

## New Cisco IOS Software Release 12.2(40)SE for Cisco Catalyst 3750-E, 3750, 3560-E, 3560, 2960, 3550, 2970, Series Switches; and Cisco Catalyst Blade Switch 3000 Series

PB428555

Cisco® announces Cisco IOS® Software updates for Cisco Catalyst® 3750-E, 3750, 3560-E, 3560, 2960, 3550, and 2970 Series Switches; and Cisco Catalyst Blade Switch 3000 Series. This release furthers Cisco leadership by providing integrated services for IPv6, secure voice, multicast, and manageability for enterprise deployments.

This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(40)SE.

The following new features are available with Cisco IOS software release 12.2(40)SE for enterprise Ethernet switches:

- **IP Service-Level Agreements (IP SLAs) Support:** Cisco IOS IP SLAs help enable customers to assure new business-critical IP applications, as well as IP services that utilize data, voice, and video. With Cisco IOS IP SLAs, users can verify service guarantees, increase network reliability by validating network performance, proactively identify network issues, and increase return on investment (ROI) by easing the deployment of new IP services. Cisco IOS IP SLAs use active monitoring to generate traffic in a continuous, reliable, and predictable manner, thus facilitating the measurement of network performance and health.
- **Source-Specific Multicast (SSM):** The SSM capability is an efficient and optimized multicast protocol that is used for one-to-many multicast applications such as video. The protocol is easier to deploy than traditional multicast protocols and utilizes Internet Group Management Protocol version 3 (IGMPv3).
- **IP SLAs Enhanced Object Tracking:** IP SLAs Enhanced Object Tracking support will allow switches utilizing HSRP to track IP SLA measurements and trigger hot standby failover based upon jitter, packet loss, or latency.
- **Multicast Virtual Routing and Forwarding (VRF) Lite:** VRF Lite allows the customer to configure multiple private routing domains for network virtualization and virtual private networks. Multicast support has now been added to VRF Lite allowing multicast traffic per VRF.
- **Internet Group Management Protocol (IGMP) Proxy:** This capability allows the switch to forward a host's request to join a multicast stream to a specific IP destination address.

- **VRF-Aware IP Services:** Various IP Services can now obtain information per VRF and are now VRF aware. The following services are now VRF aware: Address Resolution Protocol (ARP), ping, traceroute, Simple Network Management Protocol (SNMP), syslog, HSRP, IP SLAs, TFTP, FTP, and Unicast Reverse Path Forwarding (uRPF).
- **Configuration Replace:** The configuration replacement and configuration rollback feature provides the capability to replace the current running configuration with any saved Cisco IOS configuration file. This functionality can be used to revert to a previous configuration state, effectively rolling back any configuration changes that were made since that configuration file was saved. This feature simplifies and reduces operational overhead.
- **Link Layer Discovery Protocol Media Extensions (LLDP-MED) Location Support:** LLDP support has been extended to include client location information using the LLDP Media Extensions. The device location information can be used by inventory management for emergency response services, such as Enhanced 911 (E911).
- **Enhanced Interior Gateway Routing Protocol (EIGRP) for Internet Protocol Version 6 (IPv6):** The ability to route IPv6 prefixes is now available using EIGRP. EIGRP IPv6 utilizes IPv6 transport and communicates with IPv6 peers and advertises IPv6 routes.
- **IPv6 Host Support for the Catalyst 2960:** IPv6 host provides basic IPv6 management support for the Catalyst 2960 Switch. IPv6 host includes the following capabilities: IPv4/IPv6 dual stack, unicast address types, ICMPv6, AAAA DNS lookup over IPv4, Secure Shell (SSH) Protocol for v6, IPv6 neighbor discovery, CDP, Telnet, TFTP, traceroute for v6. Also available in the release is IPv6 express setup to ease deployment.
- **IPv6 Multicast Listener Discovery (MLD) Snooping for the Catalyst 2960:** When a host in an IPv6 network needs to receive a multicast stream, the MLD protocol is utilized. MLD snooping for the Catalyst 2960 Switch enables efficient distribution of IPv6 multicast data to clients attached to a switched network.
- **Auto-Quality of Service (QOS) Voice Over IP (VoIP) Enhancement:** Auto-QOS can now be used seamlessly when voice over IP is utilized in the network. This is an enhancement to the Auto-QOS functionality and adds support for port-based trust of DSCP and strict priority queuing for egress traffic.
- **Cisco Media Access Control (MAC) Notification MIB:** The MAC Notification MIB enables the switch to track MAC addresses that are learned or removed. Histories of the MAC addresses that are learned and deleted from the switch are tracked, and notifications can be generated based on threshold limits.
- **Power over Ethernet (POE) Policing MIB:** Cisco intelligent power management capabilities include enhanced power negotiation, power reservation, and per port power policing. POE policing allows notification and policing of a device that draws more inline power than what it had negotiated. The SNMP support for the POE policing feature allows network management to monitor the usage of POE on the switch and verify the operation of POE.
- **Dynamic Voice Virtual LAN (VLAN) for MDA:** This feature is an extension to the Multidomain Authentication (MDA) capability previously released. MDA now supports dynamic voice VLAN with Remote Authentication Dial In User Service (RADIUS).

