New Cisco IOS Software Release 12.2(37)SE for Cisco Catalyst 3750-E, 3750, 3750 Metro, 3560-E, 3560, 3550, 2970, and 2960 Series Switches; Cisco ME 3400 and ME 2400 Series Ethernet Access Switches; and Cisco Catalyst Blade Switch 3000 Series

PB406113

Cisco® announces Cisco IOS® Software updates for Cisco Catalyst® 3750-E, 3750, 3750 Metro, 3560-E, 3560, 3550, 2970, and 2960 Series Switches; Cisco ME 3400 and ME 2400 Series Ethernet Access Switches; and Cisco Catalyst Blade Switch 3000 Series. This release furthers Cisco leadership by providing integrated services for wide area acceleration, secure voice, multicast and manageability for enterprise deployments, and enhancements on the Metro Ethernet access switches.

This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(37)SE.

The following new features are available with Cisco IOS Software Release 12.2(37)SE for enterprise Ethernet switches:

- **Web Cache Control Protocol Version 2 (WCCPv2):** WCCP enables Wide Area Acceleration Services (WAAS), resulting in improved application response time and conservation of WAN bandwidth. With WCCP enabled, a switch redirects content requests (HTTP, FTP, and other TCP-based applications) to content servers such as a wide area application engine to serve content locally. A switch supports up to eight service groups, by load balancing among various wide area application engines. Access control policies can be applied to disable caching for certain clients, servers, or client-server pairs for maximum flexibility.
- **Platform Independent Multicast (PIM) stub:** PIM stub functionality can now be deployed on edge (access) switches using an IP Base feature license, for enabling basic multicast applications such as music on hold in routed access deployments. PIM stub is limited to edge/access switch deployments. For the distribution layer, an IP Services feature set is required for complete PIM multicast support.
- **Virtual LAN (VLAN) Flex Links load balancing:** Flex Links provides Layer 2 redundancy without requiring Spanning Tree Protocol (STP). A pair of interfaces configured as primary and backup links can load balance traffic based on VLAN. VLAN-based load balancing improves network throughput by utilizing both links for traffic distribution for different VLANs. In case of a link failure, affected VLANs will be carried over by the other link.
- **Link Layer Discovery Protocol (LLDP) and LLDP Media Extensions (LLDP-MED):** Add support for IEEE 802.1AB link layer discovery protocol for interoperability in

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multivendor networks. Switches exchange speed, duplex, and power settings with end devices such as IP phones.

- **VLAN-aware port security:** When security violations related to port security and spanning tree BPDU Guard are detected, a switch disables the port to protect the network. When a violation is detected on a data VLAN, a switch can be configured to take action only on affected the VLAN. Voice VLAN traffic is not disrupted, increasing network availability.
- **IP phone detection enhancement:** When a Cisco IP Phone is discovered in the network, additional security checks are performed for inline power, thus mitigating the risk of IP phone spoofing.
- **Port Security with private VLANs (PVLANs):** Port security can now be enabled on PVLAN interfaces, extending port security benefits of limiting the number of MAC addresses to PVLAN interfaces.
- **Dynamic Host Configuration Protocol (DHCP) snooping statistics:** Provides visibility into DHCP snooping for proactive management. Displays statistics about processed packets and various conditions that can cause a packet to be dropped (such as packet not allowed on untrusted port and so on). In addition, rate-limited SYSLOG messages can be generated for notification.
- **Power over Ethernet (PoE) MIB for Cisco Catalyst 3550 Series Switches:** Adds support for CISCO-POWER-ETHETNET-EXE-MIB for Cisco Catalyst 3550 Series (already supported on Cisco Catalyst 3750, 3750-E, 3560, and 3560-E Series Switches). It provides PoE visibility and allows administrators to proactively monitor power usage.
- **Cisco Error Disable MIB:** CISCO-ERR-DISABLE-MIB provides visibility into ports/VLANs that have been disabled because of error conditions and the reason (such as security violations related to port security, STP guard features, Unidirectional Link Detection Protocol [UDLD] violation, and so on), which helps in troubleshooting network problems.
- **Time domain reflectometry (TDR) MIB:** CISCO-CABLE-DIAG-MIB displays approximate distance to a cable fault, which is extremely useful for troubleshooting cable cuts/disconnects.
- **Border Gateway Protocol (BGP) route map “continue” for outbound interfaces:** Provides BGP route decision flexibility. When a continue clause is configured, the route map will continue to evaluate and implement match clauses in the specified route map entry after a successful match occurs. The continue clause can be configured to go to (or jump to) a specific route map entry by specifying the sequence number or to continue with the next sequence number.
- **Auto rendezvous point (RP):** Automates rendezvous point setup for PIM deployments. Enables automatic discovery and distribution of multicast group-rendezvous point mapping, simplifying multicast setup.
- **IP Unicast Reverse Path Forwarding (URPF):** Improves security for both IPv4 and IPv6 networks by detecting and mitigating denial-of-service (DoS) attacks by IP source address spoofing. URPF performs source-based IP packet filtering, dropping packets with spoofed source IP addresses, which protects the network during an attack.

