syntax, command mode, defaults, usage guidelines, and examples	<a href="#">Cisco IOS IPv6 Command Reference</a>

### RFCs

RFCs	Title
RFC 1886	<i>DNS Extensions to Support IP version 6</i>
RFC 1981	<i>Path MTU Discovery for IP version 6</i>
RFC 2080	<i>RIPng for IPv6</i>
RFC 2373	<i>IP Version 6 Addressing Architecture</i>
RFC 2374	<i>An Aggregatable Global Unicast Address Format</i>
RFC 2375	<i>IPv6 Multicast Address Assignments</i>
RFC 2401	<i>Security Architecture for the Internet Protocol</i>
RFC 2402	<i>IP Authentication Header</i>
RFC 2404	<i>The Use of Hash Message Authentication Code Federal Information Processing Standard 180-1 within Encapsulating Security Payload and Authentication Header</i>
RFC 2406	<i>IP Encapsulating Security Payload (ESP)</i>
RFC 2407	<i>The Internet Security Domain of Interpretation for ISAKMP</i>
RFC 2408	<i>Internet Security Association and Key Management Protocol</i>
RFC 2409	<i>Internet Key Exchange (IKE)</i>
RFC 2460	<i>Internet Protocol, Version 6 (IPv6) Specification</i>
RFC 2461	<i>Neighbor Discovery for IP Version 6 (IPv6)</i>
RFC 2462	<i>IPv6 Stateless Address Autoconfiguration</i>

<b>RFCs</b>	<b>Title</b>
RFC 2463	<i>Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification</i>
RFC 2464	<i>Transmission of IPv6 Packets over Ethernet</i>
RFC 2467	<i>Transmission of IPv6 Packets over FDDI</i>
RFC 2472	<i>IP Version 6 over PPP</i>
RFC 2474	<i>Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers</i>
RFC 2475	<i>An Architecture for Differentiated Services Framework</i>
RFC 2492	<i>IPv6 over ATM</i>
RFC 2545	<i>Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing</i>
RFC 2590	<i>Transmission of IPv6 Packets over Frame Relay Specification</i>
RFC 2597	<i>Assured Forwarding PHB</i>
RFC 2598	<i>An Expedited Forwarding PHB</i>
RFC 2697	<i>A Single Rate Three Color Marker</i>
RFC 2698	<i>A Two Rate Three Color Marker</i>
RFC 2710	<i>Multicast Listener Discovery (MLD) for IPv6</i>
RFC 2711	<i>IPv6 Router Alert Option</i>
RFC 2740	<i>OSPF for IPv6</i>
RFC 2766	<i>Network Address Translation–Protocol Translation (NAT-PT)</i>
RFC 2858	<i>Multiprotocol Extensions for BGP-4</i>
RFC 2893	<i>Transition Mechanisms for IPv6 Hosts and Routers</i>
RFC 3056	<i>Connection of IPv6 Domains via IPv4 Clouds</i>
RFC 3068	<i>An Anycast Prefix for 6to4 Relay Routers</i>
RFC 3147	<i>Generic Routing Encapsulation over CLNS</i>
RFC 3152	<i>Delegation of IP6.ARPA</i>
RFC 3162	<i>RADIUS and IPv6</i>
RFC 3315	<i>Dynamic Host Configuration Protocol for IPv6 (DHCPv6)</i>
RFC 3319	<i>Dynamic Host Configuration Protocol (DHCPv6) Options for Session Initiated Protocol (SIP) Servers</i>
RFC 3392	<i>Capabilities Advertisement with BGP-4</i>
RFC 3484	<i>Default Address Selection for Internet Protocol version 6 (IPv6)</i>
RFC 3513	<i>Internet Protocol Version 6 (IPv6) Addressing Architecture</i>
RFC 3576	<i>Change of Authorization</i>
RFC 3587	<i>IPv6 Global Unicast Address Format</i>
RFC 3590	<i>Source Address Selection for the Multicast Listener Discovery (MLD) Protocol</i>
RFC 3596	<i>DNS Extensions to Support IP Version 6</i>
RFC 3633	<i>DHCP IPv6 Prefix Delegation</i>

