

Cisco IOS Software Release 12.2(55)SE for Cisco Catalyst 3750-X, 3560-X, 3750-E, 3560-E, 3750, 3560, 2975, 2960, and 2960-S Series Switches; Cisco Catalyst 3750V2 and 3560V2 Switches; Cisco Industrial Ethernet 3000 Series Switches; and Cisco Catalyst Blade Switch 3000 and 3100 Platforms

PB 614546

Cisco announces Cisco IOS[®] Software updates for Cisco[®] Catalyst[®] 3750-X, 3560-X, 3750-E, 3750, 3560-E, 3560, 2975, 2960, and 2960-S Series Switches; Cisco Catalyst 3750V2 and 3560V2 Switches; Cisco Industrial Ethernet (IE) 3000 Series Switches; and Cisco Catalyst Blade Switch 3000 and 3100 platforms.

This release brings popular technologies such as Open Shortest Path First (OSPF) for Routed Access and Embedded Event Manager (EEM) to the IP Base image. On the Cisco Catalyst 2960 and 2960-S series, it adds support for 16 static IPv4 routes in the LAN Base image, and adds support for Link Layer Discovery Protocol Media Endpoint Discovery (LLDP-MED) and Dynamic Host Configuration Protocol (DHCP) Snooping in the LAN Lite image. This release also introduces a number of enhancements, including extensions to the Cisco Smart Install technology; improvements to the Cisco EnergyWise and Auto SmartPorts technologies; and enhancements to identity-based networking, manageability, and security.

This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(55)SE.

New Features

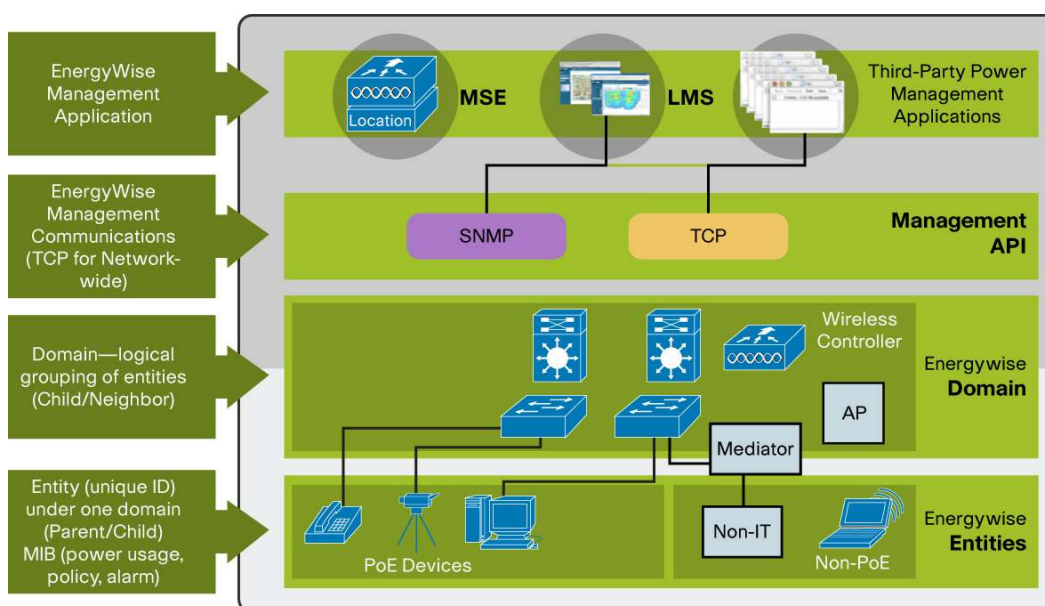
The following new features and enhancements for enterprise switches are available with this Cisco IOS Software release:

- **Ease of use and manageability enhancements:** This release incorporates important manageability improvements to Cisco Catalyst Smart Operations such as Auto SmartPorts “phase 3” enhancements and Smart Install enhancements, which are meant to reduce time of deployment and deployment costs in heterogeneous switch, router, and endpoint device environments. In particular, Auto SmartPorts enhancements include support for new and improve macros and enhancements specific for wireless access points. Smart Install enhancements include support of new devices as client and directors, support of configuration file backup and the ability to easily replace (“zero touch”) a switch in the network. A zero touch replacement process makes sure the latest image and configuration is downloaded during the device replacement process. These enhancements are also discussed in the “Ease-of-Use and Manageability Enhancements” section of this document.
- **Cisco Medianet enhancements:** Auto-QoS’s automatic configuration has been extended to include the classification of data, voice, and video flows, including those from video endpoints such as the Cisco TelePresence™ System and Cisco Surveillance Camera. In addition, a switch port can now send location information using LLDP and Cisco Discovery Protocol to the endpoint to which it is connected for dynamic location-based content distribution from servers. Cisco Discovery Protocol now supports a location type-length value (TLV) as well as an application ID TLV and a location server TLV for the aforementioned purpose.

