Managing Licenses

Installing and Configuring Licenses

Information About Installing and Configuring Licenses

You can order Cisco 5500 Series Controllers with support for 12, 25, 50, 100, 250 or 500 access points as the controller's base capacity. You can add additional access point capacity through capacity adder licenses available at 25, 50, 100 and 250 access point capacities. You can add the capacity adder licenses to any base license in any combination to arrive at the maximum capacity of 500 access points. The base and adder licenses are supported through both rehosting and RMAs.

For information about upgrade and capacity adder licenses, see the product data sheet of your controller model.

Guidelines and Limitations About Licenses

- The base license supports the standard base software set, and the premium software set is included as part of the base feature set, which includes this functionality:

  ◦ Datagram Transport Layer Security (DTLS) data encryption for added security across remote WAN and LAN links.

  ◦ The Availability of data DTLS is as follows:

  Cisco 5500 Series Controller—The Cisco 5500 Series Controller will be available with two licensing options: One with data DTLS capabilities and another image without data DTLS.

  2500, WiSM2—These platforms by default will not contain DTLS. To turn on data DTLS, you must install a license. These platforms will have a single image with data DTLS turned off. To use data DTLS you will need to have a license.

  ◦ Support for OfficeExtend access points, which are used for secure mobile teleworking.

- All features included in a Wireless LAN Controller WPLUS license are now included in the base license. There are no changes to WCS BASE and PLUS licensing. These WPlus license features are included in the base license:

  ◦ OfficeExtend AP

  ◦ Enterprise Mesh

  ◦ CAPWAP Data Encryption

- The licensing change can affect features on your wireless LAN when you upgrade or downgrade software releases, so you should be aware of these guidelines:

  ◦ If you have a WPlus license and you upgrade from 6.0.x.x to 7.x.x.x, your license file contains both Basic and WPlus license features. You won't see any disruption in feature availability and operation.

  ◦ If you have a WPlus license and you downgrade from 7.x.x.x to 6.0.196.0 or 6.0.188.0 or 6.0.182.0, your license file contains only base license, and you will lose all WPlus features.

  ◦ If you have a base license and you downgrade from 6.0.196.0 to 6.0.188.0 or 6.0.182.0, when you downgrade, you lose all WPlus features.

- In the controller software 7.0.116.0 and later releases, the AP association trap is ciscoLwappApAssociated. In prior releases, the trap was bsnAPAssociated.

- The ap-count licenses and their corresponding image-based licenses are installed together. The controller keeps track of the licensed access point count and does not allow more than the number of access points to associate to it.

- The Cisco 5500 Series Controller is shipped with both permanent and evaluation base and base-ap-count licenses. If desired, you can activate the evaluation licenses, which are designed for temporary use and set to expire after 60 days.

- No licensing steps are required after you receive your Cisco 5500 Series Controller because the licenses you ordered are installed at the factory. In addition, licenses and product authorization keys (PAKs) are preregistered to serial numbers. However, as your wireless network evolves, you might want to add support for additional access points or upgrade from the standard software set to the base software set. To do so, you need to obtain and install an upgrade license.

Obtaining an Upgrade or Capacity Adder License

This section describes how to get an upgrade or capacity adder license.

Information About Obtaining an Upgrade or Capacity Adder License

A certificate with a product authorization key (PAK) is required before you can obtain an upgrade license.

You can use the capacity adder licenses to increase the number of access points supported by the controller up to a maximum of 500 access points. The capacity adder licenses are available in access point capacities of 10, 25, 50, 100 and 250 access points. You can add these licenses to any of the base capacity licenses of 12, 25, 50, 100 and 250 access points.

For example, if your controller was initially ordered with support for 100 access points (base license AIR-CT5508-100-K9), you could increase the capacity to 500 access points by purchasing a 250 access point, 100 access point, and a 50 access point additive capacity license (LIC-CT5508-250A, LIC-CT5508-100A, and LIC-CT5508-50A).

You can find more information on ordering capacity adder licenses at this URL: http://www.cisco.com/en/US/products/ps10315/products_data_sheets_list.html

Note   If you skip any tiers when upgrading (for example, if you do not install the -25U and -50U licenses along with the -100U), the license registration for the upgraded capacity fails.

For a single controller, you can order different upgrade licenses in one transaction (for example, -25U, -50U, -100U, and -250U), for which you receive one PAK with one license. Then you have only one license (instead of four) to install on your controller.

