

Cisco IOS Software Release 12.2(46)SE for Cisco Catalyst 3750-E, 3560-E, 3750, 3560, 2960, and Cisco Catalyst Blade Switch Series

PB493554

Cisco® announces Cisco IOS® Software updates for Cisco Catalyst® 3750-E, 3750, 3560-E, 3560, 2960, and Cisco Catalyst Blade Switch Series. This release furthers Cisco leadership by providing integrated services for Layer 2 and Layer 3 networks, IPv6, and manageability for enterprise deployments.

This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(46)SE.

The following new features are available with Cisco IOS Software release for enterprise Ethernet switches:

- **Hot Standby Router Protocol (HSRP) Version 2:** HSRP version 2 provides improved high availability and faster convergence in case of network failure. The new enhancements include millisecond timer values and a larger range of group numbers.
- **Enhanced Port Aggregation Protocol (PAgP):** PAgP has been enhanced to support the Virtual Switching System (VSS) over EtherChannel®. The switch will automatically serve as a VSS client, using enhanced PAgP on this EtherChannel for dual-active detection.
- **Disable per VLAN MAC Learning:** Conservation of switch resources is an important consideration in large-scale networks. The ability to disable the learning of host MAC addresses on a per VLAN basis allows the user to select how hardware resources are utilized within the switch. This capability improves scalability of resources in a Layer 2 network.
- **Autostate Exclude:** Autostate exclude mode allows you to specify the ports to exclude from Autostate. In normal Autostate mode, the Layer 3 interfaces remain up if at least one port in the VLAN remains up. If you have appliances, such as load balancers or firewall servers that are connected to the ports in the VLAN, you can configure these ports to be excluded from the Autostate to make sure that the forwarding switched virtual interface (SVI) does not go down if these ports become inactive.
- **Dynamic Host Configuration Protocol (DHCP) for IPv6:** DHCP client, server and relay for IPv6 addresses are now supported. DHCP allows automated configuration and IP address allocation in an IPv6 network.
- **HSRP for IPv6:** HSRP is used by customers to provide high availability and allow fast convergence during a network outage. HSRP now supports IPv6 networks.
- **Enhanced Object Tracking (EOT) Static Route Support:** Reliable static routing EOT allows users to track static routes using parameters based upon connectivity, latency, packet loss, and jitter and force a failover to utilize a backup route under adverse network conditions.

- **DHCP Port-Based Allocation:** DHCP is the standard mechanism to automatically allocate IP addresses. The Cisco IOS Software DHCP server functionality can now allocate the same address to a specific port. This new feature allows persistent allocation of IP addresses to specified network devices.
- **Local Web Authentication Banner:** Web authentication is a key security feature that presents an authentication webpage before users are allowed to enter the network. The correct username and password are required for network access. Local web authentication banner is an enhancement to allow users to add company banners and customize the webpage.
- **Cisco Network Admission Control (NAC) and Identity MIB support:** User authentication and security provided by NAC are essential for customer networks. The Cisco NAC security solution offers a systems approach to customers for assuring endpoint device compliancy and vulnerability checks. Now supported to help NAC deployments is the Cisco NAC-NAD-MIB. The Cisco Port Access Entity (PAE) and Cisco-PAE-MIB provide information for IEEE 802.1x deployments and identity access to the network.
- **Generic Message Authentication for Secure Shell (SSH) Protocol:** The SSH Protocol now supports generic message authentication and is compliant with RFC 4256.
- **Voice Aware Security Violations:** Security violations on a port are now voice aware. If a voice VLAN is present, security violations for data and voice are treated separately, allowing better control of network security.
- **Multi Domain Authentication (MDA) for Cisco Catalyst 2960:** MDA is an essential feature for voice deployments, allowing the phone and PC to authenticate separately on to the network. MDA is now supported on the Cisco Catalyst 2960 platform.
- **Radius Filter ID Attribute for Cisco Catalyst 2960:** Support for radius filter ID is now available on the Cisco Catalyst 2960 and can be used with IEEE 802.1x deployments.
- **Software Activation Evaluation License:** The Cisco Catalyst 3560-E, 3750-E, and CBS31xx support the software activation feature. Evaluation or built-in software activation allows the customer to enable a temporary license for quick replacement of a failed switch. The temporary license can be used while a return material authorization (RMA) is processed.
- **Software License Transfer:** The software activation license for the Cisco Catalyst 3560-E, 3750-E, and CBS31xx may now be transferred between switches. If one switch is being removed from the network, the license for that switch may be moved between switches using the Cisco license portal.
- **Digital Optical Monitoring (DOM) for the 3560E-12D and 3560E-12SD:** DOM is now supported on the new Cisco Catalyst 3560E-12D and 3560E-12SD switches. DOM supports the SX, LX, and ZX modules.