- Cisco TrustSec™ 4.1 Identity enhancements:** This release enhances Cisco Identity-Based Networking Services (IBNS) with advanced features and extensions geared to improve integration, scalability, and mobility. The enhancements include authentication, authorization, and accounting (AAA) guarantee-first support, MAC replace, support for VLAN assignment on a port configured for multiauth mode, a configurable option to turn off 802.1X and MAC Authentication Bypass (MAB) informational messages, port access control list (ACL) improvements, and a new Address Resolution Protocol (ARP) tracking probe configuration option. These enhancements are discussed in more detail in the “Identity Enhancements” section of this document.
- Cisco EnergyWise enhancements:** This release supports an enhanced CISCO-ENERGYWISE-MIB implementation that adds 17 new MIB objects in the cewNeighborTable, including various EnergyWise endpoint (child) attributes such as device MAC addresses.

Figure 1 shows EnergyWise ecosystem and MIB usage.

Figure 1. EnergyWise Ecosystem and MIB usage



- OSPF for Routed Access:** Starting from Cisco IOS Release 12.2(55)SE, the IP Base image supports a new feature called OSPF for Routed Access. OSPF for Routed Access is designed specifically to enable you to extend Layer 3 routing capabilities to the wiring closet. It supports only one OSPFv2 and one OSPFv3 instance, with a maximum number of 200 dynamically learned routes.

With the typical topology (hub and spoke) in a campus environment, where the wiring closets (spokes) are connected to the distribution switch (hub) forwarding all nonlocal traffic to the distribution layer, the wiring closet switch need not hold a complete routing table. A best practice design, where the distribution switch sends a default route to the wiring closet switch to reach interarea and external routes (OSPF stub or totally stub area configuration), should be followed when OSPF for Routed Access is used in the wiring closet. For more details, visit <http://www.cisco.com/en/US/partner/docs/solutions/Enterprise/Campus/routed-ex.html>.

Note that the IP Base image entitles the user to configure OSPF for Routed Access; however, the restrictions on the number of routes and instances are not enforced in this release.

The IP Services image is required if one needs multiple OSPFv2 and OSPFv3 instances without route restrictions. Additionally, the IP Services image is required to enable the multi-VRF-CE feature.

- Support for EEM in IP Base:** Support for the powerful EEM feature set, previously available only in the IP Services image, is now available in IP Base as well.

Table 1 shows OSPF for Routed Access and EEM additions to the IP Base image.

Table 1. OSPF for Routed Access and EEM additions to IP Base

	Cisco® Catalyst® 3560-X and Catalyst 3750-X	Cisco Catalyst 3560 and Catalyst 3750, Including E and X Series	
Functions	LAN Base	IP Base	IP Services
Layer 2+	<ul style="list-style-type: none"> Enterprise access Layer 2 Wide range of Layer 2 access features for enterprise deployments 	<ul style="list-style-type: none"> Complete access Layer 2 Supports all Cisco Catalyst 2000 and Catalyst 3000 Layer 2 features, including hot standby protocols; supports Cisco StackPower™ technology (Cisco Catalyst 3750-X) 	
Layer 3	<ul style="list-style-type: none"> No routing support Support for SVI with no IP routing support 	<ul style="list-style-type: none"> Enterprise access Layer 3 Static routing, RIP, stub PIM, stub EIGRP, <i>OSPF for Routed Access</i>^{New} 	<ul style="list-style-type: none"> Complete access Layer 3 OSPF, EIGRP, BGP, IS-IS, PIM, VRF-lite, WCCP, PBR
Manageability	<ul style="list-style-type: none"> Basic manageability Support for a wide range of MIBs, IPSLA Responder, and RSPAN 	<ul style="list-style-type: none"> Enterprise access Layer 3 <i>EEM</i>, Gold-Lite and Smart Install Director 	<ul style="list-style-type: none"> Complete access Layer 3 IPSLA Initiator
Security	<ul style="list-style-type: none"> Enterprise access security DHCP Snooping, IPSG, DAI, PACLS, Cisco Identity 4.0, NAC and 802.1x features 	<ul style="list-style-type: none"> Complete access security Router and VLAN ACLs, private VLANs, complete security, TrustSec SXP, and IEEE 802.1AE (Cisco Catalyst 3560-X and Catalyst 3750-X) 	
QoS	<ul style="list-style-type: none"> Enterprise access QoS Ingress policing, Trust Boundary, AutoQoS, and DSCP mapping 	<ul style="list-style-type: none"> Complete access QoS Support for all Cisco Catalyst 2000 and Catalyst 3000 QoS features, including per-VLAN polices 	