Table 1 describes product support for new features of Cisco IOS Software Release 12.2(40)SE for enterprise switches, and Table 2 lists the supported switches.

**Table 1.** Cisco IOS Software Release 12.2(40)SE New Features for Enterprise Switches

Feature	3750-E-IPB	3750-E-IPS	3750-E-AIS	3560-E-IPB	3560-E-IPS	3560-E-AIS
IP SLAs Support	No	Yes	Yes	No	Yes	Yes
IP SLAs Responder	Yes	Yes	Yes	Yes	Yes	Yes
IP SLAs EOT	No	Yes	Yes	No	Yes	Yes
Multicast VRF Lite	No	Yes	Yes	No	Yes	Yes
Source-Specific Multicast	No	Yes	Yes	No	Yes	Yes
IGMP Proxy	Yes	Yes	Yes	Yes	Yes	Yes
VRF-Aware IP Services	No	Yes	Yes	No	Yes	Yes
Configuration Replace	Yes	Yes	Yes	Yes	Yes	Yes
LLDP-MED Location Support	Yes	Yes	Yes	Yes	Yes	Yes
EIGRP for IPv6	No	No	Yes	No	No	Yes
IPv6 Host Support for the Catalyst 2960	E	E	E	E	E	E
IPv6 MLD Snooping for the Catalyst 2960	E	E	E	E	E	E
Auto-QOS VOIP Enhancement	Yes	Yes	Yes	Yes	Yes	Yes
Cisco MAC Notification MIB	Yes	Yes	Yes	Yes	Yes	Yes
POE Policing MIB	Yes	Yes	Yes	Yes	Yes	Yes
Dynamic Voice VLAN	Yes	Yes	Yes	Yes	Yes	Yes
Private VLAN for Blade Switches	E	E	E	E	E	E

Feature	3750-IPB	3750-IPS	3750-AIS	3560-IPB	3560-IPS	3560-AIS
IP SLAs Support	No	Yes	Yes	No	Yes	Yes
IP SLAs Responder	Yes	Yes	Yes	Yes	Yes	Yes
IP SLAs EOT	No	Yes	Yes	No	Yes	Yes
Source-Specific Multicast	No	Yes	Yes	No	Yes	Yes
Source-Specific Multicast	No	Yes	Yes	No	Yes	Yes
Multicast VRF Lite	No	Yes	Yes	No	Yes	Yes
IGMP Proxy	Yes	Yes	Yes	Yes	Yes	Yes
VRF-Aware IP Services	No	Yes	Yes	No	Yes	Yes
Configuration Replace	Yes	Yes	Yes	Yes	Yes	Yes
LLDP-MED Location Support	Yes	Yes	Yes	Yes	Yes	Yes
EIGRP for IPv6	No	No	Yes	No	No	Yes
IPv6 Host Support for the Catalyst 2960	E	E	E	E	E	E
IPv6 MLD Snooping for the Catalyst 2960	E	E	E	E	E	E

<b>Auto-QOS VOIP Enhancement</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Cisco MAC Notification MIB</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>POE Policing MIB</b>	No	No	No	No	No	No
<b>Dynamic Voice VLAN</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Private VLAN for Blade Switches</b>	E	E	E	E	E	E

