

# Managing Licenses


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# Cisco Wireless Controller Licensing

For information about licensing in various Cisco Wireless Controller platforms, see the respective platform's datasheet:

- Cisco 3504 Wireless Controller

  https://www.cisco.com/c/en/us/products/collateral/wireless/3504-wireless-controller/datasheet-c78-738484.html

- Cisco 5520 Wireless Controller

  https://www.cisco.com/c/en/us/products/collateral/wireless/5520-wireless-controller/datasheet-c78-734257.html

- Cisco 8540 Wireless Controller

  https://www.cisco.com/c/en/us/products/collateral/wireless/8540-wireless-controller/datasheet-c78-734258.html

- Cisco Virtual Wireless Controller

  https://www.cisco.com/c/en/us/products/collateral/wireless/virtual-wireless-controller/data_sheet_c78-714543.html

### Related Information

- Cisco Software Central

  https://software.cisco.com

- Licensing on 3504, 5520 and 8540 Wireless LAN Controllers: RTU FAQ

https://www.cisco.com/c/en/us/support/docs/wireless/3504-wireless-controller/214106-licensing-on-3504-5520-and-8540-wireles.html

- Special Notes for Licensed Data Payload Encryption on Cisco Wireless Controllers

  https://www.cisco.com/c/en/us/td/docs/wireless/controller/technotes/ldpe/ldpe-on-wlc.html

- Smart Licensing Deployment Guide

  https://www.cisco.com/c/en/us/td/docs/wireless/technology/mesh/8-2/b_Smart_Licensing_Deployment_Guide.html

# Installing a License

## Installing a License (GUI)

### Procedure

**Step 1** Choose **Management** > **Software Activation** > **Commands** to open the License Commands page.

**Step 2** From the Action drop-down list, choose **Install License**. The Install License from a File section appears.

**Step 3** In the File Name to Install text box, enter the path to the license (*.lic) on the TFTP server.

**Step 4** Click **Install License**. A message appears to show whether the license was installed successfully. If the installation fails, the message provides the reason for the failure, such as the license is an existing license, the path was not found, the license does not belong to this device, you do not have correct permissions for the license, and so on.

**Step 5** If the end-user license agreement (EULA) acceptance dialog box appears, read the agreement and click **Accept** to accept the terms of the agreement.

**Note**
Typically, you are prompted to accept the EULA for evaluation, extension, and rehost licenses. The EULA is also required for permanent licenses, but it is accepted during license generation.

**Step 6** Save a backup copy of all installed licenses as follows:

a) From the Action drop-down list, choose **Save License**.

b) In the File Name to Save text box, enter the path on the TFTP server where you want the licenses to be saved.

**Note**
You cannot save evaluation licenses.

c) Click **Save Licenses**.

**Step 7** Reboot the controller.

**Note**
We recommend that you reset the system to ensure that the newly installed license file is saved in the controller.

## Installing a License (CLI)

### Procedure

**Step 1** Install a license on the controller by entering this command:

**license install** *url*

where *url* is tftp://*server_ip*/*path*/*filename*.

**Note**
To remove a license from the controller, enter the **license clear** *license_name* command. For example, you might want to delete an expired evaluation license or any unused license. You cannot delete unexpired evaluation licenses, the permanent base image license, or licenses that are in use by the controller.

**Step 2** If you are prompted to accept the end-user license agreement (EULA), read and accept the terms of the agreement.

**Note**
Typically, you are prompted to accept the EULA for evaluation, extension, and rehost licenses. The EULA is also required for permanent licenses, but it is accepted during license generation.

**Step 3** Add comments to a license or delete comments from a license by entering this command:

**license comment** {**add** | **delete**} *license_name comment_string*

**Step 4** Save a backup copy of all installed licenses by entering this command:

**license save** *url*

where *url* is tftp://*server_ip*/*path*/*filename*.

**Step 5** Reboot the controller by entering this command:

**reset system**.

**Note**
We recommend that you reset the system to ensure that the newly installed license file is saved in the controller.

# Viewing Licenses

## Viewing Licenses (GUI)

### Procedure

**Step 1** Choose **Management** > **Software Activation** > **Licenses** to open the Licenses page.

This page lists all the licenses that are installed on the controller. For each license, it shows the license type, expiration, count (the maximum number of access points that are allowed for this license), priority (low, medium, or high), and status (in use, not in use, inactive, or EULA not accepted).

**Note**
Controller platforms do not support the status of "grace period" or "extension" as a license type. The license status always shows as "evaluation" even if a grace period or an extension evaluation license is installed.

If you ever want to remove a license from the controller, hover your cursor over the blue drop-down arrow for the license and click **Remove**. For example, you might want to delete an expired evaluation license or any unused license. You cannot delete unexpired evaluation licenses, the permanent base image license, or licenses that are in use by the controller.

**Step 2** Click the link for the desired license to view more details for a particular license. The License Detail page appears.

This page shows the following additional information for the license:

- The license type (permanent, evaluation, or extension)
- The license version
- The status of the license (in use, not in use, inactive, or EULA not accepted).
- The length of time before the license expires

  **Note**
  Permanent licenses never expire.

- Whether the license is a built-in license.
- The maximum number of access points allowed for this license
- The number of access points currently using this license

**Step 3** If you want to enter a comment for this license, type it in the Comment text box and click **Apply**.

**Step 4** Click **Save Configuration** to save your changes.

## Viewing Licenses (CLI)

**Procedure**

- See the license level, license type, and number of access points licensed on the controller by entering this command:

  See the license level, license type, and number of access points licensed on the controller by entering this command:



**Note** The maximum number of APs supported refers to the maximum number of APs supported by the controller. It is not linked to the installed licenses.