Note: IP Services feature set includes all IP Base features. IP Base feature set includes all LAN Base features.

- **Support for 16 static IPv4 routes in LAN Base (2960, 2975, and 2960-S only):** With the new LAN Base Routing SDM template, support is added for up to 16 user-configurable static IPv4 routes, in addition to directly connected routes and any default routes for the management interface. Static routing is supported only on SVIs. Router access control lists (ACLs) can be configured in conjunction with static routing as well.
- **LLDP-MED support in LAN Lite (2960 and 2960-S only):** Support for the LLDP-MED protocol, previously available only in the LAN Base feature set (or better), is now available in LAN Lite as well.
- **DHCP Snooping (including option 82) support in LAN Lite (2960 and 2960-S only):** Support for the DHCP Snooping feature, previously available only in the LAN Base feature set (or better), is now available in LAN Lite as well.
- **Ternary content-addressable memory (TCAM) consistency check routines:** Support for new routines to detect and correct invalid TCAM table entries on the Cisco Catalyst 2975, 2960 (not supported on 2960-S), 3560, 3560v2, 3750, 3750v2, and CBS 30x0 switches.
- **Location enhancements:** Support was added in LLDP and Cisco Discovery Protocol to transport hierarchical civic location information. Furthermore, the location information can be transmitted over Cisco Discovery Protocol between wired switches and attached devices, from a switch to the endpoint (when the location info is configured on the switch), or vice versa from the device to the switch (which will store the info and eventually relay it to a location appliance) when the end device's location is configured by the user.
- **Improvements in QoS policing rates on the Cisco Catalyst 2960(S) and 2975 in LAN Base:** minimum policing rate values were lowered from 1 Mbps to 8 Kbps on the Cisco Catalyst 2960 and 2975 and to 16 Kbps on the Cisco Catalyst 2960S. The Cisco Catalyst 2960S's minimum rate granularity is 16 Kbps.
- Support for the QoS class-default policy statement on the Cisco Catalyst 2960, 2975, 3560(v2), 3750(v2), 3560E/3750E, 3560X/3750X, CBS 31x0, and 30x0 switches (not supported on 2960-S).
- Support for a command to increase the NVRAM buffer size up to 1 MB in the rare cases in which a large configuration cannot be saved with the default NVRAM size (512 KB).

- Support for the Security Group Tag (SGT) Exchange Protocol (SXP) component of Cisco TrustSec, a security architecture using authentication, encryption, and access control on the Cisco Catalyst 3560E, 3750E, 3560v2, 3750v2, 3560, 3750, CBS 31x0, and 30x0 switches. (Cisco Catalyst 3560X and 3750X support SXP since Cisco IOS Software Release 12.2(53)SE.)

Cisco Smart Operations Ease-of-Use and Manageability Enhancements

The following ease-of-use and manageability enhancements are included in this release:

- **Smart Install enhancements:** Smart Install enables plug-and-play configuration and image distribution from a single point of management (director) in the network and therefore can reduce total cost of ownership (TCO) and operational expenses for the customer.

In this release support was added for the following platforms:

- Cisco Catalyst 3560X (client or director)
- Cisco Catalyst 3750X (client or director)
- Cisco Catalyst 2960S (client)

Moreover, support for CISCO-SMART-INSTALL-MIB was introduced too.

Cisco Smart Install is a transparent plug-and-play technology to configure the Cisco IOS Software image and switch configuration without user intervention. Smart Install utilizes dynamic IP address allocation and the assistance of other switches to facilitate installation, providing transparent network plug and play. In conjunction with it, Cisco Smart Configuration provides a single point of management for a group of switches and adds the ability to archive and back up configuration files to a file server or switch, allowing transparent zero-touch switch replacement. Zero-touch replacement enables the user to remove a faulty switch and replace it with a new switch of the same model. When the new switch is detected, the current configuration and Cisco IOS Software are downloaded, allowing switch replacement by a user without switch knowledge.

