



Configuring the Cisco IOS Software Activation Feature

This document describes the tasks used to activate software by using the Cisco IOS Software Activation feature, license keys, and Cisco EXEC commands. When you activate software from a Cisco device, you can license software without the need for additional application software.

- [Finding Feature Information, page 1](#)
- [Restrictions for Cisco IOS Software Activation, page 1](#)
- [Information About the Cisco IOS Software Activation, page 2](#)
- [How to Activate Software from a Cisco IOS Device, page 2](#)
- [Configuring Examples for Software Licensing, page 12](#)
- [Additional References, page 17](#)
- [Feature Information for Cisco IOS Software Activation, page 18](#)

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Restrictions for Cisco IOS Software Activation

Not all Cisco hardware platforms can use the Cisco IOS Software Activation feature. Use the Cisco Feature Navigator at <http://www.cisco.com/go/cfn> and the table in the Feature Information for Cisco IOS Software Activation section to determine which platforms and images support the Cisco IOS Software Activation feature.

For the stackable switches that support the Cisco IOS Software Activation feature, one switch must act as primary and the others as secondaries. The primary switch performs management and administrative operations on itself as well as on the secondary switches.

Information About the Cisco IOS Software Activation

License Activation MIB Support

The Cisco IOS Software Activation feature introduces the CISCO-LICENSE-MGMT-MIB to allow SNMP-based license management and administrative tasks. A description of this MIB can be found by using tools at this URL: <http://tools.cisco.com/ITDIT/MIBS/servlet/index>

Use the MIB Locator tool and the Search for MIB selection box to select [CISCO-LICENSE-MGMT-MIB](#).

The unique device identifier (UDI) is also associated with the Entity Name and Product Description data elements for the management information base (MIB) system. The MIB nomenclature for Entity Name is entPhysicalName and for Product Description is entPhysicalDescr.

How to Activate Software from a Cisco IOS Device

Installing and Upgrading Licenses by Using Software Activation Commands

Before You Begin

Read and understand the license activation process concepts in the in the “Cisco IOS Software Activation Conceptual Overview” module.

To install or upgrade a license by using the **license install** command, you must have already received the license file from the Cisco Product License Registration portal at <http://www.cisco.com/go/license> (or you already backed up the license by using the **license save** command).

If you use Microsoft Entourage and receive the license file from Cisco in an e-mail attachment, the license file will contain UTF-8 marking. These extra bytes in the license file cause it to be unusable during license installation. To work around this issue, you can use a text editor to remove the extra characters and then install the license file. For more information about UTF-8 encoding, go to this URL: <http://www.w3.org/International/questions/qa-utf8-bom>.



Note

The installation process does not install duplicate licenses. This message appears when duplicate licenses are detected:

```
Installing...Feature:xxx-xxx-xxx...Skipped:Duplicate
```



Note

A standby device reboots twice when there is a mismatch of licenses.

SUMMARY STEPS

1. Obtain the PAK.
2. **enable**
3. **show license udi**
4. Convert the PAK to a license by entering the PAK and the UDI into the Cisco Product License Registration portal: <http://www.cisco.com/go/license>.
5. **license install** *stored-location-url*
6. **configure terminal**
7. **license boot level** {metroaggrservices}
8. **write memory**
9. **reload**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Obtain the PAK.	The PAK is provided to you when you order or purchase the right to use a feature set for a particular platform. The PAK serves as a receipt and is used as part of the process to obtain a license.
Step 2	enable Example: Device> enable	Enables privileged EXEC mode. Enter your password if prompted.
Step 3	show license udi Example: Device# show license udi	Displays all the UDI values that can be licensed in a system. You need the UDI of the device as part of the process to obtain a license.
Step 4	Convert the PAK to a license by entering the PAK and the UDI into the Cisco Product License Registration portal: http://www.cisco.com/go/license .	After entering the appropriate information, you will receive an e-mail containing the license information that you can use to install the license: - Copy the license file received from the Cisco Product License Registration portal to the appropriate file system on the device. or - Click the Install button on the web page.
Step 5	license install <i>stored-location-url</i>	Installs the license.