**show sysinfo**

This example shows a sample output of the command run on Cisco 8540 Wireless Controller using Release 8.3:

```
Manufacturer's Name.............................. Cisco Systems Inc.
Product Name..................................... Cisco Controller
Product Version.................................. 8.3.100.0
RTOS Version..................................... 8.3.100.0
Bootloader Version............................... 8.0.110.0
Emergency Image Version.......................... 8.0.110.0

OUI File Last Update Time........................ Sun Sep 07 10:44:07 IST 2014


Build Type....................................... DATA + WPS

System Name...................................... TestSpartan8500Dev1
System Location..................................
System Contact...................................
System ObjectID.................................. 1.3.6.1.4.1.9.1.1615
Redundancy Mode.................................. Disabled
IP Address....................................... 8.1.4.2
IPv6 Address..................................... ::
System Up Time................................... 0 days 17 hrs 20 mins 58 secs

--More-- or (q)uit
System Timezone Location.........................
System Stats Realtime Interval................... 5
System Stats Normal Interval..................... 180

Configured Country............................... Multiple Countries : IN,US
Operating Environment............................ Commercial (10 to 35 C)
Internal Temp Alarm Limits....................... 10 to 38 C
Internal Temperature............................. +21 C
Fan Status....................................... OK

RAID Volume Status
Drive 0.......................................... Good
Drive 1.......................................... Good

State of 802.11b Network......................... Enabled
State of 802.11a Network......................... Enabled
Number of WLANs.................................. 7
Number of Active Clients......................... 1

OUI Classification Failure Count................. 0

Burned-in MAC Address............................ F4:CF:E2:0A:27:00
Power Supply 1................................... Present, OK

--More-- or (q)uit
Power Supply 2................................... Present, OK
Maximum number of APs supported.................. 6000
System Nas-Id....................................
WLC MIC Certificate Types........................ SHA1/SHA2
Licensing Type................................... RTU
```

- See a brief summary of all active licenses installed on the controller by entering this command:

  **show license summary**

  Information similar to the following appears:

```
Index 1 Feature: wplus
        Period left: 0 minute 0 second
Index 2 Feature: wplus-ap-count
```

```
  Period left: 0 minute 0 second
Index3   Feature: base
  Period left: Life time
  License Type: Permanent
  License State: Active, In Use
  License Count: Non-Counted
  License Priority: Medium
Index 4 Feature: base-ap-count
  Period left: 6 weeks, 4 days
  License Type: Evaluation
  License State: Active, In Use
  License Count: 250/250/0
  License Priority: High
```

- See all of the licenses installed on the controller by entering this command:

  **show license all**

  Information similar to the following appears:

```
License Store: Primary License Storage
StoreIndex:  1  Feature: base   Version: 1.0
        License Type: Permanent
        License State: Active, Not in Use
        License Count: Non-Counted
        License Priority: Medium

StoreIndex:  3  Feature: base-ap-count   Version: 1.0
        License Type: Evaluation
        License State: Active, In Use
            Evaluation total period:  8 weeks  4 days
            Evaluation period left:  8 weeks  3 days
        License Count: 250/0/0
        License Priority: High
```

- See the details for a particular license by entering this command:

  **show license detail** *license_name*

  Information similar to the following appears:

```
Index:  1       Feature: base-ap-count   Version: 1.0
        License Type: Permanent
        License State: Active, Not in Use
        License Count: 12/0/0
        License Priority: Medium
        Store Index: 0
        Store Name: Primary License Storage

Index:  2       Feature: base-ap-count   Version: 1.0
        License Type: Evaluation
        License State: Inactive
            Evaluation total period:  8 weeks  4 days
            Evaluation period left:  8 weeks  4 days
        License Count: 250/0/0
        License Priority: Low
        Store Index: 3
           Store Name: Evaluation License Storage
```

- See all expiring, evaluation, permanent, or in-use licenses by entering this command:

**show license** {**expiring** | **evaluation** | **permanent** | **in-use**}

Information similar to the following appears for the **show license in-use** command:

```
StoreIndex:  2  Feature: base-ap-count   Version: 1.0
        License Type: Permanent
        License State: Active, In Use
        License Count: 12/12/0
        License Priority: Medium
StoreIndex:  3  Feature: base Version: 1.0
        License Type: Permanent
        License State: Active, In Use
        License Count: Non-Counted License Priority: Medium
```



**Note** Controller platforms do not support the status of "grace period" or "extension" as a license type. The license status will always show "evaluation" even if a grace period or an extension evaluation license is installed.

- See the maximum number of access points allowed for this license on the controller, the number of access points currently joined to the controller, and the number of access points that can still join the controller by entering this command:

  **show license capacity**

  Information similar to the following appears:

```
Licensed Feature    Max Count      Current Count       Remaining Count
----------------    ---------      -------------       ---------------
AP Count              250              4                    246
```

- See statistics for all licenses on the controller by entering this command:

  **show license statistics**

- See a summary of license-enabled features by entering this command:

  **show license feature**

# Configuring the Maximum Number of Access Points Supported

## Configuring Maximum Number of Access Points to be Supported (GUI)

You can configure the maximum number APs that can be supported on a controller. The controller limits the number of APs that are supported based on the licensing information and the controller model. The maximum number of APs supported that is specified in the licensing information overrides the number that you configure if the configured value is greater than the licensed value. By default, this feature is disabled. You must reboot the controller if you change the configuration.