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Table 1 describes product support for new features of Cisco IOS Software Release 12.2(37)SE for enterprise switches, and Table 2 lists supported switches.

Table 1. Cisco IOS Software Release 12.2(37)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	3750-IPB	3750-IPS	3750-AIS	3560-IPB	3560-IPS	3560-AIS	3550-IPB	3550-IPS	2970	2960	3000 Series
WCCP v2	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No
PIM Stub	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
VLAN Flex Links Load Balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
LLDP and LLDP-MED	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
VLAN-Aware Port Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Phone Detection Enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Port Security with PVLAN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
DHCP Snooping Statistics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
PoE MIB for Cisco Catalyst 3550 Series	E	E	E	E	E	E	E	E	E	E	E	E	Yes	Yes	No	No	No
Cisco Error Disable MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco CABLE DIAG (TDR) MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Auto Rendezvous Point	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No
Unicast RPF	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
BGP Outbound "Continue" Support	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No
CISCO-DATA-COLLECTION-MIB	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No

In Table 1, IPB = IP Base feature set; IPS = IP Services feature set; AIS = Advanced IP Services feature set.

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Table 2. Cisco Catalyst Switches Supported with Cisco IOS Software Release 12.2(37)SE

Cisco Catalyst 3750-E and 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
• 3750E-LIC= • 3750E-IPSLCB-QTY • 3750E48-IPSLCB-QTY • 3750E-AISK9LCSQTY • 3750E48-AISK9LCBQ • 3750E-AISK9LCBQTY • 3750E48-AISK9LCSQ • 3560E-LIC= • 3560E-IPSLCB-QTY • 3560E-AISK9LCSQTY • 3560E-AISK9LCBQT	• 3750E-24TD-E • 3750E-24PD-E • 3750E-48TD-E • 3750E-48PD-E • 3750E-48PD-EF	• 3750E-24TD-S • 3750E-24PD-S • 3750E-48TD-S • 3750E-48PD-S • 3750E-48PD-SF	• 3560E-24TD-E • 3750E-24PD-E • 3560E-48TD-E • 3560E-48PD-E • 3560E-48PD-EF	• 3560E-24TD-S • 3750E-24PD-S • 3560E-48TD-S • 3560E-48PD-S • 3560E-48PD-SF

Cisco Catalyst 3750 and 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	Cisco Catalyst 2970 Series Part Numbers
• CD-3750-EMI= • CD-3750G-EMI= • CD-3750G-48EMI= • 3750-AISK9-LIC-B • 3750-AISK9-LIC-S • 3750G-AISK9-LIC-B • 3750G-AISK9-LIC-S • 3750G48-AISK9LIC-B • 3750G48-AISK9LIC-S • CD-3560-EMI= • CD-3560G-EMI= • 3560-AISK9-LIC-B • 3560-AISK9-LIC-S • 3560G-AISK9-LIC-B • 3560G-AISK9-LIC-S	• 3750-48TS-E • 3750-24TS-E • 3750G-24T-E • 3750G-48TS-E • 3750G-24TS-E • 3750G-12S-E • 3750G-16TD • 3750-48PS-E • 3750-24PS-E • 3750G-24TS-1U-E • 3750G-24PS-E • 3750G-48PS-E	• 3750-48TS-S • 3750-24TS-S • 3750G-24T-S • 3750G-48TS-S • 3750G-24TS-S • 3750G-12S-S • 3750G-16TD • 3750-48PS-S • 3750-24PS-S • 3750G-24TS-1U-S • 3750G-24PS-S • 3750G-48PS-S	• 3560-24TS-E • 3560-48TS-E • 3560-48PS-E • 3560-24PS-E • 3560G-48PS-E • 3560G-24PS-E • 3560G-48TS-E • 3560G-24TS-E • 3560-8PC	• 3560-24TS-S • 3560-48TS-S • 3560-48PS-S • 3560-24PS-S • 3560G-48PS-S • 3560G-24PS-S • 3560G-48TS-S • 3560G-24TS-S • 3560-8PC	• 2970G-24T-E • 2970G-24TS-E

