



Configuring Right-To-Use Licenses

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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 permanent license, you must reboot your switch after configuring the new image level. The AP-count license does not require a reboot to activate.
- An expired image based evaluation license can not be reactivated after reboot.
- Stack members of a switch stack must run the same license level.
- Licenses on mixed switch stacks are not supported.

- Your switch is pre-installed with the image that you ordered. If an image was not pre-ordered, then the switch is booted with a LAN base image by default.
- Adder AP-count licenses are installed in the factory.

Related Topics

[Activating an Imaged Based License](#), on page 5

[Examples: Activating RTU Image Based Licenses](#), on page 10

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 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. This type of license cannot be reactivated after reboot. After your evaluation period expires, your switch image will return to its earlier license of LAN Base.

Related Topics

[Activating an Imaged Based License](#), on page 5

[Examples: Activating RTU Image Based Licenses](#), on page 10

Right-To-Use Image Based Licenses

Right-to-use imaged 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 based license is LAN 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.

License Activation for Switch Stacks

Right-to-use licensing is supported on switch stacks. A switch is a set of up to nine stacking-capable switches connected through their StackWise-160 ports. You can connect only one switch type in a stack. One switch in the stack is identified as the active switch and the remaining switches are standby switches. The active switch is the switch that is activated with an RTU license and from its active console, the license level for the standby switches in the stack can be activated at the same time.



Note A switch stack cannot contain mixed switch platforms or mixed license levels. The switches in a stack must be of the same platform and the same license.

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 switch in mobility controller mode configurable through the CLI.

Related Topics

[Changing Mobility Mode](#), on page 8

Right-To-Use AP-Count Licensing

Right-to-use licensing (RTU) allows you to order and activate a specific license type, and then to manage license usage on your switch.

You can order your switch with support for a specific number of adder access point count licenses, but the total number of licenses ordered should not exceed 251000. You can also order your adder access point count licenses after receiving the switch.

For example, if you have ordered 25 700 new adder licenses, you can add only those ordered adder licenses to the switch. The licenses can be added in increments of 1, but the total number of licenses added for the switch should not exceed 25 1000.

You can configure switch to manage the access point count licenses from the CLI and view the number of access points currently in use from both the CLI and GUI.

You can configure your switch to manage the access point count licenses and view the number of access points currently in use from the CLI.

The following are two different types of access point licenses:

1. Permanent licenses for the access points
 - Adder access point count license—You can purchase the adder license to increase the switch capacity at a later time. You can transfer the adder access point count license from one switch to another.
2. Evaluation licenses for the access points
 - You can activate these licenses to evaluate more access points before purchasing the licenses.
 - The maximum number of access points that can be evaluated is 25 1000.
 - The evaluation period for using the access point licenses is 90 days.
 - You can activate and deactivate the evaluation licenses from the CLI.

Related Topics

[Activating an AP-Count License](#), on page 6

[Obtaining an Upgrade or Capacity Adder License](#), on page 7

[Rehosting a License](#), on page 8

Right-to-Use AP-Count Evaluation Licenses

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 90 days. For example, if you are using a permanent license with a 10 access-point count and want to try an evaluation license with a 15-access-point count, you can try out the evaluation license for 90 days.

When an evaluation license is activated, the permanent AP-count licenses are ignored. The maximum supported licenses of 1000 access points are available for 90 days. The maximum supported licenses of 25 access points are available for 90 days.

To prevent disruptions in operation, the switch does not change licenses when an evaluation license expires. A warning expiry message is displayed daily starting five days prior to the expiry date. After 90 days, the

evaluation license expires with a warning message. You must disable the evaluation license and then purchase the permanent license.

When the switch reboots after the evaluation license expiry, the license defaults to a permanent license.

Related Topics

[Activating an AP-Count License](#), on page 6

[Obtaining an Upgrade or Capacity Adder License](#), on page 7

[Rehosting a License](#), on page 8

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. For example, if you want to move your Office Extend or indoor access points to a different switch, you could transfer the adder ap-count license from one switch to another.