If you have multiple controllers and want to upgrade all of them, you can order multiple quantities of each upgrade license in one transaction (for example, you can order 10 each of the -25U, -50U, -100U, and -250 upgrade licenses), for which you receive one PAK with one license. You can continue to register the PAK for multiple controllers until it is exhausted.

For more information about the base license SKUs and capacity adder licenses, see the respective controller's data sheet.

Obtaining and Registering a PAK Certificate

Step 1   Order the PAK certificate for an upgrade license through your Cisco channel partner or your Cisco sales representative, or order it online at this URL:
http://www.cisco.com/go/ordering

Step 2   If you are ordering online, begin by choosing the primary upgrade SKU **L-LIC-CT5508-UPG or LIC CT5508-UPG**. Then, choose any number of the following options to upgrade one or more controllers under one PAK. After you receive the certificate, use one of two methods to register the PAK:

  • **Cisco License Manager (CLM)**—This method automates the process of obtaining licenses and deploying them on Cisco devices. For deployments with more than five controllers, we recommend using CLM to register PAKs and install licenses. You can also use CLM to rehost or RMA a license.

Note   You cannot use CLM to change the licensed feature set or activate an ap-count evaluation license. To perform these operations, you must follow the instructions in the Activating an AP-Count Evaluation License section. Because you can use CLM to perform all other license operations, you can disregard the remaining licensing information in this chapter except these two sections and the Configuring the License Agent section if you want your controller to use HTTP to communicate with CLM.

Note   You can download the CLM software and access user documentation at this URL: http://www.cisco.com/go/clm

  • **Licensing portal**—This alternative method enables you to manually obtain and install licenses on your controller. If you want to use the licensing portal to register the PAK, follow the instructions in *Step 3*.

Step 3   Use the licensing portal to register the PAK as follows:

a) Go to http://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet

b) On the main Product License Registration page, enter the PAK mailed with the certificate in the Product Authorization Key (PAK) text box and click **Submit**.

c) On the Validate Features page, enter the number of licenses that you want to register in the Qty text box and click **Update**.

d) To determine the controller's product ID and serial number, choose **Controller** > **Inventory** on the controller GUI or enter the **show license udi** command on the controller CLI.
Information similar to the following appears on the controller CLI:

```
Device# PID                 SN                     UDI
------- ------------------- ---------------------- -----------------------
*0      AIR-CT5508-K9       CW1308L030             AIR-CT5508-K9:FCW1308L030
```

e) On the Designate Licensee page, enter the product ID and serial number of the controller on which you plan to install 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 **Submit**.

f) On the Finish 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 license is e-mailed within 1 hour to the address that you specified.

h) When the e-mail arrives, follow the instructions provided.

i) Copy the license file to your TFTP server.

Installing a License

Installing a License (GUI)

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.

Installing a License (CLI)

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.

Viewing Licenses

Viewing Licenses (GUI)

Step 1   Choose **Management** > **Software Activation** > **Licenses** to open the Licenses page.
This page lists all of the licenses installed on the controller. For each license, it shows the license type, expiration, count (the maximum number of access points 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 will always show "evaluation" even if a grace period or an extension evaluation license is installed.

Note 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)

Before You Begin

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

show sysinfo

Information similar to the following appears:

```
Manufacturer's Name.............................. Cisco Systems Inc.
Product Name..................................... Cisco Controller
Product Version.................................. 7.0
RTOS Version..................................... 7.0
Bootloader Version............................... 5.2
Emergency Image Version.......................... N/A
Build Type....................................... DATA + WPS
System Name...................................... Cisco 69
System Location.................................. na
System Contact................................... abc@cisco.com
System ObjectID.................................. 1.3.6.1.4.1.14179.1.1.4.3
IP Address....................................... 10.10.10.10
System Up Time................................... 3 days 1 hrs 12 mins 42 secs
System Timezone Location.........................
CurrentBoot License Level........................base
CurrentBoot License Type.........................Permanent
NextBoot License Level...........................base
NextBoot License Type............................Permanent
Operating Environment............................ Commercial (0 to 40 C)
```

```
Internal Temp Alarm Limits........................ 0 to 65 C
Internal Temperature............................. +40 C
State of 802.11b Network......................... Enabled
State of 802.11a Network......................... Enabled
Number of WLANs.................................. 4
Number of Active Clients......................... 0
Burned-in MAC Address............................ 00:1A:6D:DD:1E:40
Crypto Accelerator 1............................. Absent
Crypto Accelerator 2............................. Absent
Power Supply 1................................... Absent
Power Supply 2................................... Present, OK
Maximum number of APs supported................. 12
```

Note The Operating Environment and Internal Temp Alarm Limits data are not displayed for Cisco Flex 7500 Series Controllers.