### Procedure

**Step 1** Choose **Controller** > **General**.

**Step 2** Enter a value in the **Maximum Allowed APs** field.

**Step 3** Save the configuration.

## Configuring Maximum Number of Access Points to be Supported (CLI)

### Procedure

- Configure the maximum number of access points to be supported on a controller by entering this command:
  **config ap max-count** *count*
- See the maximum number of access points that are supported on the controller by entering this command:
  **show ap max-count summary**

# Troubleshooting Licensing Issues

### Procedure

- Configure debugging of licensing core events and core errors by entering this command:
  **debug license core** {**all** | **errors** | **events**} {**enable** | **disable**}
- Configure debugging of licensing errors by entering this command:
  **debug license errors** {**enable** | **disable**}
- Configure debugging of licensing events by entering this command:
  **debug license events** {**enable** | **disable**}

# Activating an AP-Count Evaluation License

## Information About Activating an AP-Count Evaluation License

If you are considering upgrading to a license with a higher access point count, you can try an evaluation license before upgrading to a permanent version of the license. For example, if you are using a permanent license with a 50-access-point count and want to try an evaluation license with a 100-access-point count, you can try out the evaluation license for 60 days.

AP-count evaluation licenses are set to low priority by default so that the controller uses the ap-count permanent license. If you want to try an evaluation license with an increased access point count, you must change its priority to high. If you no longer want to have this higher capacity, you can lower the priority of the ap-count evaluation license, which forces the controller to use the permanent license.

**Note** To prevent disruptions in operation, the controller does not switch licenses when an evaluation license expires. You must reboot the controller in order to return to a permanent license. Following a reboot, the controller defaults to the same feature set level as the expired evaluation license. If no permanent license at the same feature set level is installed, the controller uses a permanent license at another level or an unexpired evaluation license.

## Activating an AP-Count Evaluation License (GUI)

### Procedure

**Step 1** Choose **Management** > **Software Activation** > **Licenses** to open the Licenses page.

The Status column shows which licenses are currently in use, and the Priority column shows the current priority of each license.

**Step 2** Activate an ap-count evaluation license as follows:

a) Click the link for the ap-count evaluation license that you want to activate. The License Detail page appears.

b) Choose **High** from the Priority drop-down list and click **Set Priority**.

**Note**
You can set the priority only for ap-count evaluation licenses. AP-count permanent licenses always have a medium priority, which cannot be configured.

c) Click **OK** when prompted to confirm your decision about changing the priority of the license.

d) When the EULA appears, read the terms of the agreement and then click **Accept**.

e) When prompted to reboot the controller, click **OK**.

f) Reboot the controller in order for the priority change to take effect.

g) Click **Licenses** to open the Licenses page and verify that the ap-count evaluation license now has a high priority and is in use. You can use the evaluation license until it expires.

**Step 3** If you decide to stop using the ap-count evaluation license and want to revert to using an ap-count permanent license, follow these steps:

a) On the Licenses page, click the link for the ap-count evaluation license that is in use.

b) Choose **Low** from the Priority drop-down list and click **Set Priority**.

**Note**
You can set the priority only for ap-count evaluation licenses. AP-count permanent licenses always have a medium priority, which cannot be configured.

c) Click **OK** when prompted to confirm your decision about changing the priority of the license.

d) When the EULA appears, read the terms of the agreement and then click **Accept**.

e) When prompted to reboot the controller, click **OK**.

f) Reboot the controller in order for the priority change to take effect.

g) Click **Licenses** to open the Licenses page and verify that the ap-count evaluation license now has a low priority and is not in use. Instead, the ap-count permanent license should be in use.

## Activating an AP-Count Evaluation License (CLI)

### Procedure

**Step 1** See the current status of all the licenses on your controller by entering this command:

**show license all**

Information similar to the following appears:

```
License Store: Primary License Storage
StoreIndex:  0  Feature: base-ap-count   Version: 1.0
        License Type: Permanent
        License State: Active, In Use
        License Count: 12/0/0
        License Priority: Medium
StoreIndex:  1  Feature: base   Version: 1.0
        License Type: Permanent
        License State: Active, In Use
        License Count: Non-Counted
        License Priority: Medium
StoreIndex:  2  Feature: base   Version: 1.0
        License Type: Evaluation
        License State: Inactive
            Evaluation total period:  8 weeks  4 days
            Evaluation period left:  8 weeks  4 days
        License Count: Non-Counted
        License Priority: Low
StoreIndex:  3  Feature: base-ap-count   Version: 1.0
        License Type: Evaluation
  License State: Inactive
            Evaluation total period:  8 weeks  4 days
            Evaluation period left:  8 weeks  4 days
        License Count: 250/0/0
            License Priority: Low
```

The **License State** text box shows the licenses that are in use, and the **License Priority** text box shows the current priority of each license.

**Step 2** Activate an ap-count evaluation license as follows:

a) Raise the priority of the base-ap-count evaluation license by entering this command:

**license modify priority** *license_name* **high**

**Note**
You can set the priority only for ap-count evaluation licenses. AP-count permanent licenses always have a medium priority, which cannot be configured.

b) Reboot the controller in order for the priority change to take effect by entering this command:

**reset system**

c) Verify that the ap-count evaluation license now has a high priority and is in use by entering this command:

**show license all**

You can use the evaluation license until it expires.

**Step 3** If you decide to stop using the ap-count evaluation license and want to revert to using an ap-count permanent license, follow these steps:

a) Lower the priority of the ap-count evaluation license by entering this command:

**license modify priority** *license_name* **low**

b) Reboot the controller in order for the priority change to take effect by entering this command:

**reset system**

c) Verify that the ap-count evaluation license now has a low priority and is not in use by entering this command:

**show license all**

Instead, the ap-count permanent license should be in use.