Table 1 describes product support for new features of Cisco IOS Software Release 12.2(46)SE for enterprise switches, and Table 2 lists the supported switches.

Table 1. Cisco IOS Software Release 12.2(46)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 |
|--|------------|------------|------------|------------|------------|------------|
| HSRIPv2 | Yes | Yes | Yes | Yes | Yes | Yes |
| Enhanced PaGP | Yes | Yes | Yes | Yes | Yes | Yes |
| Disable VLAN Learning | Yes | Yes | Yes | Yes | Yes | Yes |
| Autostate Exclude | Yes | Yes | Yes | Yes | Yes | Yes |
| DHCP for IPV6 | No | No | Yes | No | No | Yes |
| HSRP for IPv6 | No | No | Yes | No | No | Yes |
| EOT Static Route | No | Yes | Yes | No | Yes | Yes |
| DHCP Port Based Allocation | Yes | Yes | Yes | Yes | Yes | Yes |
| Local Web Banner | Yes | Yes | Yes | Yes | Yes | Yes |
| NAC and Identity MIB | Yes | Yes | Yes | Yes | Yes | Yes |
| Generic Message for SSH | Yes | Yes | Yes | Yes | Yes | Yes |
| Voice Aware Security | Yes | Yes | Yes | Yes | Yes | Yes |
| MDA for the Cisco Catalyst 2960 | E | E | E | E | E | E |
| Radius Filter ID for the 2960 | E | E | E | E | E | E |
| Software Activation Evaluation License | Yes | Yes | Yes | Yes | Yes | Yes |
| Software License Transfer | Yes | Yes | Yes | Yes | Yes | Yes |
| DOM for 3560E-12D and 3560E-12SD | E | E | E | Yes | Yes | Yes |

| Feature | 3750-IPB | 3750-IPS | 3750-AIS | 3560-IPB | 3560-IPS | 3560-AIS |
|--|----------|----------|----------|----------|----------|----------|
| HSRIPv2 | Yes | Yes | Yes | Yes | Yes | Yes |
| Enhanced PaGP | Yes | Yes | Yes | Yes | Yes | Yes |
| Disable VLAN Learning | Yes | Yes | Yes | Yes | Yes | Yes |
| Autostate Exclude | Yes | Yes | Yes | Yes | Yes | Yes |
| DHCP for IPV6 | No | No | Yes | No | No | Yes |
| HSRP for IPv6 | No | No | Yes | No | No | Yes |
| EOT Static Route | No | Yes | Yes | No | Yes | Yes |
| DHCP Port Based Allocation | Yes | Yes | Yes | Yes | Yes | Yes |
| Local Web Banner | Yes | Yes | Yes | Yes | Yes | Yes |
| NAC and Identity MIB | Yes | Yes | Yes | Yes | Yes | Yes |
| Generic Message for SSH | Yes | Yes | Yes | Yes | Yes | Yes |
| Voice Aware Security | Yes | Yes | Yes | Yes | Yes | Yes |
| MDA for the Cisco Catalyst 2960 | E | E | E | E | E | E |
| Radius Filter ID for the 2960 | E | E | E | E | E | E |
| Software Activation Evaluation License | No | No | No | No | No | No |
| Software License Transfer | No | No | No | No | No | No |