	Command or Action	Purpose
	Example: <pre>Device# license install tftp://infra-sun/<user>/license/5400/38a.lic</pre>	Accept the end-user license agreement if prompted.
Step 6	configure terminal Example: <pre>Device# configure terminal</pre>	Enters the global configuration mode.
Step 7	license boot level {metroaggrservices} Example: <pre>Device(config)# license boot level metroaggrservices</pre>	Activates the metroaggrservices license on the device upon the next reload.
Step 8	write memory Example: <pre>Device# write memory</pre>	Saves the running configuration to NVRAM.
Step 9	reload Example: <pre>Device# reload</pre>	(Optional) Restarts the device to enable the new feature set. Note A reload is not required when moving from an evaluation license to a permanent license of the same license level on ASR 903 routers.

Managing Licenses by Using Software Activation Commands

Adding a Comment to a License File

SUMMARY STEPS

1. enable
2. license comment add *feature-name comment* [**switch** *switch-num*]
3. show license file [**switch** *switch-num*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	license comment add <i>feature-name comment</i> [switch <i>switch-num</i>] Example: Device# license comment add gsmamrnb-codec-pack "Use this permanent license"	Adds or deletes information about a specific license. • (Only on Cisco Catalyst 3750-E switch platforms) If a switch number is specified, this command is executed on the specified switch. • When the license is present in license storage and multiple license lines are stored, you are prompted to select a license line. To select the license, type the number at the Select Index to Add Comment prompt.
Step 3	show license file [switch <i>switch-num</i>] Example: Device# show license file	Displays comments added to a Cisco software license file. • If the device is a switch, this command obtains statistics from the specified switch.

Saving All Licenses to a Specified Storage Area

SUMMARY STEPS

1. **enable**
2. **license save** *file-sys://lic-location* [**switch** *switch-num*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	license save <i>file-sys://lic-location</i> [switch <i>switch-num</i>] Example: <pre>Device# license save flash:all_licenses.lic</pre>	Saves copies of all licenses in a device and stores them in a format required by the command in the specified storage location. Saved licenses are restored by using the license install command. • <i>lic-location</i> : The license storage location can be a directory or a URL that points to a file system. Use the ? command to see the storage locations supported by your device. • (Optional) switch <i>switch-num</i>: sends this request to a specific switch in a switch stack.

Saving License Credential Information Associated with a Device to a Specified Storage Area

Before You Begin

Before you can start the rehost or resend process, a device credential is required. Cisco software licensing requires that the license files generated by the Cisco back-end licensing system for its devices be secure and tamper-resistant. Security features are in place to authenticate a license by means of encrypted license credentials. If it becomes necessary to transfer a license from one device to another (which is called rehosting), a permission ticket is required. To generate the permission ticket, the Cisco back-end licensing system requires the device credential information.

SUMMARY STEPS

1. **enable**
2. **license save credential** *file-sys://lic-location* [**switch** *switch-num*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	license save credential <i>file-sys://lic-location</i> [switch <i>switch-num</i>] Example: <pre>Device# license save credential flash:cred.lic</pre>	Saves credential information associated with a device to a specified URL. • <i>lic-location</i> : The license storage location can be a directory or a URL that points to a file system. Use the ? command to see the storage locations supported by your device. • (Optional) switch <i>switch-num</i>: sends this request to a specific switch in a switch stack.

	Command or Action	Purpose
--	-------------------	---------

Displaying All Licenses in a Device

SUMMARY STEPS

1. enable
2. show license all

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	show license all Example: Device# show license all	Displays information about all licenses in the device.

Displaying Detailed Information about Licensed Features

SUMMARY STEPS

1. enable
2. show license detail *[feature-name]*

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	show license detail [<i>feature-name</i>] Example: Device# show license detail	Displays detailed information about all licensed features or the specified licensed feature.

Displaying Licensed Feature Sets Available in an Image

SUMMARY STEPS

1. enable
2. show license feature

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	show license feature Example: Device# show license feature	Displays a list of licensed features available in an image.