# Cisco Smart Software Licensing

Cisco started the initiative of simplifying customer license management by building a Cisco Smart Software Manager (SSM) portal. It helps the customers understand what licenses they have purchased and what licenses they are using. Various other Cisco products are already Smart Enabled and with the introduction of this release, Smart Licensing will now be available on the following platforms:

- Cisco 5520 Wireless Controller (AIR-CT5520-K9)
- Cisco 8540 Wireless Controller (AIR-CT8540-K9)
- Cisco vWLC (L-AIR-CTVM-5-K9)
- Cisco 3504 Wireless Controller (AIR-CT3504-K9)

You have to register for your own Smart Account, which is a one-time activity. Using the Smart Account you can activate, monitor usage, and track the purchased licenses. To know more about creating the Cisco Smart Account, see Smart Account Quick Reference Guide.

**Note** For information about migrating from RTU Licensing mechanism to Smart Licensing mechanism, consult Cisco Technical Assistance Center.

### Additional Reference

*Smart Licensing Deployment Guide*—https://www.cisco.com/c/en/us/td/docs/wireless/technology/mesh/8-2/b_Smart_Licensing_Deployment_Guide.html

### Related Topics

Information About Rehosting Licenses, on page 17

# Guidelines and Restrictions for Using Cisco Smart Software Licensing

- We recommend that you perform the following procedure if you have the Cisco Smart License enabled and the controller is registered on Cisco Smart Account.

  You must perform this task before you upgrade the controller's boot image.

  1. Deregister the controller running the old build from the Cisco Smart Software Manager (CSSM).
  2. Upgrade the controller with new boot image.
  3. Reregister the upgraded controller with new build on Cisco Smart Software Manager (CSSM).

- If you try to deregister the controller when CSSM is not reachable, the controller is deregistered internally. This results in a stale entry in CSSM. The workaround for this issue is that you must remove the stale entry from CSSM manually.
- Token-ID that is generated for Cisco 5520 or 8450 Wireless Controller cannot be used with Cisco vWLC.
- Call-Home supports only HTTP and HTTPS mode of communication.
- Call-Home does not support email mode of communication.
- After the switchover to Smart Licensing mechanism, some of the parameter reports, for example: runtime statistics will not be cumulative reports.
- To create a new profile and avoid Smart Licensing transport mode from being disabled, ensure that you disable the active profile using the **config call-home tac-profile status disable** command before you create the new profile.



**Note** You can have a maximum of two profiles and only one active profile at any time. You can configure only one profile each for Smart Licensing messages and Call-Home events.

- Do not use a non-tac profile using call-home data reporting format as this will disable Smart Licensing service.
- There might be a difference in the timestamps when the controller is in a different time zone, as the controller is set to local time zone time, whereas the Smart License server is set to UTC time.
- In a Smart License active High Availability pair, when the primary controller stops functioning, and the standby controller takes over as the new primary, and initiates a reboot. After reboot, the device losses its registration information. Manually registering the device with the Cisco Smart License Manager or rebooting and re-pairing the primary and stand-by devices helps resolve this issue.
- On a Smart License active High Availability pair, any attempt to deregister before the switch over to active secondary from active primary is complete, and the renew message is sent, the deregistration process might fail.
- In a Smart License active High Availability pair, the standby device displays evaluation authorization state, this parameter gets updated to display the correct values after the switchover is complete and the controller is the active controller.
- To free the license on the server in a situation where the license mechanism is changed to Right To Use (RTU) from Smart Licensing, it is mandatory to manually deregister the device.

### Related Topics

Information About Rehosting Licenses, on page 17

# Configuring Cisco Smart Software Licensing (GUI)

**Procedure**

**Step 1** To activate Smart Licensing mechanism, follow these steps:

a) Choose **Management** > **Software Activation** > **License Type** to open the **Smart-License** page.
b) From the **Licensing Type** drop-down list, choose **Smart-Licensing** option.
c) Enter the DNS Server IP address in the **DNS Server IP address** field.
d) Click **Apply**
e) Reboot the controller.

**Step 2** To register a device, follow these steps:

a) Choose **Management** > **Smart-License** > **Device Registration** to open the **Device Registration** page.
b) From the **Action** drop-down list choose **Registration** to register a new device.
c) Enter the device **Token-ID**.
d) Click **Apply**.

**Step 3** To de-register a device, follow these steps:

a) Choose **Management** > **Smart-License** > **Device Registration** to open the **Device Registration** page.
b) From the **Action** drop-down list choose **De-registration** to remove a registered device.
c) Click **Apply**.

**Step 4** To view the current Smart Licensing parameters, follow these steps:

a) Choose **Management** > **Smart-License** > **Status** to open the **Status** page.
b) To view the **Smart-Licensing Parameters**, choose from the following options in the drop-down list:

- **Status**
- **Summary**
- **All**
- **UDI**
- **Usage**
- **Tech-Support**

**Related Topics**

Information About Rehosting Licenses, on page 17

# Configuring the Cisco Smart Software Licensing on Controller (CLI)

**Procedure**

**Step 1** Enable Cisco Smart Software Licensing by entering the following command:

**config licensing smart-license dns-server** *ip-address*

**Note**
Device reboot is required to activate the chosen license mechanism.

**Step 2** To register or deregister a device and to retain the state of device registration after device reboots enter the following command:

**license smart** {**register** | **deregister**} *idtoken*

**Step 3** View the license status by entering the following command:

**show license** {**status** | **summary** | **udi** | **all**}

**Note**
The Smart License service runs an asynchronous sync with the controller. Hence, until the sync is completed, on executing the show command the local controller information is displayed and when the show command invoked the next time, the updated values from the Smart License is displayed.