- **Auto SmartPorts (ASP) enhancements.** The new Auto SmartPorts capabilities include:
 - Global configuration macros, to enable the user to apply configuration globally on a switch or on all interfaces of the switch.
 - A last resort macro, to apply a built-in macro on interfaces where a device is detected but is not part of the well-known device list. This capability is useful for the auto configuration of ports connected, for example, to personal computers.
 - A custom macro, to allow the user to set interfaces into a desired “default” configuration state every time ASP removes previously applied macro configuration.
 - Per port and global trigger control, which allows greater control over which devices and interfaces are automatically configured using Auto Smart Ports. The user can now select a device’s interface on which a macro needs to be applied and/or select the mode of device detection (for example, Cisco Discovery Protocol, LLDP, or MAC-address based).
 - Support of use of VLAN IDs as VLAN name parameters.
 - Support of the use by wireless access points of the new Cisco Discovery Protocol Auto-QoS extensions, to communicate to the switch the proper bandwidth information in order to apply the corresponding QoS configuration on the switch interface.

Identity Enhancements

The following identity enhancements are included in this release:

- **MAC replace:** MAC replace allows new hosts to connect to abandoned ports behind a hub or third-party IP phone without generating a violation. The switch terminates the initial session and resets the authentication sequence based on the new MAC address. For directly connected hosts or for hosts behind Cisco IP phones, the switches now know the initial host has been removed.
- AAA guarantee-first support for enabling or disabling system accounting as the first record.
- An option to suppress verbose 802.1X, authentication manager, and MAC authentication bypass syslog messages.
- Support for dynamic creation or attachment of an auth-default ACL on a port that has no static ACL configured.
- **Support for VLAN assignment on a port configured for multiauth mode:** the RADIUS server assigns a VLAN to the first authenticated host on the port, and subsequent hosts will use the same VLAN. Voice VLAN assignment is supported for one IP phone.
- ARP tracking probe enhancement to specify a source IP address for a VLAN.

Product Support for New Features and Enhancements

Table 2 summarizes product support for new features of Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 3750-X, 3750-E, 3560-X, and 3560-E Series Switches.

Table 2. New Features in Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 3750-X, 3750-E, 3560-X, and 3560-E Series Switches

Feature	Cisco Catalyst 3750-X LAN Base Feature Set	Cisco Catalyst 3750-X IP Base Feature Set	Cisco Catalyst 3750-E IP Base Feature Set	Cisco Catalyst 3750-X IP Services Feature Set	Cisco Catalyst 3750-E IP Services Feature Set	Cisco Catalyst 3560-X LAN Base Feature Set	Cisco Catalyst 3560-X IP Base Feature Set	Cisco Catalyst 3560-E IP Base Feature Set	Cisco Catalyst 3560-X IP Services Feature Set	Cisco Catalyst 3560-E IP Services Feature Set
Smart Install enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto SmartPorts enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medianet Auto-QoS enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improved CISCO-ENERGYWISE-MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF for Routed Access	No	Yes	Yes	-	-	No	Yes	Yes	-	-
Support for Embedded Event Manager (EEM) in IP Base	-	Yes	Yes	-	-	-	Yes	Yes	-	-
Support for 16 static IPv4 routes in LAN Base	No	-	-	-	-	No	-	-	-	-
TCAM Memory Consistency Check Routines	No	No	No	No	No	No	No	No	No	No
Location enhancement: hierarchical location	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Feature	Cisco Catalyst 3750-X LAN Base Feature Set	Cisco Catalyst 3750-X IP Base Feature Set	Cisco Catalyst 3750-E IP Base Feature Set	Cisco Catalyst 3750-X IP Services Feature Set	Cisco Catalyst 3750-E IP Services Feature Set	Cisco Catalyst 3560-X LAN Base Feature Set	Cisco Catalyst 3560-X IP Base Feature Set	Cisco Catalyst 3560-E IP Base Feature Set	Cisco Catalyst 3560-X IP Services Feature Set	Cisco Catalyst 3560-E IP Services Feature Set
Location enhancement: Cisco Discovery Protocol location support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for the QoS class-default policy statement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for a command to increase the NVRAM buffer size	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MAC Replace	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AAA guarantee-first support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Option to suppress verbose identity messages	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dynamic attachment of an auth-default ACL on a port that has no static ACL configured	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for VLAN assignment on a port configured for multi-auth mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ARP tracking probe enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 summarizes product support for new features of Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 3750 and 3560 Series and Cisco Catalyst 3750V2 and 3560V2 switches.

