



Clustering Switches

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Finding Feature Information

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

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

Restrictions for Configuring RTU Licenses

The following are the restrictions for configuring and using RTU licenses.

- AP count licenses can be ordered and pre-activated on your switch.
- Imaged based licenses can be upgraded. AP count licenses can be deactivated and moved between switches and controllers.
- To activate a license, you must reboot your switch after configuring the new license level. The AP-count license does not require a reboot to activate.
- An expired evaluation license can not be reactivated after reboot.
- Stack members of a switch stack must run the same license level. If the license level is different, the switch will not join the stack until it is changed and rebooted from the active switch of the stack.
- Adder AP-count licenses are installed in the factory.

Related Topics

[Activating an Image Based License](#), on page 3

[Examples: Activating RTU Image Based Licenses](#), on page 7

Information About Configuring RTU Licenses

Right-To-Use Licensing

Right-to-use (RTU) licensing allows you to order and activate a specific license type and level, and then to manage license usage on your switch. The types of licenses available to order by duration are:

- Permanent licenses—Purchased with a specific feature set with no expiration date.
- Evaluation licenses—Pre-installed on the switch and is valid for only a 90 day in-use period.

To activate a permanent or evaluation license, you are required to accept the End-User License Agreement (EULA).

A permanent license can be moved from one device to another. To activate a license, you must reboot your switch.

If you activate the evaluation license, it will expire in 90 days. An evaluation license is a manufacturing image on your switch and is not transferable to another switch. Once activated, this type of license cannot be deactivated until it expires. After your evaluation period expires, at the next reload your switch image will return to its default license and network operations are not impacted.

Related Topics

[Activating an Image Based License](#), on page 3

[Examples: Activating RTU Image Based Licenses](#), on page 7

Right-To-Use Image-Based Licenses

Right-to-use image licenses support a set of features based on a specific image-based license:

- LAN Base—Layer 2 features.
- IP Base—Layer 2 and Layer 3 features.
- IP Services—Layer 2, Layer 3, and IPv6 features. (Applicable only to switches and not controllers.)

The default image license for the switches is as follows:

- Catalyst 2960-CX switches: LAN Base
- Catalyst 3560-CX switches: IP Base

Right-To-Use License States

After you configure a specific license type and level, you can manage your licenses by monitoring the license state.

Table 1: RTU License States

License State	Description
Active, In Use	EULA was accepted and the license is in use after device reboot.
Active, Not In Use	EULA was accepted and the switch is ready to use when the license is enabled.
Not Activated	EULA was not accepted.

Guidelines to follow when monitoring your image based license state:

- A purchased permanent license is set to *Active, In Use* state only after a switch reboot.
- If more than one license was purchased, a reboot will activate the license with the highest feature set. For instance, the IP Services license is activated and not the LAN Base license.
- Remaining licenses purchased after switch reboot, stay in **Active, Not In Use** state.



Note For the AP count license, to change the state to Active, In Use, you must first make sure that the evaluation AP count license is deactivated.

Mobility Controller Mode

AP-count licenses are used only when the switch is in Mobility Controller mode. The MC is the gatekeeper for tracking the AP-count licenses and allows an access point to join or not.

Management of AP-count licenses is performed by the in mobility controller mode configurable through the CLI.

Right-To-Use Adder AP-Count Rehosting Licenses

Revoking a license from one device and installing it on another is called rehosting. You might want to rehost a license to change the purpose of a device.

To rehost a license, you must deactivate the adder ap-count license from one device and activate the same license on another device.

Evaluation licenses cannot be rehosted.