Removing Licenses by Using Software Activation Commands

Removing a License Entry from a Permanent License File

**Note**

- The **license clear** command lists all licenses, but some licenses, such as built-in licenses, cannot be cleared.
- Only licenses that have been added by using the **license install** command are removed. Evaluation licenses are not removed.
- If a license is not in use, the **license clear** command displays all the licenses related to this feature and prompts you to make a selection. Different prompts are displayed, depending upon whether single or multiple licenses are available in the device. The selected licenses are removed from the device.
- If a license is in use, the **license clear** command might fail. However, depending on the application policy using the license, some licenses might be cleared.
- When a switch is specified, the **license clear** command is issued on that switch. When a mixed stack platform is used, the primary switch must have installed the minimum licensing features required to support the licensing operations of the secondary switches. When this command is issued from a primary switch, the switch number is required to clear a license on that switch.

SUMMARY STEPS

1. **enable**
2. **license clear** *feature-name* [**switch** *switch-num*]
3. **show license detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	license clear <i>feature-name</i> [switch <i>switch-num</i>] Example: Device# license clear gsmamrnb-codec-pack	Removes a license entry from license storage once it has been verified that the license line is valid and was explicitly installed. • The optional switch <i>switch-num</i> keyword and argument send this request to a specific switch in a switch stack. • You must select the index number of the license to clear. Enter the number at the Select Index to Clear prompt.

	Command or Action	Purpose
Step 3	show license detail Example: Device# show license detail	Verifies that the license has been cleared.

Rehosting (Revoking and Transferring) a License

Before You Begin

Read and understand the license transfer between devices concepts in the “Cisco IOS Software Activation Conceptual Overview” module.

Cisco software licensing requires that the license files generated by the Cisco back-end licensing system for its devices be secure and tamper-resistant. Security features are in place to authenticate a license by means of encrypted license credentials. Rehosting requires a permission ticket. To generate the permission ticket, the Cisco back-end licensing system requires the device credential information. Use the **license save credential** command to save device credential information to a specified file system.

SUMMARY STEPS

1. **enable**
2. **license revoke revoke *permission-file-url* *output-rehost-ticket-url***

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	license revoke revoke <i>permission-file-url</i> <i>output-rehost-ticket-url</i> Example: Device# license revoke tftp://infra-sun/ramanp/pt.lic flash:rt.lic	Revokes and transfers a license by using the permission ticket provided by the Cisco back-end licensing system. It removes the original, permanent license from the device and provides a license for the new device. • An end-user license agreement is displayed for all grace-period licenses in the permission ticket. • You must read and accept the agreement. If you do not accept the agreement, the rehost operation stops.

Troubleshooting License Operations by Using Software Activation Commands

SUMMARY STEPS

1. **enable**
2. **show license file** [**switch** *switch-num*]
3. **show license statistics**
4. **show license status** [**switch** *switch-num*]
5. **debug license** {**all** | **core** | **errors** | **events**}
6. **no debug license** {**all** | **core** | **errors** | **events**}

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	show license file [switch <i>switch-num</i>] Example: Device# show license file	Displays license entries and license details stored in a Cisco software license file. If the device is a switch, this command obtains statistics from the specified switch.
Step 3	show license statistics Example: Device# show license statistics	Displays license statistics information. The display includes relevant statistics for error counts and is useful for troubleshooting licensing-related problems.
Step 4	show license status [switch <i>switch-num</i>] Example: Device# show license status	Displays the status of licenses in the system. If the device is a switch, this command obtains status from the specified switch.
Step 5	debug license { all core errors events } Example: Device# debug license errors	Enables controlled software license debugging activity on a device.
Step 6	no debug license { all core errors events } Example: Device# no debug license errors	Disables license debugging activity on a device.

Configuring Examples for Software Licensing

Example: Installing and Upgrading Licenses

The following example shows how to use the **license install** command to install a license saved in TFTP on the device. The display is truncated for easier readability:

```
Device# license install tftp://infra-sun/<user>/license/5400/38a.lic
Installing licenses from "tftp://infra-sun/<user>/license/5400/38a.lic"
Loading <user>/license/5400/38a.lic from 172.19.211.47 (via GigabitEthernet0/0): !
[OK - 1192 bytes]
Extension licenses are being installed in the device with UDI "AS54XM-AC-RPS:JAE0948QXKD"
for the following features:
  Feature Name: gsmamrnb-codec-pack
PLEASE READ THE FOLLOWING TERMS CAREFULLY. . .
ACCEPT? [yes/no]: yes
Issue 'license feature gsmamrnb-codec-pack' command to enable the license
Installing...Feature:gsmamrnb-codec-pack...Successful:Supported
```

Example: Adding a Comment to a License File

The following example shows how to use the **license comment** command to add or delete information about a specific license. The command checks that a license associated with the specified feature is present in license storage. If a switch number is specified, this command is executed on the specified switch.