**Step 4** Clear the Cisco Smart Software Licensing statistics by entering the following command:

**clear stats smart-lic**

**Related Topics**
Information About Rehosting Licenses, on page 17

# Updating DNS IP Address for Cisco Smart Software Licensing (CLI)

In a situation where you need to update the DNS IP address for Smart Licensing, remove the device from the Cisco Smart Software Manager.

**Procedure**

**Step 1** Reset the Smart Licensing DNS IP address by entering this command:

**test smart-lic reset-all**

**Note**
In a High Availability setup, execute the command in the active device first and then on the standby device.

**Step 2** Reregister the device in Cisco SSM by entering this command:

**license smart register** *token-id* **force**

**Step 3** Save the configuration and reboot the controller

**Related Topics**
Information About Rehosting Licenses, on page 17

# Right to Use Licensing

Right to Use (RTU) licensing is a model in which licenses are not tied to a unique device identifier (UDI), product ID, or serial number. Use RTU licensing to enable a desired AP license count on the controller after you accept the End User License Agreement (EULA). This allows you to add AP counts on a controller interacting with external tools.

RTU licensing is supported only on the following Cisco Wireless Controller platforms:

- Cisco 3504 Wireless Controller
- Cisco 5520 Wireless Controller
- Cisco 8540 Wireless Controller
- Cisco vWLC

In the RTU licensing model, the following types of licenses are available:

- Permanent or base licenses: These licenses are programmed into the controller hardware at the time of manufacturing. These licenses are base count licenses that cannot be deleted or transferred.
- Adder licenses: These licenses are wireless access point count licenses that you can activate by accepting the RTU EULA. The EULA states that you are obliged to purchase the specified access point count licenses at the time of activation. You must activate these licenses for the purchased access point count and accept the EULA.

  You can remove an adder license from one controller and transfer the license to another controller in the same product family.



**Note** Licenses embedded in the controller at the time of shipment are not transferrable.

- Evaluation licenses: These licenses are demo or trial mode licenses that are valid for 90 days. Fifteen days prior to the expiry of the 90-day period, you are notified about the requirement to buy the permanent license. These evaluation licenses are installed with the license image. You can activate the evaluation licenses anytime with a command. A EULA is prompted after you run the activation command on the controller CLI. The EULA states that you are obligated to pay for the specified license count within 90 days of usage. The countdown starts after you accept the EULA.

Whenever you add or delete an access point adder license on the controller, you are prompted with an RTU EULA. You can either accept or decline the RTU EULA for each add or delete operation.

For High Availability controllers, when you enable High Availability, the controllers synchronize with the enabled license count of the primary controller and support High Availability for up to the license count enabled on the primary controller.

You can view the RTU licenses through the controller GUI or CLI. You can also view these licenses across multiple wireless controllers through Cisco Prime Infrastructure.

# Configuring Right to Use Licensing (GUI)

### Procedure

**Step 1** Choose **Management** > **Software Activation** > **Licenses** to open the **Licenses** page.

**Step 2** In the Adder License area, choose to add or delete the number of APs that an AP license can support, enter a value, and click **Set Count**.

**Step 3** Save the configuration.

# Configuring Right to Use Licensing (CLI)

### Procedure

- Add or delete the number of APs that an AP license can support by entering this command:

  **license** {**add** | **delete**} **ap-count** *count*

- Add or delete a license for a feature by entering this command:

  **license** {**add** | **delete**} **feature** *license_name*

- Activate or deactivate an evaluation AP count license by entering this command:

  **license** {**activate** | **deactivate**} **ap-count eval**

**Note** When you activate the license, you are prompted to accept or reject the End User License Agreement (EULA) for the given license. If you activate a license that supports fewer number of APs than the current number of APs connected to the controller, the activation command fails.

- Activate or deactivate a feature license by entering this command:

  **license** {**activate** | **deactivate**} **feature** *license_name*

- See the licensing information by entering this command:

  **show license all**

### What to do next

**Note** After you add or delete the license, controller must use the **save config** command to save the license.

# Rehosting Licenses

This section describes how to rehost licenses.

## Information About Rehosting Licenses

Revoking a license from one controller and installing it on another is called *rehosting*. You might want to rehost a license in order to change the purpose of a controller. For example, if you want to move your OfficeExtend or indoor mesh access points to a different controller, you could transfer the adder license from one controller to another controller of the same model (intramodel transfer). This can be done in the case of RMA or a network rearchitecture that requires you to transfer licenses from one appliance to another. It is not possible to rehost base licenses in normal scenarios of network rearchitecture. The only exception where the transfer of base licenses is allowed is for RMA when you get a replacement hardware when your existing appliance has a failure.

Evaluation licenses cannot be rehosted.

In order to rehost a license, you must generate credential information from the controller and use it to obtain a permission ticket to revoke the license from the Cisco licensing site. Next, you must obtain a rehost ticket and use it to obtain a license installation file for the controller on which you want to install the license.

**Note** A revoked license cannot be reinstalled on the same controller.

**Related Topics**

Cisco Smart Software Licensing, on page 11
Guidelines and Restrictions for Using Cisco Smart Software Licensing, on page 11
Configuring Cisco Smart Software Licensing (GUI), on page 13
Configuring the Cisco Smart Software Licensing on Controller (CLI), on page 13
Updating DNS IP Address for Cisco Smart Software Licensing (CLI), on page 14

## Rehosting a License

### Rehosting a License (GUI)

**Procedure**

**Step 1** Choose **Management** > **Software Activation** > **Commands** to open the License Commands page.

**Step 2** From the **Action** drop-down list, choose **Rehost**. The Revoke a License from the Device and Generate Rehost Ticket area appears.

**Step 3** In the **File Name to Save Credentials** field, enter the path on the TFTP server where you want the device credentials to be saved and click **Save Credentials**.

