Configuring Right-To-Use Licenses

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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.

- When you downgrade the license level from an image with add-on licenses to an image without add-ons, only the base license level is retained after downgrade, and not the add-ons.

  When you upgrade back to the image with the add-ons, the base license level is retained but the add-ons are not activated.

- Adder AP-count licenses are installed in the factory.

Related Topics

Activating an Image Based License, on page 5
Examples: Activating RTU Image Based Licenses, on page 11

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—For image-based licenses only. Purchased with a specific feature set with no expiration date.
- Term licenses—For add-on licenses only. Purchased with a feature set for a specific subscription period of 3, 5, or 7 years. The expiration date displays on Cisco Smart Software Manager (Cisco SSM).
- Evaluation licenses—Available with image-based and add-on 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.

Term license expiry information is available only on Cisco SSM. To get started, create a Smart Account. Go to software.cisco.com → Administration → Request Smart Account. For more information, see: http: www.cisco.com c en us buy smart-accounts software-licensing.html

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 5
Examples: Activating RTU Image Based Licenses, on page 11

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.)

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 theirStackWise-480 ports. One switch in the stack is identified as the active switch and the remaining switches are standby switches. The active switch is activated with an RTU license 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 license levels. Also, the switches must be of the same platform.

To change the license level, you do not need to disconnected the new added stack member if the stack cables are connected. Use the active switch console to set the new member's license level same as active switch and reboot the new member to join the stack.

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.

Related Topics

Changing Mobility Mode, on page 9

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 .

You can order your device with support for a specific number of adder access point count licenses, but the total number of licenses ordered should not exceed 50. You can also order your adder access point count licenses after receiving the device.

For example, if you have ordered 50 new adder licenses, you can add only those ordered adder licenses to the device. The licenses can be added in increments of 1, but the total number of licenses added for the device should not exceed 50 .

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 device capacity at a later time. You can transfer the adder access point count license from one device 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 50 .
    - 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 7
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.

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 .

To prevent disruptions in operation, the device 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 device reboots after the evaluation license expiry, the license defaults to a permanent license.

Related Topics

Activating an AP-Count License, on page 7
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 device, you could transfer the adder ap-count license from one device 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 Image Based License

To activate image based licenses, complete the following task:

Procedure

	Command or Action	Purpose
Step 1	**license right-to-use activate** {**ipbase** | **ipservices** | **lanbase**} [**all** | **evaluation** | **slot***slot-number*] [**acceptEULA**] **Example:** `Device# license right-to-use activate ipservices all acceptEULA`	Activates the license level. 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.

	Command or Action	Purpose

Step 2	**reload** [*LINE* | **at** | **cancel** | **in** | **slot** *stack-member-number* | **standby-cpu**]
	Example:
	`Device# 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 the EULA is displayed after reload if it was not accepted earlier.
		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.

Step 3	**show license right-to-use usage** [**slot** *slot-number*]
	Example:
	`Device# show license right-to-use usage`
	`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`
	`Switch#`
		Displays detailed usage information.

Related Topics

Restrictions for Configuring RTU Licenses, on page 1
Right-To-Use Licensing, on page 2
Monitoring and Maintaining RTU Licenses, on page 10
Examples: Activating RTU Image Based Licenses, on page 11

Activating an AP-Count License

Procedure

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

Step 2	**show license right-to-use usage** [**slot** *slot-number*]
	Example:
	`Device# show license right-to-use usage`
	`Slot# License Name Type usage-duration(y:m:d) In-Use EULA`
	`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#`
		Displays detailed usage information.

Related Topics

Monitoring and Maintaining RTU Licenses, on page 10
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 device.

Procedure

	Command or Action	Purpose
Step 1	**license right-to-use** {**activate** | **deactivate**} **apcount** {*ap-number* | **evaluation** } **slot** *slot-num* [**acceptEULA**] **Example:** `Device# license right to use activate apcount 5 slot 2 acceptEULA`	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 device and then activate the same license on another device.

Procedure

	Command or Action	Purpose

Step 1	**license right-to-use deactivate [license-level] apcount** *ap-number* **slot** *slot-num*
	Example:
	`Device# license right-to-use deactivate apcount 1 slot 1`
	Example:
	`Device# license right-to-use deactivate ipbase slot 1`
	`OR`
		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:
	`Device# license right to use activate ipbase slot 2 acceptEULA`
	Example:
	`Device# 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.

