

Cisco IOS Software Release 12.2(40)EX for Cisco Catalyst 3560E-12D 12-Port 10 Gigabit Ethernet Aggregation Switch

PB437122

Cisco® announces Cisco IOS® Software Release for the Cisco Catalyst® 3560E-12D 12-port 10 Gigabit Ethernet aggregation switch. This release furthers Cisco leadership by providing integrated services for Layer 2 networks, IP unicast, multicast, quality of service (QoS), integrated security, and manageability for enterprise deployments.

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

The following features are available with Cisco IOS Software Release 12.2(40)EX:

- The switch is capable of Layer 3 unicast and multicast forwarding at 10 Gigabit Ethernet speeds, including IPv4 routing with Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), and Routing Information Protocol (RIP) for IPv4 and IPv6. Multicast protocols include Protocol Independent Multicast (PIM) Sparse Mode, Dense Mode, and Source Specific Multicast (SSM) support. Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) snooping are also available for host connectivity to the multicast network. Virtualization of the network is provided with Virtual Routing and Forwarding (VRF) lite support.
- Intelligent QoS will keep everything flowing smoothly, even at 10 times the normal network speed. Industry-leading mechanisms for marking, classification, and scheduling deliver superior performance for data, voice, and video traffic, all at wire speed.
- Comprehensive Layer 2 local area network (LAN) support including 802.1d Spanning Tree Protocol, IEEE 802.1s Multiple Spanning Tree (MSTP), IEEE 802.1w Rapid Spanning Tree (RSTP), and Rapid per VLAN Spanning Tree (PVST+). High availability and connectivity with EtherChannel®, FlexLinks, Hot Standby Router Protocol (HSRP), VLAN Trunk Protocol (VTPv2), Unidirectional Link Detection (UDLD), and more.
- The Cisco Catalyst 3560-E Series supports a complete set of security features for connectivity and access control, including access control lists (ACLs), authentication, port-level security, and identity-based network services with 802.1x and extensions. Primary features include Dynamic Host Configuration Protocol (DHCP) snooping, Dynamic Address Resolution Protocol (ARP) Inspection, IP source guard, Private VLANs, and Link Layer Control Protocol (LLCP). IEEE 802.1x and other authentication methods such as Web Authentication and MAC Auth Bypass (MAB) for IP phones and PCs are included.
- A set of management and control features are available, including Cisco IOS Software CLI, Generic Online Diagnostics (GOLD), Switched Port Analyzer (SPAN) to remotely monitor ports, enhanced traffic management monitoring, and analysis, using the embedded remote

Monitoring (RMON), Simple Network Management Protocol (SNMP), and syslog protocols. Network management tools such as CiscoWorks LAN Management Solution (LMS) and Cisco Network Assistant software, PC-based tools for quick configuration based on preset templates are available. Another ease of use feature is Cisco Smartports macros to generate and reduce time to setup and administer Cisco IOS Software configurations.

The following new features are available with Cisco IOS Software Release 12.2(40)EX for enterprise Ethernet switches:

- **Configuration Replace:** The configuration replacement and configuration rollback feature provides the capability to replace the current running configuration with any saved Cisco IOS Software 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.
- **Multicast VRF-Lite:** VRF-Lite allows the customer to configure multiple private routing domains for network virtualization and VPNs. Multicast support has now been added to VRF-Lite, allowing multicast traffic per VRF.
- **Source Specific Multicast:** 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 IGMPv3.
- **IP Service-level Agreements (IP SLAs) support:** Cisco IOS Software 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 Software 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 Software IP SLAs use active monitoring to generate traffic in a continuous, reliable, and predictable manner, thus facilitating the measurement of network performance and health.
- **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.
- **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: ARP, ping, traceroute, SNMP, syslog, HSRP, IP SLAs, Trivial File Transfer Protocol (TFTP), FTP, and Unicast Reverse Path Forwarding (uRPF).
- **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).
- **EIGRP for 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.
- **Auto-QoS voice-over-IP (VoIP) enhancement:** Auto-QoS can now be used transparently 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 differentiated services code point (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.
- Dynamic Voice Virtual LAN (VLAN) for multidomain authentication (MDA): This feature is an extension to the MDA capability previously released. MDA now supports dynamic voice VLAN with RADIUS.

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

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

Feature	3560-E-IPB	3560-E-IPS	3560-E-AIS
IP SLAs Support	No	Yes	Yes
IP SLAs Responder	Yes	Yes	Yes
IP SLAs Enhance Object Tracking	No	Yes	Yes
Multicast VRF-Lite	No	Yes	Yes
Source-Specific Multicast	No	Yes	Yes
IGMP Proxy	Yes	Yes	Yes
VRF-Aware IP Services	No	Yes	Yes
Configuration Replace	Yes	Yes	Yes
LLDP-MED Location Support	Yes	Yes	Yes
EIGRP for IPv6	No	No	Yes
Auto-QoS VoIP Enhancement	Yes	Yes	Yes
Cisco MAC Notification MIB	Yes	Yes	Yes
Dynamic Voice VLAN	Yes	Yes	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.

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

Cisco Catalyst 3560-E Series License 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"> • 3560E12D-SLB-QTY • 3560E12D-AK9LB-QTY • 3560E12D-AK9LS-QTY 	WS-C3560E-12D-E	WS-C3560E-12D-S

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 3560-E supports 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 Software feature set.

Because of export restrictions on strong cryptography software, a separate image is required for the cryptographic features (Secure Shell [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 3560-E Series Switches: <http://www.cisco.com/go/3560-E>

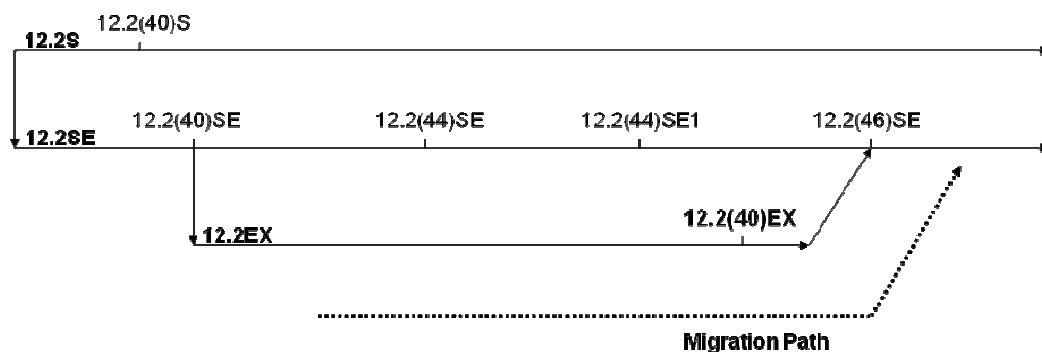
Support

Cisco IOS Software Release 12.2(40)EX 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(40)EX 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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