- 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

Troubleshooting Licensing Issues

- Configure debugging of license agent by entering this command:
  debug license agent {**errors** | **all**} {**enable** | **disable**}

- 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)

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)

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.

Note   In the 7.2.110.0 release, the command output displays the full in-use count for active base-ap-count license even though there are no APs connected.

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

a) To raise the priority of the base-ap-count evaluation license, enter 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) To reboot the controller in order for the priority change to take effect, enter this command:
    reset system

c) To verify that the ap-count evaluation license now has a high priority and is in use, enter 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) To lower the priority of the ap-count evaluation license, enter this command:
    license modify priority *license_name* **low**

b) To reboot the controller in order for the priority change to take effect, enter this command:
    reset system

c) To verify that the ap-count evaluation license now has a low priority and is not in use, enter this command:
    show license all

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

Configuring Right to Use Licensing

Information About 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 Cisco Flex 7500 Series and Cisco 8500 Series Wireless LAN Controllers.

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 are base count licenses that cannot be deleted or transferred.

- Adder licenses—These 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 points 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. For example, an adder license such as LIC-CT7500-100A can be transferred (partially or fully) from one Cisco Flex 7500 Series controller to another Cisco Flex 7500 Series controller.

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

- Evaluation licenses—These 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 to you 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. 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 (HA) controllers when you enable HA, 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)

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 Click **Save Configuration**.

Configuring Right to Use Licensing (CLI)

- To add or delete the number of APs that an AP license can support, enter this command:

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

- To add or delete a license for a feature, enter this command:

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

- To activate or deactivate an evaluation AP count license, enter 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.

- To activate or deactivate a feature license, enter this command:

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

- To see the licensing information, enter this command:

  show license all

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, say from one 5500 series controller to another 5500 series controller (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.

Rehosting a License

Rehosting a License (GUI)

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 text box, 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** (https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet).

   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 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 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 text box, 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 text box, 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 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 section to install this on another controller.

Rehosting a License (CLI)

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 https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet. 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) To revoke the license from the controller, enter this command:
license revoke *permission_ticket_url*

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

b) To generate the rehost ticket, enter 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 https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet.

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 4 section to install this license on another controller.

Transferring Licenses to a Replacement Controller after an RMA

Information About Transferring Licenses to a Replacement Controller after an RMA

If you return a Cisco 5500 Series Controller to Cisco as part of the Return Material Authorization (RMA) process, you must transfer that controller's licenses within 60 days to a replacement controller that you receive from Cisco.

Replacement controllers come preinstalled with the following licenses: permanent base and evaluation base, base-ap-count. No other permanent licenses are installed. The SKU for replacement controllers is AIR-CT5508-CA-K9.

Because licenses are registered to the serial number of a controller, you can use the licensing portal on Cisco.com to request that the license from your returned controller be revoked and authorized for use on the replacement controller. After your request is approved, you can install the old license on the replacement controller. Any additional ap-count licenses if installed in the returned controller has to be rehosted on the replacement controller. Before you begin, you need the product ID and serial number of both the returned controller and the replacement controller. This information is included in your purchase records.

Note The evaluation licenses on the replacement controller are designed for temporary use and expire after 60 days. 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. If the evaluation licenses expire before you transfer the permanent licenses from your defective controller to your replacement controller, the replacement controller remains up and running using the permanent base license, but access points are no longer able to join the controller.

Transferring a License to a Replacement Controller after an RMA

Step 1   Browse to https://sso.cisco.com/autho/forms/CDClogin.html.

Step 2   On the Product License Registration page, choose **Transfer** > **License for RMA**.

Step 3   Click **Specify Device** and then choose the controller model from the Product Family drop-down list.

Step 4   Complete the on-screen instructions to generate the license file.
The license is provided online or in an e-mail.

Step 5   Copy the license file to the TFTP server.

Step 6   Install the license by choosing **Management** > **Software Activation** > **Commands** > **Action** > **Install License**.

Configuring the License Agent

Information About Configuring the 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.

Note You can download the CLM software and access user documentation at http://www.cisco.com/go/clm.

Configuring the License Agent (GUI)

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)

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.