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Cisco Catalyst 2960 Series Part Numbers	Cisco EtherSwitch Service Modules for Cisco 2600 Series Multiservice Platforms, Cisco 2800 and 3800 Series Integrated Services Routers, and Cisco 3700 Series Multiservice Access Routers Part Numbers
• 2960-8TC • 2960G-8TC • 2960-24TC • 2960-24TT • 2960-48TC • 2960-48TT • 2960G-24TC • 2960G-48TC	• NME-16ES-1G • NME-16ES-1G-P • NME-X-23ES-1G • NME-X-23ES-1G-P • NME-XD-24ES-1S-P • NME-XD-48ES-2S-P

The following new features are available with Cisco IOS Software Release 12.2(37)SE for Metro Ethernet switches:

- **Multiprotocol Label Switching (MPLS) Operations, Administration and Maintenance (OAM):**Set of tools that will allow customers to easily monitor and troubleshoot MPLS networks. Service providers will now be able to perform ping and traceroute on label switched paths (LSPs).
- **Ethernet Local Management Interface (ELMI) customer equipment:** ELMI is a protocol between the service provider network and the customer equipment. It lets the customer equipment communicate its status and different service characteristics to the service provider network to ease troubleshooting and deployments. This feature allows the Metro Ethernet switches to be the customer equipment for ELMI.
- **CISCO-DATA-COLLECTION-MIB:** This feature allows data to be collected at a scheduled interval to better help service providers to manage their network resources. Without this feature, the backend server would have to constantly monitor each access switch to collect statistics.
- **CISCO-PROCESS-MIB:** This feature allows a trap to be sent whenever a CPU exceeds a user-configured threshold. This tool will enable customers to monitor their network for overutilization, DoS attacks, or misconfiguration.

Table 3 describes product support for new features of Cisco IOS Software Release 12.2(37)SE for Metro Ethernet switches, and Table 4 lists supported switches.

Table 3. Cisco Catalyst Metro Ethernet Switch Features Supported with Cisco IOS Software Release 12.2(37)SE

Feature	Cisco Catalyst 3750 Metro Advanced Services	Cisco Catalyst 3750 Metro IP Services	Cisco Catalyst 3750 Metro IP Base	Cisco ME 3400 Metro IP Access	Cisco ME 3400 Metro Access	Cisco ME 3400 Metro Base	Cisco ME 2400
MPLS OAM	Yes	No	No	No	No	No	No
ELMI CE	Yes	Yes	Yes	Yes	Yes	No	No
CISCO-DATA-COLLECTION-MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CISCO-PROCESS-MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TDR-MIB	Yes	Yes	Yes	Yes	Yes	Yes	No

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Feature	Cisco Catalyst 3750 Metro Advanced Services	Cisco Catalyst 3750 Metro IP Services	Cisco Catalyst 3750 Metro IP Base	Cisco ME 3400 Metro IP Access	Cisco ME 3400 Metro Access	Cisco ME 3400 Metro Base	Cisco ME 2400
BGP Route Map "Continue" for Outbound Interfaces	Yes	Yes	Yes	Yes	No	No	No
LLDP and LLDP-MED	Yes	Yes	Yes	Yes	Yes	No	No
Port Error Disable MIB	Yes	Yes	Yes	Yes	Yes	Yes	No
VLAN Flex Links Load Balancing	Yes	Yes	Yes	Yes	Yes	No	No
Port Security with PVLAN	Yes	Yes	Yes	Yes	Yes	No	No

Table 4. Cisco Catalyst Metro Ethernet Switches Supported with Cisco IOS Software Release 12.2(37)SE