Feature	3550-IPB	3550-IPS	2960-LB	2970	CBS 3000-LB
<b>IP SLAs Support</b>	No	Yes	No	No	No
<b>IP SLAs Responder</b>	Yes	Yes	Yes	No	Yes
<b>IP SLAs EOT</b>	No	No	No	No	No
<b>Source-Specific Multicast</b>	No	No	No	No	No
<b>Multicast VRF Lite</b>	No	No	No	No	No
<b>IGMP Proxy</b>	Yes	Yes	No	No	No
<b>VRF-Aware IP Services</b>	No	No	No	No	No
<b>Configuration Replace</b>	No	No	Yes	No	Yes
<b>LLDP-MED Location Support</b>	No	No	Yes	No	Yes
<b>EIGRP for IPv6</b>	No	No	No	No	No
<b>IPv6 Host Support for the Catalyst 2960</b>	No	No	Yes	No	No
<b>IPv6 MLD Snooping for the Catalyst 2960</b>	No	No	Yes	No	No
<b>Auto-QOS VOIP Enhancement</b>	No	No	Yes	No	No
<b>Cisco MAC Notification MIB</b>	No	No	Yes	No	Yes
<b>POE Policing MIB</b>	No	No	No	No	No
<b>Dynamic Voice VLAN</b>	No	No	No	No	No
<b>Private VLAN for Blade Switches</b>	No	E	No	No	Yes

In Table 1, IPB = IP Base feature set; IPS = IP Services feature set; AIS = Advanced IP Services feature set; Yes = Feature supported, No = Feature not supported; E = Existing support.

**Table 2.** Cisco Catalyst Switches Supported and Software Licenses for Cisco IOS Software Release 12.2(40)SE

Cisco Catalyst 3750-E and Catalyst 3560-E Series License Part Numbers	Cisco Catalyst 3750-E Series IP Services Part Numbers	Cisco Catalyst 3750-E Series IP Base Part Numbers	Cisco Catalyst 3560-E Series IP Services Part Numbers	Cisco Catalyst 3560-E Series IP Base Part Numbers
<ul style="list-style-type: none"> <li>3750E-LIC=</li> <li>3750E-IPSLCB-QTY</li> <li>3750E48-IPSLCB-QTY</li> <li>3750E-AISK9LCSQTY</li> <li>3750E48-AISK9LCBQ</li> <li>3750E-AISK9LCBQTY</li> <li>3750E48-AISK9LCSQ</li> <li>3560E-LIC=</li> <li>3560E-IPSLCB-QTY</li> <li>3560E-AISK9LCSQTY</li> <li>3560E-AISK9LCBQT</li> </ul>	<ul style="list-style-type: none"> <li>3750E-24TD-E</li> <li>3750E-24PD-E</li> <li>3750E-48TD-E</li> <li>3750E-48PD-E</li> <li>3750E-48PD-EF</li> </ul>	<ul style="list-style-type: none"> <li>3750E-24TD-S</li> <li>3750E-24PD-S</li> <li>3750E-48TD-S</li> <li>3750E-48PD-S</li> <li>3750E-48PD-SF</li> </ul>	<ul style="list-style-type: none"> <li>3560E-24TD-E</li> <li>3750E-24PD-E</li> <li>3560E-48TD-E</li> <li>3560E-48PD-E</li> <li>3560E-48PD-EF</li> </ul>	<ul style="list-style-type: none"> <li>3560E-24TD-S</li> <li>3750E-24PD-S</li> <li>3560E-48TD-S</li> <li>3560E-48PD-S</li> <li>3560E-48PD-SF</li> </ul>