| Feature | 2960-LB | 2960-LL | CBS 30XX | CBS 31XX-IPB | CBS 31XX-IPS | CBS 31XX-AIS |
|---|---------|---------|----------|--------------|--------------|--------------|
| HSRPv2 | No | No | Yes | Yes | Yes | Yes |
| Enhanced PaGP | Yes | No | Yes | Yes | Yes | Yes |
| Disable VLAN Learning | Yes | No | Yes | Yes | Yes | Yes |
| Autostate Exclude | No | No | Yes | Yes | Yes | Yes |
| DHCP for IPV6 | No | No | No | No | No | Yes |
| HSRP for IPv6 | No | No | No | No | No | Yes |
| EOT Static Route | No | No | No | No | Yes | Yes |
| DHCP Port Based Allocation | Yes | Yes | Yes | Yes | Yes | Yes |
| Local Web Banner | Yes | No | Yes | Yes | Yes | Yes |
| NAC and Identity MIB | Yes | No | Yes | Yes | Yes | Yes |
| Generic Message for SSH | Yes | Yes | Yes | Yes | Yes | Yes |
| Voice Aware Security | Yes | No | Yes | Yes | Yes | Yes |
| MDA for the Cisco Catalyst 2960 | Yes | No | Yes | Yes | Yes | Yes |
| Radius Filter ID for the 2960 | Yes | No | Yes | Yes | Yes | Yes |
| Software Activation Evaluation License | No | No | No | Yes | Yes | Yes |
| Software License Transfer | No | No | No | Yes | Yes | Yes |

In Table 1, IPB = IP Base feature set, IPS = IP Services feature set, AIS = Advanced IP Services feature set, LB = LAN Base feature set, LL = LAN Lite 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(46)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 |
|---|---|---|--|--|
| <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 3560E-24TD-E • 3750E-24PD-E • 3560E-48TD-E • 3560E-48PD-E • 3560E-48PD-EF • C3560E-12D-E • C3560E-12SD-E | <ul style="list-style-type: none"> • 3560E-24TD-S • 3750E-24PD-S • 3560E-48TD-S • 3560E-48PD-S • 3560E-48PD-SF • C3560E-12D-S • C3560E-12SD-S |

| 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 |
|--|---|--|--|--|
| <ul style="list-style-type: none"> • 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 • S3560G-AISK9-LIC-B • 3560G-AISK9-LIC-S | <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 | <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 | <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 | <ul style="list-style-type: none"> • 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-S |

| Cisco Catalyst 2960 Series Part Numbers | Cisco Catalyst Blade Switches |
|---|---|
| <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 • 2960G-8TC-L • 2960G-24TC-L • 2960G-48TC-L • 2960-24-S • 2960-24TC-S • 2960-48TC-S • 2960-48TT-S • 2960-8TC-S | <ul style="list-style-type: none"> • CBS3130X-S • CBS3130X-S-F • CBS3130G-S • CBS3130G-S-F • CBS3110X-S • CBS3110X-S-I • CBS3110G-S • CBS3110G-S-I • 3110-IPS-LIC • 3110-AISK9-LIC • 3110-IPS-IBM • 3110-AISK9-IBM • CBS3120G-S • CBS3120X-S • 3120-IPS-LIC • 3120-AISK9-LIC • CBS3032-DEL • CBS3032-DEL-F • CBS3020-HPQ • CBS3012-IBM • CBS3012-IBM-I • CBS3125G-S • CBS3125X-S • CBS3120G-S • CBS3120X-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=.](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 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 (SSH, Simple Network Management Protocol [SNMP] v3, 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 3750-E, 3560-E, 3750, 3560, 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>
- Cisco Catalyst Blade Switches: <http://www.cisco.com/en/US/products/ps6748/index.html>

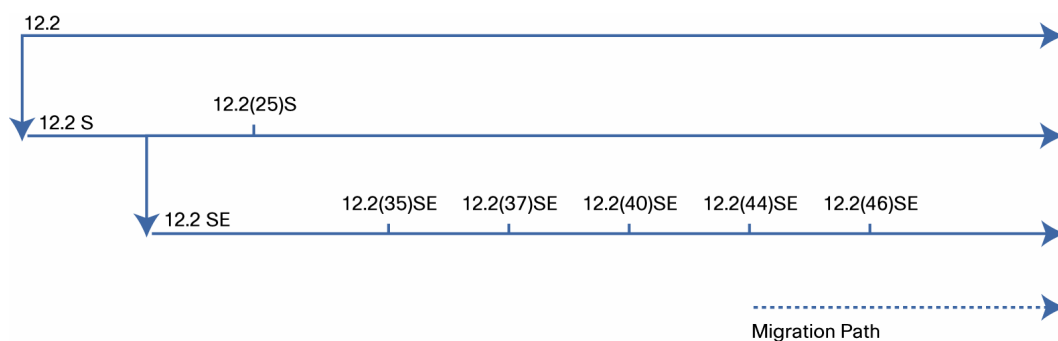
Support

Cisco IOS Software Release 12.2(46)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(46)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



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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