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 Imaged Based License

Procedure

	Command or Action	Purpose
Step 1	license right-to-use activate {ipbase ipservices lanbase} {all evaluation all} [slot slot-number] [acceptEULA] Example: Switch# license right-to-use activate ipservices all acceptEULA	Activates a type of image based license. Activation can happen on all switches and also include the EULA acceptance. 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.
Step 2	reload [LINE at cancel in slot stack-member-number standby-cpu] Example: Switch# reload slot 1 Proceed with reload? [confirm] y	Reloads a specific stack member to complete the activation process for the RTU adder AP-count license. Note The reminder to accept a EULA is displayed after reload if it was not accepted earlier.
Step 3	show license right-to-use usage [slot slot-number]	Displays detailed usage information.

	Command or Action	Purpose
	Example: <pre>Switch# show license right-to-use usage Slot# License Name Type usage-duration(y:m:d) In-Use EULA 1 ipservices permanent 0 :10 :0 yes yes 1 ipbase permanent 0 :0 :0 no no 1 ipbase evaluation 0 :0 :0 no no 1 lanbase permanent 0 :0 :7 no yes 1 apcount evaluation 0 :0 :0 no no 1 apcount base 0 :0 :0 no no 1 apcount adder 0 :0 :0 no no Switch#</pre>	

Related Topics

[Restrictions for Configuring RTU Licenses](#), on page 1
[Right-To-Use Licensing](#), on page 2
[Monitoring and Maintaining RTU Licenses](#), on page 9
[Examples: Activating RTU Image Based Licenses](#), on page 10

Activating an AP-Count License

Procedure

	Command or Action	Purpose
Step 1	license right-to-use activate { apcount <i>ap-number</i> slot <i>slot-num</i> } evaluation } [acceptEULA] Example: <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.
Step 2	show license right-to-use usage [slot <i>slot-number</i>] Example: <pre>Switch# show license right-to-use usage</pre>	Displays detailed usage information.

	Command or Action	Purpose
	<pre> Slot# License Name Type usage-duration(y:m:d) In-Use EULA </pre>	
1	ipservices permanent 0 :3	
:29	yes yes	
1	ipservices evaluation 0 :0	
:0	no no	
1	ipbase permanent 0 :0	
:0	no no	
1	ipbase evaluation 0 :0	
:0	no no	
1	lanbase permanent 0 :0	
:0	no no	
1	apcount evaluation 0 :3	
:11	no no	
1	apcount base 0 :0	
:0	no yes	
1	apcount adder 0 :0	
:17	yes yes	
Switch#		

Related Topics

[Monitoring and Maintaining RTU Licenses](#), on page 9

[Right-To-Use AP-Count Licensing](#), on page 4

[Right-to-Use AP-Count Evaluation Licenses](#), on page 4

Obtaining an Upgrade or Capacity Adder License

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

Procedure

	Command or Action	Purpose
Step 1	<pre> 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 </pre>	Activates one or more adder AP-count licenses and immediately accepts the EULA.

Related Topics

[Right-to-Use AP-Count Evaluation Licenses](#), on page 4

[Right-To-Use AP-Count Licensing](#), on page 4

Rehosting a License

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

Procedure

	Command or Action	Purpose
Step 1	license right-to-use deactivate apcount <i>ap-number slot slot-num [acceptEULA]</i> Example: <pre>Switch# license right to use deactivate apcount 1 slot 1 acceptEULA</pre>	Deactivates the license on one switch.
Step 2	license right-to-use activate apcount <i>ap-number slot slot-num [acceptEULA]</i> Example: <pre>Switch# license right to use activate apcount 2 slot 2 acceptEULA</pre>	Activates the license on another switch.

Related Topics

[Right-To-Use AP-Count Licensing](#), on page 4

[Right-to-Use AP-Count Evaluation Licenses](#), on page 4

Changing Mobility Mode

Procedure

	Command or Action	Purpose
Step 1	wireless mobility controller Example: <pre>Switch(config)# wireless mobility controller % Mobility role changed to Mobility Controller. Please save config and reboot the whole stack.</pre>	Changes a switch in Mobility Agent mode to Mobility Controller mode.
Step 2	write memory Example: <pre>Switch# write memory Building configuration... Compressed configuration from 13870 bytes to 5390 bytes[OK] Switch#</pre>	

	Command or Action	Purpose
Step 3	reload [<i>LINE</i> at cancel in slot <i>stack-member-number</i> standby-cpu] Example: Switch# reload slot 3 Proceed with reload? [confirm] y	
Step 4	no wireless mobility controller Example: Switch(config)# no wireless mobility controller % Mobility role changed to Mobility Agent. Please save config and reboot the whole stack. Switch(config)#	Changes a switch in Mobility Controller mode to Mobility Agent mode.
Step 5	write memory Example: Switch# write memory Building configuration... Compressed configuration from 13870 bytes to 5390 bytes[OK] Switch#	
Step 6	reload [<i>LINE</i> at cancel in slot <i>stack-member-number</i> standby-cpu] Example: Switch# reload slot 3 Proceed with reload? [confirm] y	