<b>RFCs</b>	<b>Title</b>
RFC 3646	<i>DNS Configuration options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)</i>
RFC 3736	<i>Stateless DHCP Service for IPv6</i>
RFC 3775	<i>Mobility Support in IPv6</i>
RFC 3810	<i>Multicast Listener Discovery Version 2 (MLDv2) for IPv6</i>
RFC 3879	<i>Deprecating Site Local Addresses</i>
RFC 3898	<i>Network Information Service (NIS) Configuration Options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)</i>
RFC 3954	<i>Cisco Systems NetFlow Services Export Version 9</i>
RFC 3956	<i>Embedding the Rendezvous Point (RP) Address in an IPv6 Multicast Address</i>
RFC 3963	<i>Network Mobility (NEMO) Basic Support Protocol</i>
RFC 4007	<i>IPv6 Scoped Address Architecture</i>
RFC 4075	<i>Simple Network Time Protocol (SNTP) Configuration Option for DHCPv6</i>
RFC 4087	<i>IP Tunnel MIB</i>
RFC 4109	<i>Algorithms for Internet Key Exchange version 1 (IKEv1)</i>
RFC 4191	<i>Default Router Preferences and More-Specific Routes</i>
RFC 4193	<i>Unique Local IPv6 Unicast Addresses</i>
RFC 4214	<i>Intra-Site Automatic Tunnel Addressing Protocol (ISATAP)</i>
RFC 4242	<i>Information Refresh Time Option for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)</i>
RFC 4291	<i>IP Version 6 Addressing Architecture</i>
RFC 4292	<i>IP Forwarding Table MIB</i>
RFC 4293	<i>Management Information Base for the Internet Protocol (IP)</i>
RFC 4302	<i>IP Authentication Header</i>
RFC 4306	<i>Internet Key Exchange (IKEv2) Protocol</i>
RFC 4308	<i>Cryptographic Suites for IPsec</i>
RFC 4364	<i>BGP MPLS/IP Virtual Private Networks (VPNs)</i>
RFC 4382	<i>MPLS/BGP Layer 3 Virtual Private Network (VPN) Management Information Base</i>
RFC 4443	<i>Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification</i>
RFC 4552	<i>Authentication/Confidentiality for OSPFv3</i>
RFC 4601	<i>Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification</i>
RFC 4649	<i>Dynamic Host Configuration Protocol for IPv6 (DHCPv6) Relay Agent Remote-ID Option</i>
RFC 4659	<i>BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN</i>

RFCs	Title
RFC 4724	<i>Graceful Restart Mechanism for BGP</i>
RFC 4798	<i>Connecting IPv6 Islands over IPv4 MPLS Using IPv6 Provider Edge Routers (6PE)</i>
RFC 4884	<i>Extended ICMP to Support Multi-Part Messages</i>
RFC 5059	<i>Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)</i>
RFC 5095	<i>Deprecation of Type 0 Routing Headers in IPv6</i>
RFC 5120	<i>M-ISIS: Multi Topology (MT) Routing in Intermediate System to Intermediate Systems (IS-ISs)</i>
RFC 5187	<i>OSPFv3 Graceful Restart</i>
RFC 5308	<i>Routing IPv6 with IS-IS</i>
draft-ietf-bfd-v4v6-1hop	<i>BFD for IPv4 and IPv6 (Single Hop)</i>

## MIBs

MIBs	MIBs Link
<ul style="list-style-type: none"> <li>• CISCO-CONFIG-COPY-MIB</li> <li>• CISCO-CONFIG-MAN-MIB</li> <li>• CISCO-DATA-COLLECTION-MIB</li> <li>• CISCO-FLASH-MIB</li> <li>• CISCO-IETF-IP-FORWARDING-MIB (not available as of Cisco IOS Release 12.2(33)SRC)</li> <li>• CISCO-IETF-IP-MIB (not available as of Cisco IOS Release 12.2(33)SRC)</li> <li>• CISCO-IP-FORWARD-MIB</li> <li>• CISCO-IP-MIB</li> <li>• CISCO-RTTMON-IPv6-MIB</li> <li>• CISCO-SNMP-TARGET-EXT-MIB</li> <li>• ENTITY-MIB</li> <li>• NOTIFICATION-LOG-MIB</li> <li>• SNMP-TARGET-MIB</li> <li>• TUNNEL-MIB</li> </ul>	<p>To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:</p> <p><a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></p>

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