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:
	`Device(config)# wireless mobility controller`
	`%`
	`Mobility role changed to Mobility Controller.`
	`Please save config and reboot the whole stack.`
		Changes a switch in Mobility Agent mode to Mobility Controller mode.

Step 2	**write memory**
	Example:
	`Device# write memory`
	
	`Building configuration...`
	`Compressed configuration from 13870 bytes to 5390 bytes[OK]`
	`Device#`	

Step 3	**reload** [*LINE* | **at** | **cancel** | **in** | **slot** *stack-member-number* | **standby-cpu**]
	Example:
	`Device# reload slot 3`
	`Proceed with reload? [confirm] y`	

Step 4	**no wireless mobility controller**
	Example:
	`Device(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:
	`Device# write memory`
	
	`Building configuration...`
	`Compressed configuration from 13870 bytes to 5390 bytes[OK]`
	`Device#`	

	Command or Action	Purpose

Step 6	**reload** [*LINE* | **at** | **cancel** | **in** | **slot** *stack-member-number* | **standby-cpu**]
	Example:
	`Device# reload slot 3`
	`Proceed with reload? [confirm] y`	

Related Topics

Mobility Controller Mode, on page 4

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 {evaluation | permanent} show license right-to-use eula {evaluation | permanent}	Displays the end user license agreement.
show license right-to-use mismatch	Displays the license information that does not match.
show license right-to-use slot *slot-number*	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 [**slot** *slot-number*]	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 Image Based License, on page 5
Examples: Activating RTU Image Based Licenses, on page 11
Activating an AP-Count License, on page 7

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 5
Restrictions for Configuring RTU Licenses, on page 1
Right-To-Use Licensing, on page 2
Monitoring and Maintaining RTU Licenses, on page 10

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      Period left
---------------------------------------
 ipservices      Permanent      Lifetime
---------------------------------------

License Level In Use: ipservices
License Level on Reboot: ipservices
```

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         40          Lifetime
```

```
------------------------------------------------------------

License Level In Use: ipservices
License Level on Reboot: ipservices eval
Evaluation AP-Count: Disabled
Total AP Count Licenses: 40
AP Count Licenses In-use: 10
AP Count Licenses Remaining: 30
```

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
--------------------------------------
    1            lanbase    Permanent
--------------------------------------

Slot#       License Name         Type
--------------------------------------
    2            lanbase    Permanent
--------------------------------------

Slot#       License Name         Type
--------------------------------------
    3            lanbase    Permanent
--------------------------------------
```

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.

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:

```
Device# 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 Location: Slot 1
Index 2
  License Name    : ipservices
  Period left     : 90
  License Type    : Evaluation
  License State   : Not Activated
  License Location: Slot 1
Index 3
```

```
  License Name    : ipbase
  Period left     : Lifetime
  License Type    : Permanent
  License State   : Active, Not In use
  License Location: Slot 1
Index 4
  License Name    : ipbase
  Period left     : 90
  License Type    : Evaluation
  License State   : Not Activated
  License Location: Slot 1
Index 5
  License Name    : lanbase
  Period left     : Lifetime
  License Type    : Permanent
  License State   : Active, Not In use
  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 : 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 switched 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

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 :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
--------------------------------------------------------------------------

Slot#       License Name         Type  usage-duration(y:m:d)   In-Use   EULA
--------------------------------------------------------------------------
    2         ipservices    Permanent               0 :3 :25      yes    yes
    2         ipservices   Evaluation               0 :0 :0        no     no
    2             ipbase    Permanent               0 :0 :0        no    yes
    2             ipbase   Evaluation               0 :0 :0        no     no
    2            lanbase    Permanent               0 :7 :2        no    yes
--------------------------------------------------------------------------

Slot#       License Name         Type  usage-duration(y:m:d)   In-Use   EULA
--------------------------------------------------------------------------
    3         ipservices    Permanent               0 :6 :15      yes    yes
    3         ipservices   Evaluation               0 :0 :0        no     no
    3             ipbase    Permanent               0 :0 :0        no    yes
    3             ipbase   Evaluation               0 :0 :0        no     no
    3            lanbase    Permanent               0 :8 :11       no    yes
--------------------------------------------------------------------------
```

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
For complete syntax and usage information for the commands used in this chapter.	*System Management Command Reference (Catalyst 3850 Switches)*

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
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. 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. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature History and Information for RTU Licensing

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

Release	Feature Information
Cisco IOS XE Fuji 16.8.1a	Support for add-on licensing options (DNA Essentials and DNA Advantage) were introduced.