Table 3. New Features in Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 3750 and 3560 Series and Cisco Catalyst 3750V2 and 3560V2 Switches

Feature	Cisco Catalyst 3750 IP Base Feature Set	Cisco Catalyst 3750V2 IP Base Feature Set	Cisco Catalyst 3750 IP Services Feature Set	Cisco Catalyst 3750V2 IP Services Feature Set	Cisco Catalyst 3560 IP Base Feature Set	Cisco Catalyst 3560V2 IP Base Feature Set	Cisco Catalyst 3560 IP Services Feature Set	Cisco Catalyst 3560V2 IP Services Feature Set
Smart Install enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto SmartPorts enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medianet Auto-QoS enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improved CISCO-ENERGYWISE-MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF for Routed Access	Yes	Yes	-	-	Yes	Yes	-	-
Support for Embedded Event Manager (EEM) in IP Base	Yes	Yes	-	-	Yes	Yes	-	-
TCAM Memory Consistency Check Routines	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Feature	Cisco Catalyst 3750 IP Base Feature Set	Cisco Catalyst 3750V2 IP Base Feature Set	Cisco Catalyst 3750 IP Services Feature Set	Cisco Catalyst 3750V2 IP Services Feature Set	Cisco Catalyst 3560 IP Base Feature Set	Cisco Catalyst 3560V2 IP Base Feature Set	Cisco Catalyst 3560 IP Services Feature Set	Cisco Catalyst 3560V2 IP Services Feature Set
Location enhancement: hierarchical location	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location enhancement: Cisco Discovery Protocol location support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for the QoS class-default policy statement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for a command to increase the NVRAM buffer size	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for the Security Group Tag (SGT) Exchange Protocol (SXP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MAC Replace	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AAA guarantee-first support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Option to suppress verbose identity messages	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dynamic attachment of an auth-default ACL on a port that has no static ACL configured	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for VLAN assignment on a port configured for multi-auth mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ARP tracking probe enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4 summarizes product support for new features of Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 2960 and 2975 Series, Cisco IE 3000 Series, and Cisco Catalyst Blade Switch 3000 and 3100 platforms.

Table 4. New Features in Cisco IOS Software Release 12.2(55)SE for the Cisco Catalyst 2960 and 2975 Series, Cisco IE 3000 Series, and Cisco Catalyst Blade Switch 3000 and 3100 Platforms

Feature	Cisco Catalyst 2960 and 2975 Series LAN Base Feature Set	Cisco Catalyst 2960 Series LAN Lite Feature Set	Cisco Catalyst 2960-S Series LAN Base Feature Set	Cisco Catalyst 2960-S Series LAN Lite Feature Set	Cisco IE 3000 Series LAN Base Feature Set	Cisco IE 3000 Series IP Services Feature Set	Cisco Catalyst Blade Switch 3000 Platform	Cisco Catalyst Blade Switch 3100 Platform IP Base Feature Set	Cisco Catalyst Blade Switch 3100 Platform IP Services Feature Set
Smart Install enhancements	Yes	Yes	Yes	Yes	No	No	No	No	No
Auto SmartPorts enhancements	Yes	Yes	Yes	Yes	No	No	No	No	No
Medianet Auto-QoS enhancements	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Improved CISCO-ENERGYWISE-MIB	Yes	Yes	Yes	Yes	No	No	No	No	No
OSPF for Routed Access	No	No	No	No	No	No	Yes	Yes	-