**Step 4** To obtain a permission ticket to revoke the license, follow these steps:

a) Click **Cisco Licensing**.

b) On the Product License Registration page, click **Look Up a License** under Manage Licenses.
c) Enter the product ID and serial number for your controller.

**Note**
To find the controller's product ID and serial number, choose **Controller** > **Inventory** on the controller GUI.

d) Open the device credential information file that you saved in Step 3 and copy and paste the contents of the file into the Device Credentials field.
e) Enter the security code in the blank box and click **Continue**.
f) Choose the licenses that you want to revoke from this controller and click **Start License Transfer**.
g) On the Rehost Quantities page, enter the number of licenses that you want to revoke in the To Rehost field and click **Continue**.
h) On the Designate Licensee page, enter the product ID and serial number of the controller for which you plan to revoke the license, read and accept the conditions of the End User License Agreement (EULA), complete the rest of the text boxes on this page, and click **Continue**.
i) On the Review and Submit page, verify that all information is correct and click **Submit**.
j) When a message appears indicating that the registration is complete, click **Download Permission Ticket**. The rehost permission ticket is e-mailed within 1 hour to the address that you specified.
k) After the e-mail arrives, copy the rehost permission ticket to your TFTP server.

**Step 5** Use the rehost permission ticket to revoke the license from this controller and generate a rehost ticket as follows:

a) In the **Enter Saved Permission Ticket File Name** field, enter the TFTP path and filename (*.lic) for the rehost permission ticket that you generated in Step 4.
b) In the **Rehost Ticket File Name** field, enter the TFTP path and filename (*.lic) for the ticket that will be used to rehost this license on another controller.
c) Click **Generate Rehost Ticket**.
d) When the End User License Agreement (EULA) acceptance dialog box appears, read the agreement and click **Accept** to accept the terms of the agreement.

**Step 6** Use the rehost ticket generated in Step 5 to obtain a license installation file, which can then be installed on another controller as follows:

a) Click **Cisco Licensing**.
b) On the Product License Registration page, click **Upload Rehost Ticket** under Manage Licenses.
c) On the Upload Ticket page, enter the rehost ticket that you generated in Step 5 in the Enter Rehost Ticket field and click **Continue**.
d) On the Validate Features page, verify that the license information for your controller is correct, enter the rehost quantity, and click **Continue**.
e) On the Designate Licensee page, enter the product ID and serial number of the controller on which you plan to use the license, read and accept the conditions of the End User License Agreement (EULA), complete the rest of the text boxes on this page, and click **Continue**.
f) On the Review and Submit page, verify that all information is correct and click **Submit**.
g) When a message appears indicating that the registration is complete, click **Download License**. The rehost license key is e-mailed within 1 hour to the address that you specified.
h) After the e-mail arrives, copy the rehost license key to your TFTP server.
i) Follow the instructions in the Installing a License section to install this on another controller.

**Step 7** After revoking the license on original controller, correspondent evaluation license appears with high priority. Lower the priority of the evaluation license so that the permanent license is in "In Use" status.

## Rehosting a License (CLI)

### Procedure

**Step 1** Save device credential information to a file by entering this command:

**license save credential** *url*

where *url* is tftp://*server_ip*/*path*/*filename*.

**Step 2** Obtain a permission ticket to revoke the license as follows:

a) Go to http://slexui.cloudapps.cisco.com/SWIFT/LicensingUI. The Product License Registration page appears.
b) Under Manage Licenses, click **Look Up a License**.
c) Enter the product ID and serial number for your controller.

**Note**
To find the controller's product ID and serial number, enter the **show license udi** command on the controller CLI.

d) Open the device credential information file that you saved in Step 1 and copy and paste the contents of the file into the Device Credentials text box.
e) Enter the security code in the blank box and click **Continue**.
f) Choose the licenses that you want to revoke from this controller and click **Start License Transfer**.
g) On the Rehost Quantities page, enter the number of licenses that you want to revoke in the To Rehost text box and click **Continue**.
h) On the Designate Licensee page, enter the product ID and serial number of the controller for which you plan to revoke the license, read and accept the conditions of the End-User License Agreement (EULA), complete the rest of the text boxes on this page, and click **Continue**.
i) On the Review and Submit page, verify that all information is correct and click **Submit**.
j) When a message appears indicating that the registration is complete, click **Download Permission Ticket**. The rehost permission ticket is e-mailed within 1 hour to the address that you specified.
k) After the e-mail arrives, copy the rehost permission ticket to your TFTP server.

**Step 3** Use the rehost permission ticket to revoke the license from this controller and generate a rehost ticket as follows:

a) Revoke the license from the controller by entering this command:

**license revoke** *permission_ticket_url*

where *permission_ticket_url* is tftp://*server_ip*/*path*/*filename*.

b) Generate the rehost ticket by entering this command:

**license revoke rehost** *rehost_ticket_url*

where *rehost_ticket_url* is tftp://*server_ip*/*path*/*filename*.

c) If prompted, read and accept the terms of the End-User License Agreement (EULA).

**Step 4** Use the rehost ticket generated in Step 3 to obtain a license installation file, which can then be installed on another controller as follows:

a) Go to http://slexui.cloudapps.cisco.com/SWIFT/LicensingUI.
b) On the Product License Registration page, click **Upload Rehost Ticket** under Manage Licenses.
c) On the Upload Ticket page, enter the rehost ticket that you generated in Step 3 in the Enter Rehost Ticket text box and click **Continue**.
d) On the Validate Features page, verify that the license information for your controller is correct, enter the rehost quantity, and click **Continue**.
e) On the Designate Licensee page, enter the product ID and serial number of the controller on which you plan to use the license, read and accept the conditions of the End-User License Agreement (EULA), complete the rest of the text boxes on this page, and click **Continue**.
f) On the Review and Submit page, verify that all information is correct and click **Submit**.
g) When a message appears indicating that the registration is complete, click **Download License**. The rehost license key is e-mailed within 1 hour to the address that you specified.
h) After the e-mail arrives, copy the rehost license key to your TFTP server.
i) Follow the instructions in the Installing a License (GUI), on page 2 section to install this license on another controller.