Cisco Catalyst 3750 Metro Series Switches and Software Licenses	Cisco ME 3400 Series Ethernet Access Switches and Software Images	Cisco ME 2400 Series Ethernet Access Switches
• ME-C3750-24TE-M • ME3750-IPSVC-LIC • ME3750-IPSVC-LIC= • ME3750-ADVIP-LIC • ME3750-ADVIP-LIC= • ME3750-UPGRD-LIC=	• ME-3400-24-TS-A • ME-3400-24-TS-D • ME-3400G-12CS-A • ME-3400G-12CS-D • ME-3400G-2CS • CD-ME3400-B2A= • CD-ME3400-B2I= • CD-ME3400-A2I= • S340XA-12237SE • S340XAT-12237SE • S340XAK9-12237SE • S340XAK9T-12237SE • S340XB-12237SE • S340XBT-12237SE • S340XBK9-12237SE • S340XBK9T-12237SE • S340XI-12237SE • S340XIT-12237SE • S340XIK9-12237SE • S340XIK9T-12237SE	• ME-2400-24-TS-A • ME-2400-24-TS-D

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Additional Resources

Software Download

Software is available for download from the following links:

- Cisco IOS Software 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. The Cisco Catalyst 3750-E and 3560-E support Cisco IOS Software Activation, 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 feature set.

Because of export restrictions on strong cryptography software, a separate image is required for the cryptographic features (Secure Shell [SSH] Protocol, Simple Network Management Protocol Version 3 [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/en/US/products/ps7077/index.html
- Cisco Catalyst 3750 Series Switches: http://www.cisco.com/go/catalyst3750
- Cisco Catalyst 3560 Series Switches: http://www.cisco.com/go/catalyst3560
- Cisco Catalyst 3560-E Series Switches: http://www.cisco.com/en/US/products/ps7078/index.html
- Cisco Catalyst 3550 Series Switches: http://www.cisco.com/go/catalyst3550
- Cisco Catalyst 2970 Series Switches: http://www.cisco.com/go/catalyst2970
- Cisco Catalyst 2960 Series Switches: http://www.cisco.com/go/catalyst2960
- Cisco Catalyst 3750 Metro Series Switches: http://www.cisco.com/go/catalyst3750metro
- Cisco ME 3400 Series Ethernet Access Switches: http://www.cisco.com/en/US/products/ps6580/index.html
- Cisco ME 2400 Series Ethernet Access Switches: http://www.cisco.com/en/US/products/ps6581/index.html
- Cisco Catalyst 3750, 3560, 3550, 2970, and 2960 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

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- 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 Catalyst 3750 Metro and ME 3400/2400 Series release notes:
  - http://www.cisco.com/univercd/cc/td/doc/product/lan/cat3750m/index.htm
  - http://www.cisco.com/univercd/cc/td/doc/product/metro/me3400/index.htm
  - http://www.cisco.com/univercd/cc/td/doc/product/metro/me2400/index.htm
- Cisco EtherSwitch® service modules for Cisco 2600 Series Multiservice Platforms, Cisco 2800 and 3800 Series Integrated Services Routers, and Cisco 3700 Series Multiservice Access Routers: http://www.cisco.com/en/US/products/ps5854/products_data_sheet0900aecd8028d15f.html

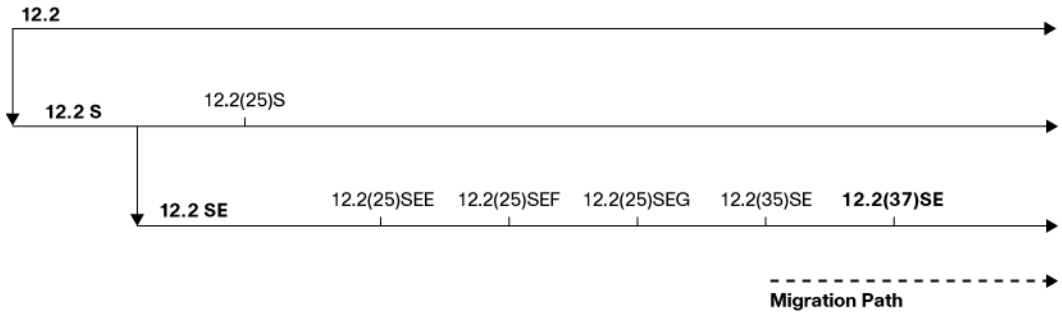
Support

Cisco IOS Software Release 12.2(37)SE follows the standard Cisco support policy indicated at 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(37)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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