Feature	Cisco Catalyst 2960 and 2975 Series LAN Base Feature Set	Cisco Catalyst 2960 Series LAN Lite Feature Set	Cisco Catalyst 2960-S Series LAN Base Feature Set	Cisco Catalyst 2960-S Series LAN Lite Feature Set	Cisco IE 3000 Series LAN Base Feature Set	Cisco IE 3000 Series IP Services Feature Set	Cisco Catalyst Blade Switch 3000 Platform	Cisco Catalyst Blade Switch 3100 Platform IP Base Feature Set	Cisco Catalyst Blade Switch 3100 Platform IP Services Feature Set
Support for Embedded Event Manager (EEM) in IP Base	-	-	-	-	-	-	Yes	Yes	-
Support for 16 static IPv4 routes in LAN Base	Yes	-	Yes	-	No	-	-	-	-
Link Layer Discovery Protocol (LLDP) MED Support in LAN Lite	-	Yes	-	Yes	-	-	-	-	-
DHCP Snooping (including option 82) Support in LAN Lite	-	Yes	-	Yes	-	-	-	-	-
TCAM Memory Consistency Check Routines	Yes	Yes	No	No	No	No	Yes	No	No
Location enhancement: hierarchical location	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Location enhancement: Cisco Discovery Protocol location support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improvements in QoS policing rates	Yes	No	Yes	No	-	-	-	-	-
Support for the QoS class-default policy statement	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Support for a command to increase the NVRAM buffer size	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for the Security Group Tag (SGT) Exchange Protocol (SXP)	No	No	No	No	No	No	Yes	Yes	Yes
MAC Replace	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
AAA guarantee-first support	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Option to suppress verbose identity messages	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dynamic attachment of an auth-default ACL on a port that has no static ACL configured	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Support for VLAN assignment on a port configured for multi-auth mode	Yes	No	Yes	No	No	No	Yes	Yes	Yes
ARP tracking probe enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Part Numbers for Supported Products

Table 5 lists the part numbers for the switches supported by Cisco IOS Software Release 12.2(55)SE.

Table 5. Part Numbers for Cisco Catalyst Switches Software Licenses Supported by Cisco IOS Software Release 12.2(55)SE

Cisco Catalyst 3560-X Series License Upgrade Part Numbers	Cisco Catalyst 3750-X Series License Upgrade Part Numbers	Cisco Catalyst 3560-X and Cisco Catalyst 3750-X Series LAN Base Part Numbers	Cisco Catalyst 3560-X and 3750-X Series IP Base Part Numbers	Cisco Catalyst 2960-S Series LAN Base and LAN Lite License Part Numbers
<ul style="list-style-type: none"> • C3560X-LIC= <ul style="list-style-type: none"> ◦ C3560X-24-L-S= ◦ L-C3560X-24-L-S= ◦ C3560X-24-S-E= ◦ L-C3560X-24-S-E= ◦ C3560X-24-L-E= ◦ L-C3560X-24-L-E= ◦ C3560X-48-L-S= ◦ L-C3560X-48-L-S= ◦ C3560X-48-S-E= ◦ L-C3560X-48-S-E= ◦ C3560X-48-L-E= ◦ L-C3560X-48-L-E= 	<ul style="list-style-type: none"> • C3750X-LIC= <ul style="list-style-type: none"> ◦ C3750X-24-L-S= ◦ L-C3750X-24-L-S= ◦ C3750X-24-S-E= ◦ L-C3750X-24-S-E= ◦ C3750X-24-L-E= ◦ L-C3750X-24-L-E= ◦ C3750X-48-L-S= ◦ L-C3750X-48-L-S= ◦ C3750X-48-S-E= ◦ L-C3750X-48-S-E= ◦ C3750X-48-L-E= ◦ L-C3750X-48-L-E= 	<ul style="list-style-type: none"> • 3560X-48T-L • 3560X-24P-L • 3560X-48P-L • 3560X-48PF-L • 3750X-48T-L • 3750X-24P-L • 3750X-48P-L • 3750X-48PF-L 	<ul style="list-style-type: none"> • 3560X-24T-S • 3560X-48T-S • 3560X-24P-S • 3560X-48P-S • 3560X-48PF-S • 3750X-24T-S • 3750X-48T-S • 3750X-24P-S • 3750X-48P-S • 3750X-48PF-S 	<ul style="list-style-type: none"> • 2960S-48FPD-L • 2960S-48LPD-L • 2960S-24PD-L • 2960S-48TD-L • 2960S-24TD-L • 2960S-48FPS-L • 2960S-48LPS-L • 2960S-24PS-L • 2960S-48TS-L • 2960S-24TS-L • 2960S-48TS-S • 2960S-24TS-S
Cisco Catalyst 3560-E Series Upgrade License Part Numbers	Cisco Catalyst 3750-E Series Upgrade License Part Numbers	Cisco Catalyst 3560-E and Cisco Catalyst 3750-E Series IP Services Part Numbers	Cisco Catalyst 3560-E and 3750-E Series IP Base Part Numbers	Cisco Catalyst 3750 and 3560 Series License CD Part Numbers
<ul style="list-style-type: none"> • 3560E-LIC= <ul style="list-style-type: none"> ◦ 3560E-IPSLCB-QTY ◦ 3560E12D-SLB-QTY ◦ 3560E12SD-SLB-QT • L-3560E-LIC= <ul style="list-style-type: none"> ◦ L-3560E-IPSLCB-QTY ◦ L-3560E12D-SLB-QTY ◦ L-3560E12SD-SLB-QT 	<ul style="list-style-type: none"> • 3750E-LIC= <ul style="list-style-type: none"> ◦ 3750E-IPSLCB-QTY ◦ 3750E48-IPSLCB-QTY • L-3750E-LIC= <ul style="list-style-type: none"> ◦ L-3750E-IPSLCB-QTY ◦ L-3750E48-IPSLCB-Q 	<ul style="list-style-type: none"> • 3560E-24TD-E • 3750E-24PD-E • 3560E-48TD-E • 3560E-48PD-E • 3560E-48PD-EF • 3560E-12D-E • 3560E-12SD-E • 3750E-24TD-E • 3750E-24PD-E • 3750E-48TD-E • 3750E-48PD-E • 3750E-48PD-EF 	<ul style="list-style-type: none"> • 3750E-24TD-S • 3750E-24PD-S • 3750E-48TD-S • 3750E-48PD-S • 3750E-48PD-SF • 3560E-24TD-S • 3560E-24TD-SD • 3560E-24PD-S • 3560E-48TD-S • 3560E-48TD-SD • 3560E-48PD-S • 3560E-48PD-SF • 3560E-12D-S • 3560E-12SD-S 	<ul style="list-style-type: none"> • CD-3750-EMI= • CD-3750G-EMI= • CD-3750G-48EMI= • CD-3560-EMI= • CD-3560G-EMI= • CD-3750V2-EMI= • CD-3560V2-EMI=