As the example shows, when the license is present and multiple license lines are stored, you are prompted to select a license line. This action helps to distinguish licenses. Type the number at the Select Index to Add Comment prompt to select the license.

```
Device# license comment add gsmamrnb-codec-pack "Use this permanent license"
Feature: gsmamrnb-codec-pack
  1 License Type: Evaluation
  License State: Inactive
    Evaluation total period: 20 hours 0 minute
    Evaluation period left: 20 hours 0 minute
  License Addition: Additive
  Comment:
  Store Index: 0
  Store Name: Primary License Storage
  2 License Type: Permanent
  License State: Active, Not in Use
  License Addition: Exclusive
  Comment:
  Store Index: 1
  Store Name: Primary License Storage
Select Index to Add Comment [1-2]: 2
% Success: Adding comment "Use this permanent license" succeeded
Device# show license file
License Store: Primary License Storage
  Store Index: 0
    License: 11 gsmamrnb-codec-pack 1.0 LONG TRIAL DISABLED 20 DISABLED STAND
      A LONE ADD INFINITE KEYS INFINITE KEYS NEVER NEVER NiL SLM CODE CL
      ND LCK NiL *1YCHJRBMWKZAED2400 NiL NiL NiL 5 MINS <UDI><PID>AS54X
      M-AC-RPS</PID><SN>JAE0948QXKD</SN></UDI> ,Jx8qaVf:iXWaH9PsXjkVnmz
      7gWh:cxdf9nUkzY6o8fRuQbu,7wTUz237Cz6g9VjfrCk,0a2Pdo,0w6LWxcCRFL:x
```

```

cTxwnffn9i,4,aUWv8rL50opDUdAsFnxLsvoFRkcAfm$<WLC>AQEBIQAB//9NA+1m
Uwfs/1D0dmdF9kyX8wDrua1TZhnnAy6Mxs1dTboIcRaahKxJJdj40i1w3wscqvPiA
mWSaEmUT56rstk6gvmj+EQKRfD9A0ime1czrdKxfILT0LaXT416nwmfp92Tya6vIQ
4Fn1BdqJ1sMzXeSq8PmVcTU9A4o9hil9vKur8N9F885D9GVF0bJHciT5M=</WLC>
Comment: Use this permanent license.
Hash: E1WjIQo4qsl9g8cpnpooGP/0DeY=
Device#

```

Example: Saving All Licenses to a Specified Storage Area

The following example shows how to use the **license save** command to save copies of all licenses to the flash file system:

```

Device# license save flash:all_licenses.lic
license lines saved ..... to flash:all_licenses.lic

```

Example: Removing Licenses

The following examples shows how to use the **license clear** command to remove a license entry from license storage once it has been verified that the license line is valid and was explicitly installed.

You must select the index number of the license to clear. Type the number at the Select Index to Clear prompt as shown in this example.

```

Device# license clear standard
Feature: standard
  1 License Type: Evaluation
    License State: Inactive
      Evaluation total period: 20 hours 0 minute
      Evaluation period left: 20 hours 0 minute
    License Addition: Additive
    Comment:
    Store Index: 0
    Store Name: Primary License Storage
  2 License Type: Permanent
    License State: Active, Not in Use
    License Addition: Exclusive
    Comment:
    Store Index: 1
    Store Name: Primary License Storage
Select Index to Clear [1-2]: 1
Are you sure you want to clear? (yes/[no]): yes
Device# show license detail
Feature: premium                      Period left: 1 hour 0 minute
Index: 1      Feature: premium                      Version: 1.0
License Type: Evaluation
License State: Active, Not in Use, EULA not accepted
  Evaluation total period: 1 hour 0 minute
  Evaluation period left: 1 hour 0 minute
License Count: Non-Counted
License Priority: None
Store Index: 0
Store Name: Evaluation License Storage