Related Topics

[Mobility Controller Mode](#), on page 3

Monitoring and Maintaining RTU Licenses

Command	Purpose
show license right-to-use default	Displays the default license information.
show license right-to-use detail	Displays detailed information of all the licenses in the switch stack.
show license right-to-use eula {adder evaluation permanent}	Displays the end user license agreement.

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

Related Topics

[Activating an Imaged Based License](#), on page 5

[Examples: Activating RTU Image Based Licenses](#), on page 10

[Activating an AP-Count License](#), on page 6

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 Imaged Based License](#), on page 5

[Restrictions for Configuring RTU Licenses](#), on page 1

[Right-To-Use Licensing](#), on page 2

[Monitoring and Maintaining RTU Licenses](#), on page 9

Examples: Displaying RTU Licensing Information

This example shows the consolidated RTU licensing information from the active switch on a switch stack. All of the members in the stack have the same license level. When the evaluation AP-count license is activated,

the adder AP-count licenses are ignored. The maximum number of AP-count licenses are available when evaluation is enabled.

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

License Name	Type	Count	Period left
ipservices	permanent	10	Lifetime
apcount	evaluation	15	90

```
License Level In Use: ipservices
License Level on Reboot: ipbase
Evaluation AP-Count: Enabled
Total AP Count Licenses: 25
AP Count Licenses In-use: 10
AP Count Licenses Remaining: 15
```

This example shows a summary of permanent and adder licenses. The evaluation AP-count license is disabled displaying the total number of activated adder AP-count licenses in the switch stack. AP-count licenses in-use mean that they are connected.

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

License Name	Type	Count	Period left
ipservices	permanent	N/A	Lifetime
apcount	base	0	
apcount	adder	25	Lifetime

```
License Level In Use: ipservices
License Level on Reboot: ipservices eval
Evaluation AP-Count: Disabled
Total AP Count Licenses: 25
AP Count Licenses In-use: 10
AP Count Licenses Remaining: 15
```

This example shows the RTU default licenses. Default licenses are pre-installed and cannot be removed or transferred. If no license is activated the switch uses the default license, after a reboot.

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

Slot#	License Name	Type	Count
1	ipservices	permanent	N/A
1	apcount	base	0
1	apcount	adder	10
Slot#	License Name	Type	Count
2	ipservices	permanent	N/A
2	apcount	base	0
2	apcount	adder	10
Slot#	License Name	Type	Count
3	ipservices	permanent	N/A

Example: Displaying RTU License Details

```

3      apcount      base      0
3      apcount      adder     10

```

This example shows the consolidated RTU licensing information of the controller. When the evaluation ap-count license is activated, the base and adder ap-count licenses are ignored. The maximum number of ap-count licenses are available when evaluation is enabled.

```

controller# show license right-to-use summary
License Name      Type      Count      Period left
-----
apcount           evaluation  25         Expired

```

```

Evaluation AP-Count: Enabled
Total AP Count Licenses: 25
AP Count Licenses In-use: 2
AP Count Licenses Remaining: 23

```

This example shows the RTU default licenses. Default licenses are pre-installed and cannot be removed or transferred. If no license is activated the controller uses the default license, after a reboot.

```

controller# show license right-to-use default
Slot#      License Name      Type      Count
-----
1          apcount           base      10

```

Example: Displaying RTU License Details

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

```
Switch# show license right-to-use detail slot 1
```

```

Index 1:  License Name: ipservices
          Period left: Lifetime
          License Type: permanent
          License State: Active, In use
          License Count: Non-Counted
          License Location: Slot 1
Index 2:  License Name: ipservices
          Period left: 90
          License Type: evaluation
          License State: Not Activated
          License Count: Non-Counted
          License Location: Slot 1
Index 3:  License Name: ipbase
          Period left: Lifetime
          License Type: permanent
          License State: Active, Not In use
          License Count: Non-Counted
          License Location: Slot 1
Index 4:  License Name: ipbase
          Period left: 90
          License Type: evaluation
          License State: Not Activated
          License Count: Non-Counted
          License Location: Slot 1
          License Location: Standby Switch 1