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 2960 Series Part Numbers	Cisco Catalyst Blade Switches and IE 3000 Series Part Numbers
<ul style="list-style-type: none"> • 3750-48TS-E • 3750-24TS-E • 3750G-24T-E • 3750G-48TS-E • 3750G-24TS-E • 3750G-12S-E • 3750G-16TD-E • 3750-48PS-E • 3750-24PS-E • 3750G-24TS-1U-E • 3750G-24PS-E • 3750G-48PS-E • 3750V2-48TS-E • 3750V2-24TS-E • 3750V2-48PS-E • 3750V2-24PS-E 	<ul style="list-style-type: none"> • 3750-48TS-S • 3750-24TS-S • 3750G-24T-S • 3750-24FS-S • 3750G-48TS-S • 3750G-24TS-S • 3750G-12S-S • 3750G-16TD-S • 3750-48PS-S • 3750-24PS-S • 3750G-24TS-1U-S • 3750G-24PS-S • 3750G-48PS-S • 3750G-24WS-S50 • 3750G-24WS-S25 • 3750V2-48TS-S • 3750V2-24TS-S • 3750V2-48PS-S • 3750V2-24PS-S 	<ul style="list-style-type: none"> • 3560-24TS-E • 3560-48TS-E • 3560-48PS-E • 3560-24PS-E • 3560G-48PS-E • 3560G-24PS-E • 3560G-48TS-E • 3560G-24TS-E • 3560V2-24TS-E • 3560V2-48TS-E • 3560V2-24PS-E • 3560V2-48PS-E 	<ul style="list-style-type: none"> • 2960PD-8TT-L • 2960-8TC-L • 2960-24TT-L • 2960-24TC-L • 2960-24PC-L • 2960-24LT-L • 2960-48TT-L • 2960-48TC-L • 2960-48PST-L • 2960G-8TC-L • 2960G-24TC-L • 2960G-48TC-L • 2960-24-S • 2960-24TC-S • 2960-48TC-S • 2960-48TT-S • 2960-8TC-S • 2960-24LC-S • 2960-24PC-S • 2960-48PST-S • 2975GS-48PS-L 	<ul style="list-style-type: none"> • WS-CBS3130X-S • WS-CBS3130X-S-F • WS-CBS3130G-S • WS-CBS3130G-S-F • WS-CBS3110X-S • WS-CBS3110X-S-I • WS-CBS3110G-S • WS-CBS3110G-S-I • 3110-IPS-LIC • 3110-IPS-IBM • WS-CBS3120G-S • WS-CBS3120X-S • 3120-IPS-LIC • WS-CBS3032-DEL • WS-CBS3032-DEL-F • WS-CBS3020-HPQ • WS-CBS3012-IBM • WS-CBS3012-IBM-I • WS-CBS3125G-S • WS-CBS3125X-S • WS-CBS3120G-S • WS-CBS3120X-S • SIEIPST-12252SE • SIEIPSK9T-12252SE