```

Example: Rehosting (Revoking and Transferring) a License

The following example shows how to use the **license revoke** command to revoke a license stored in TFTP and how to transfer it to a license stored in flash memory. You might need to read and accept the terms and conditions of the license type being transferred. The following example is truncated for readability:

```
Device# license revoke tftp://infra-sun/ramanp/pt.lic flash:rt.lic
Following Permanent license(s) will be revoked from this device
  Feature Name: gsmamrnb-codec-pack
Following Extension license(s) will be installed in this device
  Feature Name: gsmamrnb-codec-pack
PLEASE READ THE FOLLOWING TERMS CAREFULLY. . .
ACCEPT? [yes/no]: yes
Issue 'license feature gsmamrnb-codec-pack' command to enable the license
Rehost ticket saved ..... to flash:rt.lic
```

Example: Generic Command Enhanced with Licensing Information

The generic commands described in the following sections are enhanced with licensing information:

reload

The **reload** command shows the expired licenses, followed by expiring licenses sorted by the period left and end date:

```
Device# reload
The following license(s) are expiring or have expired.
Features with expired licenses may not work after Reload.
Feature: uc,Status: expiring, Period Left: 7 wks 5 days
Proceed with reload? [confirm]
```

show running-config

The **show running-config** command displays the unique device identifier (UDI) of a device. If the configuration file was copied from a different device, a warning is displayed upon reload. A UDI mismatch warning is also displayed during reload if the startup-config file has a different UDI than the platform UDI.

```
Device# show running-config
Building configuration...
Current configuration : 4772 bytes
!
version 12.4
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service internal
!
hostname csl-xfr-enhance-2951
!
...
...
license udi pid CISCO2951 sn FHH1211P037
license boot module c2951 technology-package securityk9 disable
license boot module c2951 technology-package uc
license boot module c2951 technology-package data
license call-home url https://tools-stage.cisco.com/SWIFT/Licensing
```

```

license agent listener http plaintext /lic-agent authenticate none
!
!
archive
 log config
  hidekeys
!
.
.
.

```

show tech-support

The **show tech-support** command displays the output of the **show license udi**, **show license file**, **show license detail**, **show license status**, and the **show license statistics** commands.

```

Device# show tech-support
----- show license udi -----
Device#      PID                      SN                      UDI
-----
*0           CISCO2951                FHH1211P037            CISCO2951:FHH1211P037
-----
----- show license feature -----
Feature name      Enforcement  Evaluation  Subscription  Enabled
ipbasek9          no          no          no            no
securityk9        yes         yes         no            no
uc                yes         yes         no            yes
data              yes         yes         no            no
gatekeeper        yes         yes         no            no
LI                yes         no          no            no
SSL_VPN           yes         yes         no            no
ios-ips-update    yes         yes         yes           no
SNASw             yes         yes         no            no
-----
----- show license file -----
License Store: Primary License Storage
License Store: Evaluation License Storage
Store Index: 0
License: 11 securityk9 1.0 LONG TRIAL DISABLED 1440 DISABLED STANDALONE AD
D INFINITE_KEYS INFINITE_KEYS NEVER NEVER NiL SLM_CODE DEMO NiL N
iL Ni NiL NiL 5_MINS NiL GT5YVbrMAdt0NY50UcKGfvLTjQ17P2o3g84hE8Tq
sOfu3Xph0N:2AmMdpMNxxKXSVG$<WLC>AQEBIQAB//+FugzZgqFJn/XhIxoyelg63
YJD++i6Qx6vVp0MVqrX2EinbufbTfGzc7/GHNZaDZqRqwInXo3s+nsLU7rOtdOxoI
xYZAo3LYmUJ+MFzsqhKoJVLPyEvQ8H21MNUjVbhoN0gyIWsyiJam8AQIkVBQFzhr
10GYo1VzdzfJfEPQIx6tZ++/Vtc/q3SF/5Ko8XCY=</WLC>
Comment:
Hash: CLWUVZgy84BMRT03JiLYmIqwaQA=
----- show license detail -----
Index: 1      Feature: SNASw                      Version: 1.0
License Type: Evaluation
License State: Active, Not in Use, EULA not accepted
Evaluation total period: 8 weeks 4 days
Evaluation period left: 8 weeks 4 days
Lock type: Non Node locked
Vendor info:
License Addition: Additive
License Generation version: 0x8100000
License Count: Non-Counted
License Priority: None
Store Index: 5
Store Name: Evaluation License Storage
----- show license status -----
License Type Supported
permanent      Non-expiring node locked license
extension      Expiring node locked license
evaluation      Expiring non node locked license
paid subscription Expiring node locked subscription license
with valid end date
extension subscription Expiring node locked subscription license
evaluation subscription Expiring node locked subscription license
...