**Step 5** After revoking the license on original controller, correspondent evaluation license appears with High priority. Lower the priority of the evaluation license so that the permanent license is in "In Use" status.

# License Agent

If your network contains various Cisco-licensed devices, you might want to consider using the Cisco License Manager (CLM) to manage all of the licenses using a single application. CLM is a secure client/server application that manages Cisco software licenses network wide.

The license agent is an interface module that runs on the controller and mediates between CLM and the controller's licensing infrastructure. CLM can communicate with the controller using various channels, such as HTTP, Telnet, and so on. If you want to use HTTP as the communication method, you must enable the license agent on the controller.

The license agent receives requests from CLM and translates them into license commands. It also sends notifications to CLM. It uses XML messages over HTTP or HTTPS to receive the requests and send the notifications. For example, CLM sends a **license install** command, and the agent notifies CLM after the license expires.

This section contains the following subsections:

## Configuring the License Agent (GUI)

### Procedure

**Step 1** Choose **Management** > **Software Activation** > **License Agent** to open the License Agent Configuration page.

**Step 2** Select the **Enable Default Authentication** check box to enable the license agent, or leave it unselected to disable this feature. The default value is unselected.

**Step 3** In the Maximum Number of Sessions text box, enter the maximum number of sessions for the license agent. The valid range is 1 to 25 sessions (inclusive).

**Step 4** Configure the license agent to listen for requests from the CLM as follows:

a) Select the **Enable Listener** check box to enable the license agent to receive license requests from the CLM, or unselect this check box to disable this feature. The default value is unselected.

b) In the Listener Message Processing URL text box, enter the URL where the license agent receives license requests (for example, http://209.165.201.30/licenseAgent/custom). The Protocol parameter indicates whether the URL requires HTTP or HTTPS.

**Note**
You can specify the protocol to use on the HTTP Configuration page.

c) Select the **Enable Authentication for Listener** check box to enable authentication for the license agent when it is receiving license requests, or unselect this check box to disable this feature. The default value is unselected.

d) In the Max HTTP Message Size text box, enter the maximum size for license requests. The valid range is 0 to 9999 bytes, and the default value is 0.

**Step 5** Configure the license agent to send license notifications to the CLM as follows:

a) Select the **Enable Notification** check box to enable the license agent to send license notifications to the CLM, or unselect this check box to disable this feature. The default value is unselected.

b) In the URL to Send the Notifications text box, enter the URL where the license agent sends the notifications (for example, http://www.cisco.com/license/notify).

c) In the User Name text box, enter the username required in order to view the notification messages at this URL.

d) In the Password and Confirm Password text boxes, enter the password required in order to view the notification messages at this URL.

**Step 6** Click **Apply** to commit your changes.

**Step 7** Click **Save Configuration** to save your changes.

# Configuring the License Agent (CLI)

**Procedure**

**Step 1** Enable the license agent by entering one of these commands:

- **config license agent default authenticate**—Enables the license agent default listener with authentication.
- **config license agent default authenticate none**—Enables the license agent default listener without authentication.

**Note**
To disable the license agent default listener, enter the **config license agent default disable command**. The default value is disabled.

**Step 2** Specify the maximum number of sessions for the license agent by entering this command:

**config license agent max-sessions** *sessions*

The valid range for the *sessions* parameter is 1 to 25 (inclusive), and the default value is 9.

**Step 3** Enable the license agent to receive license requests from the CLM and to specify the URL where the license agent receives the requests by entering this command:

**config license agent listener http** {**plaintext** | **encrypt**} *url* **authenticate** [**none**] [**max-message** *size*] [**acl** *acl*]

The valid range for the *size* parameter is 0 to 65535 bytes, and the default value is 0.

**Note**
To prevent the license agent from receiving license requests from the CLM, enter the **config license agent listener http disable command**. The default value is disabled.

**Step 4** Configure the license agent to send license notifications to the CLM and to specify the URL where the license agent sends the notifications by entering this command:

**config license agent notify** *url username password*

**Note**
To prevent the license agent from sending license notifications to the CLM, enter the **config license agent notify disable** *username password command.* The default value is disabled.

**Step 5** Enter the **save config** command to save your changes.

**Step 6** See statistics for the license agent's counters or sessions by entering this command:

**show license agent** {**counters** | **sessions**}

Information similar to the following appears for the **show license agent counters** command:

```
License Agent Counters
Request Messages Received:10: Messages with Errors:1
Request Operations Received:9: Operations with Errors:0
Notification Messages Sent:12: Transmission Errors:0: Soap Errors:0
```

Information similar to the following appears for the **show license agent sessions** command:

```
License Agent Sessions: 1 open, maximum is 9
```

**Note**
To clear the license agent's counter or session statistics, enter the **clear license agent** {**counters** | **sessions**} command.

# Call-Home

You can create reporting profiles of your choice for the Smart Licensing messages and Call-Home events. Call-Home reports Smart Licensing messages that are based on the active profile. At any time, only one profile can be active. The messages use XML format. Therefore, ensure that you choose XML format for all the profiles that you create.

**Note** By default call-home TAC profile is enabled. However if you disable the TAC profile and try to register or deregister Smart Licensing service, the profile status changes to active (enabled) dynamically.