```

```

Index 5: License Name: lanbase
        Period left: Lifetime
        License Type: permanent
        License State: Not Activated
        License Count: Non-Counted
        License Location: Slot 1
Index 6: License Name: apcount
        Period left: 90
        License Type: evaluation
        License State: Active, In use
        License Count: 50
        License Location: Slot 1
Index 7: License Name: apcount
        Period left: Lifetime
        License Type: base
        License State: Active, Not In use
        License Count: 0
        License Location: Slot 1
Index 8: License Name: apcount
        Period left: Lifetime
        License Type: adder
        License State: Active, Not In use
        License Count: 10
        License Location: Slot 1

Controller# show license right-to-use detail slot 1
Index 6: License Name: apcount
        Period left: Expired
        License Type: evaluation
        License State: Active, In use
        License Count: 1000
        License Location: Slot 1
Index 7: License Name: apcount
        Period left: Lifetime
        License Type: base
        License State: Active, Not In use
        License Count: 0
        License Location: Slot 1
Index 8: License Name: apcount
        Period left: Lifetime
        License Type: adder
        License State: Not Activated
        License Count: 0
        License Location: 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 : 6400.f125.0c80

```

	H/W	Current
--	-----	---------

Example: Displaying RTU Licensing Usage

Switch#	Role	Mac Address	Priority	Version	State
1	Standby	6400.f125.1b00	1	0	Ready
*2	Active	6400.f125.0c80	1	V01	Ready
3	Member	6400.f125.1780	1	0	Lic-Mismatch



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

```
Switch# show switch right-to-use summary
```

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 1 acceptEULA
```

Example: Displaying RTU Licensing Usage

This example shows the detailed licensing usage on your switch stack. The IP Services license in Slot 1 is permanent and usage is one day. An AP-count license in Slot 2 is ready for evaluation. EULA was accepted and state shows in use, but after reboot the evaluation license will be deactivated.

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

Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA
1	ipservices	permanent	0 :0 :1	yes	yes
1	ipservices	evaluation	0 :0 :0	no	no
1	ipbase	permanent	0 :0 :0	no	yes
1	ipbase	evaluation	0 :0 :0	no	no
1	lanbase	permanent	0 :0 :0	no	no
1	apcount	evaluation	0 :0 :0	yes	yes
1	apcount	base	0 :0 :0	no	yes
1	apcount	adder	0 :0 :0	no	yes
Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA
2	ipservices	permanent	0 :0 :1	yes	no
2	ipservices	evaluation	0 :0 :0	no	yes
2	ipbase	permanent	0 :0 :0	no	yes
2	ipbase	evaluation	0 :0 :0	no	no
2	lanbase	permanent	0 :0 :0	no	no
2	apcount	evaluation	0 :0 :0	yes	yes
2	apcount	base	0 :0 :0	no	yes
2	apcount	adder	0 :0 :0	no	no
Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA

```

3      ipservices      permanent      0 :0 :1      yes      yes
3      ipservices      evaluation     0 :0 :0      no       no
3      ipbase          permanent      0 :0 :0      no       no
3      ipbase          evaluation     0 :0 :0      no       no
3      lanbase         permanent      0 :0 :0      no       no
3      apcount         evaluation     0 :0 :0      yes      yes
3      apcount         base          0 :0 :0      no       yes
3      apcount         adder        0 :0 :0      no       no

```

This example shows the detailed licensing usage on your controller.

Controller# **show license right-to-use usage**

```

Slot#  License Name      Type      usage-duration(y:m:d)  In-Use  EULA
-----
1      apcount           evaluation  0 :3 :3               yes     yes
1      apcount           base       0 :0 :0               no      yes
1      apcount           adder      0 :0 :0               no      no

```

Additional References for RTU Licensing

Related Documents

Related Topic	Document Title
RTU commands	<i>System Management Command Reference (Catalyst 3650 Switches)</i>
RTU AP image preload feature	<i>System Management Configuration Guide (Cisco WLC 5700 Series)</i>

Standards and RFCs

Standard/RFC	Title
None	—

MIBs

MIB	MIBs Link
All supported MIBs for this release.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/support

Feature History and Information for RTU Licensing

Release	Feature Information
Cisco IOS XE 3.2SE Cisco IOS XE 3.3SE Cisco IOS XE 3.3SE	This feature was introduced.