Cisco® Catalyst® 3750-E and 3560-E Software Activation

Q. What is software activation, and how does it work?

A. Software activation authorizes and activates the Cisco IOS® Software feature set. A special file contained in the switch, 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 activates the appropriate feature set. License types can be changed or upgraded to enable a different feature set.

Q. What Cisco® Catalyst® fixed switches offer software activation?

A. Cisco Catalyst 3750-E and 3560-E Series Switches offer software activation.

Q. Are existing Cisco Catalyst 3750 and 3560 Series Switches affected by software activation?

A. No, software activation is introduced on the new Cisco Catalyst 3750-E and 3560-E Series Switches and does not affect existing Cisco Catalyst 3750 or 3560 Series Switches.

Q. Is manual software activation required when a new switch is purchased with the IP Base or IP Services feature set?

A. No, new switches will be shipped with the appropriate license keys preinstalled. If customers choose to upgrade to a different feature set later, they can order the upgrade and install the license to unlock that feature set.

Q. What are the different types of feature set?

A. There are three types of software licenses: IP Base, IP Services, and Advanced IP Services:

- IP Base: Enables Layer 2 forwarding, IPv6 management, and basic Layer 3 routing, including Enhanced Interior Gateway Routing Protocol (EIGRP) stub and Protocol Independent Multicast (PIM) stub mode.

- IP Services: Includes IP Base and enables advanced Layer 3 routing such as EIGRP, Open Shortest Path First (OSPF), and multicast routing.

- Advanced IP Services: Includes IP Services and enables IPv6 routing functionality.

Q. Does software activation affect Cisco IOS Software release upgrades such as upgrading from Release 12.2(25)SE to Release 12.2(37)SE?

A. No, Cisco IOS Software releases can be upgraded without changing the existing feature set license. Software license is required only for upgrading to a different feature set, such as upgrading from the IP Base to the IP Services feature set.

Q. What is a product activation key (PAK)? What are the different types?

A. PAKs are purchasable items, ordered in the same manner as other Cisco equipment, that are used to obtain license files for feature sets on specific classes of switches. (See Tables 1 and 2.) In Table 1, 3750E-LIC= is the orderable SKU. The table shows the configurable options.

Table 1. Cisco Catalyst 3750-E PAKs

Product Name	Product Description
3750E-IPSLCB-QTY	IP Services for Cisco Catalyst 3750-E 24 ports, upgrade from IP Base
3750E48-IPSLCB-QTY	IP Services for Cisco Catalyst 3750-E 48 ports, upgrade from IP Base
3750E-AISK9LCSQTY	Advanced IP Services for Cisco Catalyst 3750-E 24 ports, upgrade from IP Services
3750E48-AISK9LCBQ	Advanced IP Services for Cisco Catalyst 3750-E 48 ports, upgrade from IP Base
3750E-AISK9LCBQTY	Advanced IP Services for Cisco Catalyst 3750-E 24 ports, upgrade from IP Base
3750E48-AISK9LCSQ	Advanced IP Services for Cisco Catalyst 3750-E 48 ports, upgrade from IP Services

In Table 2, 3560E-LIC= is the orderable SKU. Table 2 shows the configurable options.

Table 2. Cisco Catalyst 3560-E PAKs

Product Name	Product Description
Cisco Catalyst 3560-E Series Product Activation Keys	
3560E-LIC=	
Cisco Catalyst 3560-E Series Product Activation Keys Configurations	
3560E-IPSLCB-QTY	IP Services for Cisco Catalyst 3560 E, upgrade from the IP Base Feature Set
3560E-AISK9LCBQTY	Advanced IP Services for Cisco Catalyst 3560 E, upgrade from IP Base
3560E-AISK9LCSQTY	Advanced IP Services for Cisco Catalyst 3560-E, upgrade from IP Services
3560E12D-AK9LB-QTY	Advanced IP Services for Cisco Catalyst 3560E-12D, upgrade from IP Base
3560E12D-AK9LS-QTY	Advanced IP Services for Cisco Catalyst 3560E-12D, upgrade from IP Services
3560E12D-SLB-QTY	IP Services for Cisco Catalyst 3560E-12D, upgrade from IP Base
3560E12SD-AK9LB-QTY	Advanced IP Services for Cisco Catalyst 3560E-12SD, upgrade from IP Base
3560E12SD-AK9LS-QTY	Advanced IP Services for Cisco Catalyst 3560E-12SD, upgrade from IP Services
3560E12SD-SLB-QTY	IP Services for Cisco Catalyst 3560E-12SD, upgrade from IP Base

Q. **What is the unique device identifier (UDI)?**

A. The UDI is a combination of the product id (PID), the serial number, and the hardware version. The UDI is printed on a label that is located on the back of every switch and also viewable from the command-line interface (CLI) (show license UDI) and management tools (using Simple Network Management Protocol [SNMP]). Only the PID and serial number are used for license creation.

Q. **How is a software license changed or upgraded?**

A. A license can be changed or upgraded following a four-step process.

1. Purchase a PAK for the desired type of license and receive the PAK code.

2. Submit the PAK code and UDI of the switch to the Cisco online license portal.

3. Install the license file returned from the license portal to the switch.

4. Reboot the switch to enable the new feature set.

The Cisco License Manager can be used to facilitate this process over a large number of switches.

Q. **How can I obtain a software license key after I have a PAK?**

A. You should go to the Software License Registration page on Cisco.com. If you are using Cisco License Manager, it can be used to collect the license key(s).

Q. **What is required to obtain a license?**

A. A PAK and the UDI are required for key generation. The UDI is a combination of the PID and the serial number. The UDI is printed on a label that is located on the back of every switch and also viewable from the CLI (show license UDI) and management tools (using SNMP).