How to Configure RTU Licenses

Activating an Image Based License

To activate image based licenses, complete the following task:

SUMMARY STEPS

1. `license right-to-use activate { ipbase | ipservices | lanbase } [all | evaluation | slotslot-number] [acceptEULA]`
2. `reload [LINE | at | cancel | in | slot stack-member-number | standby-cpu]`
3. `show license right-to-use usage [slot slot-number]`

DETAILED STEPS

	Command or Action	Purpose																																				
Step 1	<p><code>license right-to-use activate { ipbase ipservices lanbase } [all evaluation slotslot-number] [acceptEULA]</code></p> <p>Example:</p> <pre>Switch# license right-to-use activate ipservices all acceptEULA</pre>	<p>Activates the license level. Activation can happen on all switches and also include the EULA acceptance.</p> <p>Note If you do not accept EULA, the modified configuration will not take effect after reload. The default license (or a license that was not deactivated) becomes active after reload.</p>																																				
Step 2	<p><code>reload [LINE at cancel in slot stack-member-number standby-cpu]</code></p> <p>Example:</p> <pre>Switch# reload slot 1 Proceed with reload? [confirm] y</pre>	<p>Reloads a specific stack member to complete the activation process for the RTU adder AP-count license.</p> <p>Note The reminder to accept the EULA is displayed after reload if it was not accepted earlier.</p> <p>When changing license level, you are not required to save the configuration. But, it is a good practice to ensure all the configuration is stored properly before reload. Changing from a higher license level to a lower license level on reboot will remove CLIs that are not applicable. Ensure that all features in the lower license level that are actively used are not removed.</p>																																				
Step 3	<p><code>show license right-to-use usage [slot slot-number]</code></p> <p>Example:</p> <pre>Switch# show license right-to-use usage</pre> <table border="1"> <thead> <tr> <th>Slot#</th> <th>License Name</th> <th>Type</th> </tr> <tr> <th>usage-duration(y:m:d)</th> <th>In-Use</th> <th>EULA</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ipservices</td> <td>Permanent</td> </tr> <tr> <td>0 :10:27</td> <td>yes yes</td> <td></td> </tr> <tr> <td>1</td> <td>ipservices</td> <td>Evaluation</td> </tr> <tr> <td>0 :0 :0</td> <td>no no</td> <td></td> </tr> <tr> <td>1</td> <td>ipbase</td> <td>Permanent</td> </tr> <tr> <td>0 :0 :9</td> <td>no yes</td> <td></td> </tr> <tr> <td>1</td> <td>ipbase</td> <td>Evaluation</td> </tr> <tr> <td>0 :0 :0</td> <td>no no</td> <td></td> </tr> <tr> <td>1</td> <td>lanbase</td> <td>Permanent</td> </tr> <tr> <td>0 :11:12</td> <td>no yes</td> <td></td> </tr> </tbody> </table> <pre>Switch#</pre>	Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA	1	ipservices	Permanent	0 :10:27	yes yes		1	ipservices	Evaluation	0 :0 :0	no no		1	ipbase	Permanent	0 :0 :9	no yes		1	ipbase	Evaluation	0 :0 :0	no no		1	lanbase	Permanent	0 :11:12	no yes		<p>Displays detailed usage information.</p>
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Related Topics

- [Restrictions for Configuring RTU Licenses](#), on page 1
- [Right-To-Use Licensing](#), on page 2
- [Monitoring and Maintaining RTU Licenses](#), on page 7
- [Examples: Activating RTU Image Based Licenses](#), on page 7

Activating an AP-Count License

SUMMARY STEPS

1. `license right-to-use activate {apcount ap-number slot slot-num} | evaluation} [acceptEULA]`
2. `show license right-to-use usage [slot slot-number]`

DETAILED STEPS

	Command or Action	Purpose																																																																																																						
Step 1	<p><code>license right-to-use activate {apcount ap-number slot slot-num} evaluation} [acceptEULA]</code></p> <p>Example:</p> <pre>Switch# license right to use activate apcount 5 slot 1 acceptEULA</pre>	Activates one or more adder AP-count licenses and immediately accepts the EULA.																																																																																																						
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Related Topics

[Monitoring and Maintaining RTU Licenses](#), on page 7

Obtaining an Upgrade or Capacity Adder License

You can use the capacity adder licenses to increase the number of access points supported by the device.