Cisco Catalyst 3750 and Catalyst 3560 Series License CD Part Numbers	Cisco Catalyst 3750 Series IP Services Part Numbers	Cisco Catalyst 3750 Series IP Base Part Numbers	Cisco Catalyst 3560 Series IP Services Part Numbers	Cisco Catalyst 3560 Series IP Base Part Numbers
<ul style="list-style-type: none"> <li>• CD-3750-EMI=</li> <li>• CD-3750G-EMI=</li> <li>• CD-3750G-48EMI=</li> <li>• 3750-AISK9-LIC-B</li> <li>• 3750-AISK9-LIC-S</li> <li>• 3750G-AISK9-LIC-B</li> <li>• 3750G-AISK9-LIC-S</li> <li>• 3750G48-AISK9LIC-B</li> <li>• 3750G48-AISK9LIC-S</li> <li>• CD-3560-EMI=</li> <li>• CD-3560G-EMI=</li> <li>• 3560-AISK9-LIC-B</li> <li>• 3560-AISK9-LIC-S</li> <li>• 3560G-AISK9-LIC-B</li> <li>• 3560G-AISK9-LIC-S</li> <li>• S3560G-AISK9-LIC-B</li> <li>• 3560G-AISK9-LIC-S</li> </ul>	<ul style="list-style-type: none"> <li>• 3750-48TS-E</li> <li>• 3750-24TS-E</li> <li>• 3750G-24T-E</li> <li>• 3750G-48TS-E</li> <li>• 3750G-24TS-E</li> <li>• 3750G-12S-E</li> <li>• 3750G-16TD-E</li> <li>• 3750-48PS-E</li> <li>• 3750-24PS-E</li> <li>• 3750G-24TS-1U-E</li> <li>• 3750G-24PS-E</li> <li>• 3750G-48PS-E</li> </ul>	<ul style="list-style-type: none"> <li>• 3750-48TS-S</li> <li>• 3750-24TS-S</li> <li>• 3750G-24T-S</li> <li>• 3750-24FS-S</li> <li>• 3750G-48TS-S</li> <li>• 3750G-24TS-S</li> <li>• 3750G-12S-S</li> <li>• 3750G-16TD-S</li> <li>• 3750-48PS-S</li> <li>• 3750-24PS-S</li> <li>• 3750G-24TS-1U-S</li> <li>• 3750G-24PS-S</li> <li>• 3750G-48PS-S</li> <li>• 3750G-24WS-S50</li> <li>• 3750G-24WS-S25</li> </ul>	<ul style="list-style-type: none"> <li>• 3560-24TS-E</li> <li>• 3560-48TS-E</li> <li>• 3560-48PS-E</li> <li>• 3560-24PS-E</li> <li>• 3560G-48PS-E</li> <li>• 3560G-24PS-E</li> <li>• 3560G-48TS-E</li> <li>• 3560G-24TS-E</li> </ul>	<ul style="list-style-type: none"> <li>• 3560-24TS-S</li> <li>• 3560-48TS-S</li> <li>• 3560-48PS-S</li> <li>• 3560-24PS-S</li> <li>• 3560G-48PS-S</li> <li>• 3560G-24PS-S</li> <li>• 3560G-48TS-S</li> <li>• 3560G-24TS-S</li> <li>• 3560-8PC-S</li> </ul>

Cisco Catalyst 2960 Series Part Numbers	Cisco EtherSwitch Service Modules for Cisco 2600, 2800, 3700, and 3800 Series Routers Part Numbers	Cisco Catalyst 2970 Series Part Numbers
<ul style="list-style-type: none"> <li>• 2960-8TC-L</li> <li>• 2960G-8TC-L</li> <li>• 2960-24TC-L</li> <li>• 2960-24TT-L</li> <li>• 2960-48TC-L</li> <li>• 2960-48TT-L</li> <li>• 2960G-24TC-L</li> <li>• 2960G-48TC-L</li> </ul>	<ul style="list-style-type: none"> <li>• NME-16ES-1G</li> <li>• NME-16ES-1G-P</li> <li>• NME-X-23ES-1G</li> <li>• NME-X-23ES-1G-P</li> <li>• NME-XD-24ES-1S-P</li> <li>• NME-XD-48ES-2S-P</li> </ul>	<ul style="list-style-type: none"> <li>• 2970G-24T-E</li> <li>• 2970G-24TS-E</li> </ul>

## Additional Resources

### Software Download

Software is available for download from the following links:

Cisco IOS Upgrade Planner: <http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?majorRel=>.

Guest Level Access Planner: <http://www.cisco.com/kobayashi/sw-center/index.shtml>.

You must purchase the EMI/IP Services or Advanced IP Services software upgrade kit when upgrading a switch from SMI/IP Base to EMI/IP Services or Advanced IP Services software. Downloads of SMI/IP Base, EMI/IP Services, and Advanced IP Services files are monitored for adherence to this requirement. Catalyst 3750-E and 3560-E support the new Cisco IOS Software licensing infrastructure, which authorizes and enables the usage of the three existing Cisco IOS Software feature sets. A special file contained in the switch's flash memory, called a license file, is examined by Cisco IOS Software when the switch is powered on. Based on the license's type, Cisco IOS Software enables the appropriate Cisco IOS feature set.