Q. **Is a new software activation key required to enable crypto on an existing noncrypto switch?**

A. No, a software activation key is not required to enable crypto. You just need to obtain the appropriate image from the Software Center on Cisco.com.

Q. **Is manual software activation required when upgrading a switch from IP Base to IP Services or Advanced IP Services?**

A. Yes, a PAK must be purchased and software license applied to the device to activate the additional functionality.

Q. **What is the format of the PAK delivery?**

A. Currently PAKs are delivered in a printed document that is mailed to the purchaser.

Q. **After the PAK is submitted on the Cisco online license portal, how long does the license generation take?**

A. License is generated instantly and delivered onscreen and by e-mail. If Cisco License Manager is used, it is done using a graphical user interface.

Q. **Do PAKs or licenses expire?**

A. No.

Q. **Does software activation require a switch reboot?**

A. Yes, a reboot is required because Cisco IOS Software must reload the software from flash and allocate memory to the new functions.

Q. **Do switches need to be connected to the internet for the licenses to be enabled and the software activated?**

A. No, Internet connectivity is not required for license application or normal operation of the device.

Q. **With software activation, is there any change to the return materials authorization (RMA) process?**

A. For most customers, there is no change to the RMA process. Depending on the type (product ID) of the returned switch, replacement from Cisco will come with the same type of feature license (either IP Base or IP Services). For switches upgraded to IP Services or Advanced IP Services in the field, the license must be transferred from the returned switch to the replacement switch using Cisco license portal at http://www.cisco.com/go/license. Access to the failed switch is not required; the portal requires the failed switch's UDI and the new replacement switch's UDI. The old license is instantly regenerated for the new switch. In other scenarios, license transfer is not necessary because the replacement switch comes with the required feature license. For switches returned under the 90-day hardware warranty and not covered by a Cisco service contract, contact the Cisco Technical Assistance Center (TAC) for assistance.

Q. **What is the format of the license?**

A. The license is in the form of a file with a .lic extension. Installing this file on the switch will activate the Cisco IOS Software feature set that was purchased. The contents of the .lic file must not be altered in any way as this will render it useless. If customers want to add their own notes to the license file (for example, PO numbers, user information, and so on), then this can be done using the device CLI. The license file can be installed using the Cisco IOS Software CLI or the Cisco License Manager. Instructions for using the CLI are included in the e-mail along with the license key.

Q. **Is the name of the license file unique?**

A. Yes. The serial number of the switch is included in the license file name, making it unique.

Q. **Where is the software license stored on the switch?**

A. The license file is stored on a special area of the flash memory in the switch. The license file is not directly viewable within the switch's file system, but the CLI exists to view and manage the license file.

Q. **What happens if the software license file gets corrupted? Will the switch still work?**

A. The license file is stored in a special area of memory that is not directly accessible, so it is unlikely to become corrupted. In the event of corruption, the switch will continue to function until it is reloaded/rebooted, at which time it will only enable the IP Base feature set. If possible, the license must be reinstalled; otherwise the switch can be returned using the Cisco RMA process.

Q. **Can licenses be used if the switch is purchased from a third party? What is the process?**

A. Although the ownership of hardware can be transferred through a third-party transaction, the right to use Cisco IOS Software cannot be transferred. A software license transfer must be purchased from Cisco for the desired feature set. Software license transfer part numbers typically start with "LL." Note that license transfers do not require a PAK to be used or a license file to be installed. The existing license file on the switch can remain in use. With a valid Cisco.com user account, switch owners can use the Cisco license portal (http://www.cisco.com/go/license) to access license information by submitting the switch's device credentials. The credentials can be obtained using the CLI or an appropriate network management tool.

Q. **How are software licenses managed?**

A. Several options exist to manage software licenses. The CLI provides the ability to install (license install), view (sh license), and remove (license clear) software licenses. This functionality is also available through SNMP for integration with standards-based network management tools. For a larger number of switches, the Cisco License Manager discovers and manages the licenses for up to 10,000 switches. For more information about Cisco License Manager, refer to http://www.cisco.com/go/CLM.

Q. **In a stack of Cisco Catalyst 3750-E switches, must the same type of feature set be used on each switch?**

A. Cisco StackWise® Plus combines powerful failover capabilities with unified software management. When the same type of feature set is used on each switch in a stack, failover and software management features work as designed: simply and transparently.

Q. **How are software licenses managed for a stack of Cisco Catalyst 3750-E switches?**

A. Software licenses are managed at the individual switch level and hence are not affected by stack configuration. However, a master switch can facilitate distribution of licenses to other switch members in the stack.

Q. Which software image contains crypto support?

A. All images are available with and without crypto functionality. At the time of ordering, customers can choose crypto or noncrypto image for the switch.

Q. Can one PAK be used for multiple license keys?

A. Yes, a PAK can be purchased that generates any specified number of licenses. The total number of licenses the PAK can generate is specified during the ordering process. Regardless of the number of upgrades purchased, the customer will only receive one PAK per switch type.

Q. What new Cisco IOS Software commands have been introduced for CLI-based license management?

A. Details of all the new CLI commands and syntax are described in the Cisco IOS Software Licensing Feature Guide.

Q. Can I add my own text to the license file (for example, to include asset numbers and so on)?

A. Yes, you can use the Cisco IOS Software CLI or Cisco License Manager to add your own text.

Q. What is the universal image?

A. With software activation, Cisco Catalyst 3750-E and 3560-E Series Switches ship with a single Cisco IOS Software universal image that contains all of the features previously found in the IP Base, IP Services, and Advanced IP Services Cisco IOS Software images. Software activation now 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. License types can be changed or upgraded to enable a different feature set through the purchase of a PAK. A particular license file only functions with the switch for which it was created, meaning license files cannot be copied to different switches.

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