SUMMARY STEPS

1. `license right-to-use {activate | deactivate} apcount {ap-number | evaluation} slot slot-num [acceptEULA]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	license right-to-use {activate deactivate} apcount {ap-number evaluation} slot slot-num [acceptEULA] Example: Switch# license right to use activate apcount 5 slot 2 acceptEULA	Activates one or more adder AP-count licenses and immediately accepts the EULA.

Rehosting a License

To rehost a license, you have to deactivate the license from one device and then activate the same license on another device.

SUMMARY STEPS

1. `license right-to-use deactivate [license-level] apcount ap-number slot slot-num`
2. `license right-to-use activate [license-level] slot slot-num [acceptEULA]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	license right-to-use deactivate [license-level] apcount ap-number slot slot-num Example: Switch# license right-to-use deactivate apcount 1 slot 1	Deactivates the license on one device. The IP Base license level is deactivate from slot 1 in the example here.
Step 2	license right-to-use activate [license-level] slot slot-num [acceptEULA] Example: Switch# license right to use activate ipbase slot 2 acceptEULA	Activates the license on another device. The IP Base license level is rehosted on slot 2 in the example here.

Monitoring and Maintaining RTU Licenses

Command	Purpose
<code>show license right-to-use default</code>	Displays the default license information.
<code>show license right-to-use detail</code>	Displays detailed information of all the licenses in the switch stack.
<code>show license right-to-use eula {evaluation permanent}</code>	Displays the end user license agreement.
<code>show license right-to-use mismatch</code>	Displays the license information that does not match.
<code>show license right-to-use slot <i>slot-number</i></code>	Displays the license information for a specific slot in a switch stack.
<code>show license right-to-use summary</code>	Displays a summary of the license information on the entire switch stack.
<code>show license right-to-use usage [slot <i>slot-number</i>]</code>	Displays detailed information about usage for all licenses in the switch stack.
<code>show switch</code>	Displays detailed information of every member in a switch stack including the state of the license.

Related Topics

[Activating an Image Based License](#), on page 3

[Examples: Activating RTU Image Based Licenses](#), on page 7

[Activating an AP-Count License](#), on page 5

Configuration Examples for RTU Licensing

Examples: Activating RTU Image Based Licenses

This example shows how to activate an IP Services image license and accept the EULA for a specific slot:

```
Switch# license right-to-use activate ipservices slot 1 acceptEULA
% switch-1:stack-mgr:Reboot the switch to invoke the highest activated License level
```

This example shows how to activate a license for evaluation:

```
Switch# license right-to-use activate ipservices evaluation acceptEULA
% switch-1:stack-mgr:Reboot the switch to invoke the highest activated License level
```

Related Topics

[Activating an Image Based License](#), on page 3

[Restrictions for Configuring RTU Licenses](#), on page 1
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Examples: Displaying RTU Licensing Information

Example: Displaying RTU License Details

This example shows all the detailed information for the RTU licenses on slot 1:

Example: Displaying RTU License Mismatch

This example shows the license information of the switches in a stack and a mismatch state of a member switch. The member must match the active.

```
Switch# show switch
```

```
Switch/Stack Mac Address : 1c1d.8625.7700 - Local Mac Address
                                     H/W   Current
```

Switch#	Role	Mac Address	Priority	Version	State
*1	Active	1c1d.8625.7700	15	V02	Ready
2	Standby	bc16.f55c.ab80	7	V04	Ready
3	Member	580a.2095.da00	1	V03	Lic-Mismatch



Note To resolve the license mismatch, first check the RTU license summary:

```
Switch# show license right-to-use
```

Then change the license level of the mismatched switch so that it is the same license level of the active switch. This example shows that the IP Base license was activated for the member switch to match the active switch.

```
Switch# license right-to-use activate ipbase slot 3 acceptEULA
```

Example: Displaying RTU Licensing Usage