Because of export restrictions on strong cryptography software, a separate image is required for the cryptographic features (SSH, SNMPv3, and Kerberos Protocol). These software images can be downloaded from the corresponding Triple Data Encryption Standard (3DES) area of the links provided in this section. Note that the Cisco Advanced IP Services license is available only in cryptographic format.

### Product Information

Additional product information is available at the following URLs:

- Cisco Catalyst 3750-E Series switches: <http://www.cisco.com/go/3750-E>
- Cisco Catalyst 3750 Series switches: <http://www.cisco.com/go/catalyst3750>
- Cisco Catalyst 3560-E Series switches: <http://www.cisco.com/go/3560-E>
- Cisco Catalyst 3560 Series switches: <http://www.cisco.com/go/catalyst3560>
- Cisco Catalyst 2960 Series switches: <http://www.cisco.com/go/catalyst2960>
- Cisco Catalyst 3550 Series switches: <http://www.cisco.com/go/catalyst3550>
- Cisco Catalyst 2970 Series switches: <http://www.cisco.com/go/catalyst2970>
- Cisco Catalyst 3750, 3560, 3550, 2960, 2970, and series release notes:
  - <http://www.cisco.com/univercd/cc/td/doc/product/lan/cat3750/index.htm>
  - <http://www.cisco.com/univercd/cc/td/doc/product/lan/cat3560/index.htm>
  - <http://www.cisco.com/univercd/cc/td/doc/product/lan/c3550/index.htm>
  - <http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2970/index.htm>
  - <http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2960/index.htm>
- Cisco EtherSwitch Service Modules for Cisco 2600, 2800, 3700, and 3800 series routers: [http://www.cisco.com/en/US/products/ps5854/products\\_data\\_sheet0900aecd8028d15f.html](http://www.cisco.com/en/US/products/ps5854/products_data_sheet0900aecd8028d15f.html)
- Cisco Catalyst Blade Switches: <http://www.cisco.com/en/US/products/ps6748/index.html>

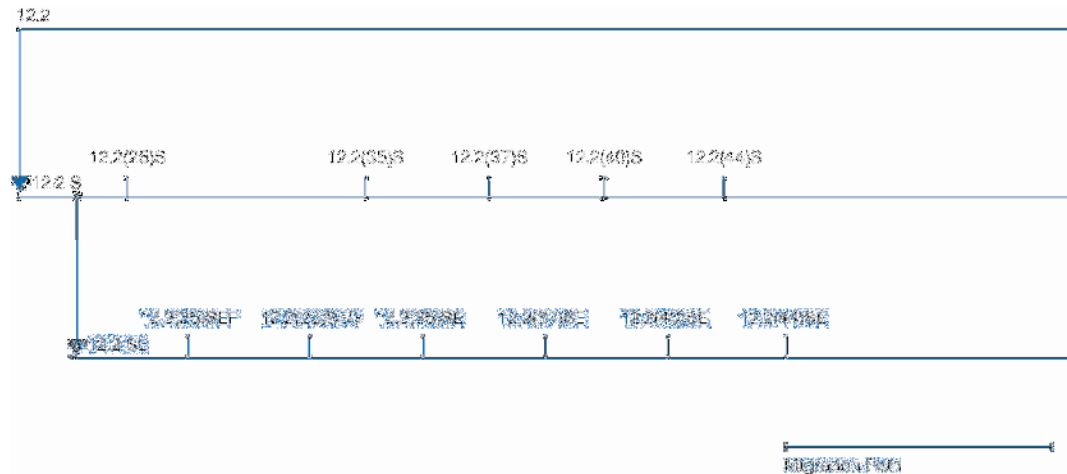
### Support

Cisco IOS Software Release 12.2(40)SE follows the standard Cisco support policy indicated at [http://www.cisco.com/en/US/products/products\\_end-of-life\\_policy.html](http://www.cisco.com/en/US/products/products_end-of-life_policy.html)

### Software Image Migration Guide

Figure 1 displays Cisco IOS Software Release 12.2(40)SE functions relative to the 12.2S and 12.2SE releases and identifies the recommended migration path.

**Figure 1.** Cisco IOS Software Release 12.2 Release Train



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