```

```

...
----- show license statistics -----
      Administrative statistics
Install success count: 0
Install failure count: 0
Install duplicate count: 0
Comment add count: 0
Comment delete count: 0
Clear count: 0
Save count: 0
Save cred count: 1
      Client statistics
Request success count: 1
Request failure count: 3
Release count: 0
Global Notify count: 4

```

show version

The **show version** command displays the license UDI information:

```

Device> show version
Cisco IOS Software, C2951 Software (C2951-UNIVERSALK9-M), Experimental Version
12.4(20090326:052343)
[rifu-xformers_3_25_130]
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Thu 26-Mar-09 21:49 by rifu
ROM: System Bootstrap, Version 12.4(20090303:092436)
[BLD-xformers_dev.XFR_20090303-20090303_0101-53
107], DEVELOPMENT SOFTWARE
csl-xfr-enhance-2951 uptime is 3 days, 4 hours, 28 minutes
System returned to ROM by reload at 18:48:45 PST Mon Nov 26 1956
System image file is "flash0:c2951-universalk9-mz.SSA"
Last reload reason: Reload Command
...
Cisco C2951 (revision 1.0) with 1005568K/43008K bytes of memory.
Processor board ID FHH1211P037
3 Gigabit Ethernet interfaces
1 terminal line
1 cisco Special Services Engine(s)
DRAM configuration is 72 bits wide with parity enabled.
255K bytes of non-volatile configuration memory.
250880K bytes of ATA System CompactFlash 0 (Read/Write)
License Info:
License UDI:
-----
Device#    PID                      SN
-----
*0         CISCO2951                  FHH1211P037
Technology Package License Information for Module:'c2951'
-----
Technology    Technology-package    Technology-package
              Current      Type                Next reboot
-----
ipbase        ipbasek9             None                ipbasek9
security      disable              None                disable
uc            uc                   Evaluation          uc
data          None                 None                None
Configuration register is 0x0

```


Additional References

Related Documents

Related Topic	Document Title
Cisco License Manager application	<i>User Guide for Cisco License Manager</i>
Software activation conceptual overview	“Cisco IOS Software Activation Conceptual Overview” module
Software activation commands	<i>Software Activation Command Reference</i>
Cisco IOS commands	Master Commands List, All Releases
Integrated Services Routers licensing	<i>Software Activation on Cisco Integrated Services Routers</i>

MIBs

MIB	MIBs Link
CISCO-LICENSE-MGMT-MIB	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Cisco IOS Software Activation

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for Cisco IOS Software Activation

Feature Name	Releases	Feature Information
Cisco IOS Software Activation	12.4(15)XZ 12.4(20)T 15.0(1)M 15.4(1)S	Cisco IOS Software Activation EXEC commands support basic licensing processes. This feature is platform-independent. These commands were introduced or modified by this feature: debug license, license clear, license comment, license install, license revoke, license save, license save credential, show license all, show license detail, show license feature, show license file, show license statistics, show license status, show license udi In Cisco IOS Release 15.4(1)S, support was added for the Cisco ASR 901S series router.
CISL-SNMP support (MIB)	12.4(20)T 15.0(1)M	SNMP support for the CISCO-LICENSE-MGMT-MIB was added. These commands were introduced or modified by this feature: snmp-server enable traps, snmp-server host