



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.

- To activate a license, you must reboot your switch after configuring the new license level.
- 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.

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.

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.

Right-To-Use Add-On Licenses

The features available with add-on license levels provide Cisco innovations on the switch, as well as on the Cisco Digital Network Architecture Center (Cisco DNA Center). Add-On Licenses require an RTU image-based license as a pre-requisite.

- Digital Networking Architecture (DNA) Essentials
This add-on license can be purchased with LAN Base, IP Base, or IP Services image-based licenses.
- DNA Advantage (Contains DNA Essentials plus more)

This add-on license can be purchased only with IP Base or IP Services image-based licenses.

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-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 disconnect 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.

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>Device# 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>Device# reload slot 1 Proceed with reload? [confirm] y</pre>	<p>Reloads a specific stack member to complete the activation process .</p> <p>Note The reminder to accept the EULA is displayed after reload if it was not accepted earlier.</p>

	Command or Action	Purpose																																				
		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	<p>show license right-to-use usage [slot <i>slot-number</i>]</p> <p>Example:</p> <pre>Device# 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</td> <td>yes</td> </tr> <tr> <td>1</td> <td>ipservices</td> <td>Evaluation</td> </tr> <tr> <td>0 :0 :0</td> <td>no</td> <td>no</td> </tr> <tr> <td>1</td> <td>ipbase</td> <td>Permanent</td> </tr> <tr> <td>0 :0 :9</td> <td>no</td> <td>yes</td> </tr> <tr> <td>1</td> <td>ipbase</td> <td>Evaluation</td> </tr> <tr> <td>0 :0 :0</td> <td>no</td> <td>no</td> </tr> <tr> <td>1</td> <td>lanbase</td> <td>Permanent</td> </tr> <tr> <td>0 :11:12</td> <td>no</td> <td>yes</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	Displays detailed usage information.
Slot#	License Name	Type																																				
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1	ipservices	Permanent																																				
0 :10:27	yes	yes																																				
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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																																				

Activating an Add-On License

Beginning in the privileged EXEC mode, complete the following task to activate an add-on license:

Before you begin

Ensure that you have already activated the required image-based license:

- For DNA Essentials, you must have activated the LAN Base, IP Base, or IP Services image-based license.
- For DNA Advantage, you must have activated the IP Base or IP Services image-based license.

SUMMARY STEPS

1. **license right-to-use activate addon** { dna-essentials | dna-advantage } { evaluation | subscription } [all | slots *slot-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>license right-to-use activate addon { dna-essentials dna-advantage } { evaluation subscription } [all slotslot-number] [acceptEULA]</p> <p>Example:</p> <pre>Device# license right-to-use activate add-on dna-essentials subscription slot 1 acceptEULA</pre>	<p>Activates the license level. This step can also include 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> <ul style="list-style-type: none"> • { dna-essentials dna-advantage }—Enter the add-on licenses you want to activate. • { evaluation subscription }—Specify the duration. Add-on licenses can be ordered for a 3, 5, or 7 year term, or for a 90-day evaluation period. <p>Note License expiry information is available only on Cisco SSM. See: http://www.cisco.com/c/en/us/buy/smart-accounts/software-licensing.html</p> <ul style="list-style-type: none"> • (Optional) [all slotslot-number]—Specify if you want to activate it on all the switches in the stack or specify a particular slot and switch number. • (Optional) [acceptEULA]—The end-user licensing agreement, which must be accepted.
Step 2	<p>reload [<i>LINE</i> at cancel in slot stack-member-number standby-cpu]</p> <p>Example:</p> <pre>Device# reload slot 1 Proceed with reload? [confirm] y</pre>	<p>Reloads a specific stack member to complete the activation process.</p> <p>Note A 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>show license right-to-use usage [<i>slot slot-number</i>]</p> <p>Example:</p> <pre>Device# show license right-to-use usage</pre>	<p>Displays the license usage information, for image-based and add-on licenses.</p>

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] slot slot-num`
2. `license right-to-use activate [license-level] slot slot-num [acceptEULA]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>license right-to-use deactivate [license-level] slot slot-num</code></p> <p>Example:</p> <pre>Device# license right-to-use deactivate ipbase slot 1</pre> <pre>Device# license right-to-use deactivate addon dna-advantage subscription slot 1OR</pre>	Deactivates the license on one device. The IP Base license level is deactivate from slot 1 in the example here. The second example is that of deactivating an add-on DNA advantage license.
Step 2	<p><code>license right-to-use activate [license-level] slot slot-num [acceptEULA]</code></p> <p>Example:</p> <pre>Device# license right-to-use activate ipbase slot 2 acceptEULA</pre> <p>OR</p> <pre>Device# license right-to-use activate activate addon dna-advantage subscription slot 2</pre>	Activates the license on another device. The IP Base license level is rehosted on slot 2 in the example here. The second example is that of rehosting an add-on DNA advantage license level.

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} 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 slot-number</code>	Displays the license information for a specific slot in a switch stack.

Command	Purpose
<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 slot-number]</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.

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
```

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.

```
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 the consolidated RTU licensing information, from the active switch on a switch stack. here, image-based and add-on licenses are being used. All of the members in the stack have the same license level.

```
Device# show license right-to-use summary
License Name      Type      Period left
-----
  ipbase Permanent  Lifetime
```

```
dna-advantage Subscription Subscription      Active
-----
```

```
License Level In Use: ipbase+dna-advantage Subscription
License Level on Reboot: ipbase+dna-advantage Subscription
```

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
-----
```

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
```

This example shows all the detailed information for the RTU licenses on slot 1 of a device where add-on licenses are activated. See [Index 12](#) in the sample output below:

```
Device# show license right-to-use detail slot 1
Index 1
  License Name      : ipservices
  Period left       : Lifetime
  License Type      : Permanent
  License State     : Not Activated
  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, 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     : Not Activated
  License Location  : Slot 1
Index 9
  License Name      : dna-essentials
  Period left       : 90
  License Type      : Evaluation
  License State     : Not Activated
  License Location  : Slot 1
Index 10
  License Name      : dna-essentials
  Period left       : Not Active
  License Type      : Subscription
  License State     : Not Activated
  License Location  : Slot 1
Index 11
  License Name      : dna-advantage
  Period left       : 90
  License Type      : Evaluation
  License State     : Not Activated
  License Location  : Slot 1
Index 12
  License Name      : dna-advantage
  Period left       : Not Active
  License Type      : Subscription
  License State     : Active, In use
  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.

```
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 detailed licensing usage on a particular slot of a stack where add-on licenses are used.

Device# **show license right-to-use usage slot 1**

Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA
1	ipservices	Permanent	00:00:00	no	no
1	ipservices	Evaluation	00:00:00	no	no
1	ipbase	Permanent	01:11:12	yes	yes
1	ipbase	Evaluation	00:00:00	no	no
1	lanbase	Permanent	00:00:00	no	no
1	dna-essentials	Evaluation	00:00:00	no	no
1	dna-essentials	Subscription	00:00:00	no	no
1	dna-advantage	Evaluation	00:00:00	no	no
1	dna-advantage	Subscription	00:00:00	yes	yes

Additional References for RTU Licensing

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	<i>System Management Command Reference (Catalyst 3850 Switches)</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	This feature was introduced.
Cisco IOS XE Fuji 16.8.1a	Support for add-on licensing options (DNA Essentials and DNA Advantage) were introduced.