Additional Resources

Software Downloads

Software is available for download from the following sites:

- 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 IP Services (formerly called EMI) software upgrade kit when upgrading a switch from IP Base (formerly called SMI) to IP Services software. Downloads of IP Base and IP Services files are monitored for adherence to this requirement. The Cisco Catalyst 3750-X, 3560-X, 3750-E, and 3560-E Series Switches support the new Cisco IOS Software licensing infrastructure, which authorizes and enables the use of the 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. On the basis of the license type, Cisco IOS Software enables the appropriate Cisco IOS Software feature set (for more information on packaging and licensing, refer to http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps6406/white_paper_c11-579326_ps10745_Products_White_Paper.html).

Note that the Advanced IP Services license has reached end-of-life status since Cisco IOS Software Release 12.2(50)SE.

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.

Product Information

Additional product information is available at the following sites:

- Cisco Catalyst 3750-X Series Switches: <http://www.cisco.com/go/3750X>
- Cisco Catalyst 3560-X Series Switches: <http://www.cisco.com/go/3560X>
- Cisco Catalyst 3750-E Series Switches: <http://www.cisco.com/go/3750E>
- Cisco Catalyst 3750 Series Switches: <http://www.cisco.com/go/3750>
- Cisco Catalyst 3560-E Series Switches: <http://www.cisco.com/go/3560E>
- Cisco Catalyst 3560 Series Switches: <http://www.cisco.com/go/3560>
- Cisco Catalyst 2960-S Series Switches: <http://www.cisco.com/go/2960S>
- Cisco Catalyst 2960 Series Switches: <http://www.cisco.com/go/2960>
- Cisco Catalyst 2975 Series Switches: <http://www.cisco.com/go/2975>
- Cisco Catalyst 3750-E, 3560-E, 3750, 3560, 2975, and 2960 Series release notes:
 - http://www.cisco.com/en/US/products/ps7077/prod_release_notes_list.html
 - http://www.cisco.com/en/US/products/ps7078/prod_release_notes_list.html
 - <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/cat2960/index.htm>
 - http://www.cisco.com/en/US/products/ps10081/prod_release_notes_list.html
- Cisco Catalyst Blade Switches: <http://www.cisco.com/en/US/products/ps6748/index.html>
- Cisco IE 3000 Series Switches: <http://www.cisco.com/en/US/products/ps9703/index.html>

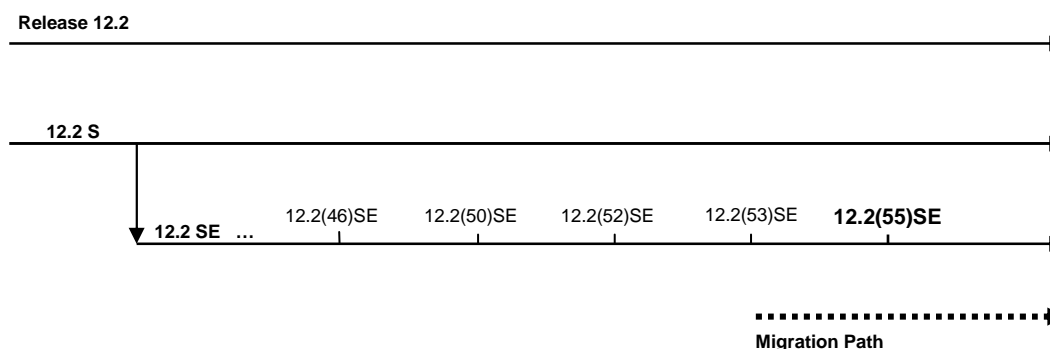
Support

Cisco IOS Software Release 12.2(55)SE follows the standard Cisco support policy. For more information, visit http://www.cisco.com/en/US/products/products_end-of-life_policy.html.

Software Image Migration Guide

Figure 2 displays Cisco IOS Software Release 12.2(55)SE functions relative to Releases 12.2S and 12.2SE and identifies the recommended migration path.

Figure 2. Cisco IOS Software 12.2 Release Train





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