This section contains the following subsections:

# Configuring Call-Home (GUI)

**Procedure**

**Step 1** To enable or disable the Call-Home reporting function, follow the steps:

a) Choose **Management** > **Smart-License** > **Call-home** > **configuration** to open the **Call-Home** > **Configuration** page.

b) From the **Events** drop-down list choose from the following options in the drop-down list:

- **Enabled**–enables Call-Home reporting
- **Disabled**–disables Call-Home reporting

c) Click **Apply**

**Step 2** To set the Data privacy level, follow the steps:

a) From the **Reporting Data-privacy-level** drop-down list choose from the following options in the drop-down list:

- **normal**–scrubs normal level commands
- **high**–scrubs all normal level commands, IP domain name and IP address commands

b) Click **Apply**

**Step 3** Enter the hostname in the **Reporting Hostname** text box.

**Step 4** To configure the http-proxy settings, following the steps:

a) In the **HTTP-proxy** field, enter the **IP-Address** and **port** number

b) Click **Apply**

**Step 5** To enable or disable the TAC Profile Status, follow the steps:

a) From the **TAC Profile Status** drop-down list, choose from the following options in the drop-down list:

- **Enabled**–enables the TAC profile
- **Disabled**–disables the TAC profile

b) Click **Apply**

**Step 6** Enter the email address in the **Contact person's email address** text box.

**Step 7** To create a new profile, follow the steps:

a) Enter the name for the new profile in the **Name** text box.

b) From the **Status** drop-down list choose from the following options in the drop-down list:

- **Enabled**–activates the profile
- **Disabled**–deactivates the profile

c) From the **Module** drop-down list, choose from the following options in the drop-down list:

- **sm-license-data**–smart license data
- **all**–combines smart license and call-home data
- **call-home-data**–call-home data

d) From the **Reporting Format** drop-down list, choose from the following options in the drop-down list:

- **short-text**–data reporting in short-text format
- **long-text**–data reporting in long-text format
- **xml**–call-data reporting in xml format

**Note**
The messages use XML format, hence, ensure XML message format is chosen for all profiles created.

e) The current default is **xml** format.
f) Enter the url in the **url** text box.
g) Click **Add**

**Step 8** To update an existing profile, follow the steps:

a) Place the mouse cursor over the **blue down arrow icon** in front of the Profile to edit.
b) Choose **update** from the drop-down list which appears.
c) Update the fields as required from the options available:

- **Status**
- **Module**
- **Url**

d) Click **Apply**

**Step 9** To delete a profile, follow the steps:

a) Place the mouse cursor over the **blue down arrow icon** in front of the Profile to edit.
b) Choose **delete** from the drop-down list which appears.

# Configuring Call-Home Parameters (CLI)

Configure Call-Home parameters by entering the following commands:

**Procedure**

**Step 1** Enable or disable Call-Home reporting by entering the following command:

**config call-home events** {**enable** | **disable**}

The default value is enable.

**Step 2** Create a new profile or update an existing profile by entering the following command:

**config call-home profile** {**create** | **update**} *profile-name* {**sm-license-data** | **all** | **call-home-data**} **XML** *url*

**Note**
Currently, only XML format is supported. Hence, when call-home-data profile option is selected, choose XML format from the drop-down menu.

**Step 3** Delete an existing profile by entering the following command:

**config call-home profile delete** *profile-name*

**Step 4** Configure the proxy settings by adding the IP address and port number by entering the following command:

**config call-home http-proxy ipaddr** *ip-address* **port** *port*

**Step 5** Reset the proxy settings by entering the following command:

**config call-home http-proxy ipaddr 0.0.0.0**

**Step 6** Enable user data privacy by entering the following command:

**config call-home reporting data-privacy-level** {**normal** | **high**} **hostname** *host-name*

**Step 7** Enable or disable the user profile by entering the following command:

**config call-home profile status** {**enable** | **disable**}

**Step 8** Configure the contact email address by entering the following command:

**config call-home contact-email-addr** *e-mail address*

**Step 9** Enable or disable the status of the TAC profile by entering the following command:

**config call-home tac-profile status** {**enable** | **disable**}

The default value is enable.

**Step 10** View the Call-Home settings by entering the following command:

**config call-home summary**

# Retrieving the Unique Device Identifier on Controllers and Access Points

The Unique Device Identifier (UDI) standard uniquely identifies products across all Cisco hardware product families, enabling customers to identify and track Cisco products throughout their business and network operations and to automate their asset management systems. The standard is consistent across all electronic, physical, and standard business communications. The UDI consists of five data elements:

- The orderable product identifier (PID)
- The version of the product identifier (VID)

- The serial number (SN)
- The entity name
- The product description

The UDI is burned into the EEPROM of controllers and lightweight access points at the factory. It can be retrieved through either the GUI or the CLI.

This section contains the following subsections:

# Retrieving the Unique Device Identifier on Controllers and Access Points (GUI)

**Procedure**

**Step 1** Choose **Controller** > **Inventory** to open the Inventory page.

This page shows the five data elements of the controller UDI.

**Step 2** Choose **Wireless** > **Access Points** > **All APs** to open the All APs page.

**Step 3** Click the name of the desired access point.

**Step 4** Choose the **Inventory** tab to open the All APs > Details for (Inventory) page.

This page shows the inventory information for the access point.

# Retrieving the Unique Device Identifier on Controllers and Access Points (CLI)

Use these commands to retrieve the UDI on controllers and access points using the controller CLI:

**Procedure**

- **show inventory**—Shows the UDI string of the controller.
- **show inventory ap** *ap_id*—Shows the UDI string of the access point specified.
- **show license udi**—Shows UDI values for licenses.