



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.

- 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.

Information About Configuring RTU Licenses

Right-To-Use Licensing

The software features available with Right-to-use (RTU) licensing falls under the base or add-on license levels. The license types available are:

- Base licenses—These can be ordered as a permanent license.
 - Network Essentials
 - Network Advantage (Contains Network Essentials plus more)
- Add-on licenses—These can be subscribed for a fixed term of 3, 5, and 7 years.

- Digital Networking Architecture (DNA) Essentials
- DNA Advantage (Contains DNA Essentials plus more)

After the initial term of the add-on license expires, you will be able to continue using the base license by deactivating the add-on license and reloading the device.

To activate a license, you must accept the End-User License Agreement (EULA) and reboot the device.

Cisco Smart Software Manager (CSSM) simplifies the licensing experience across the enterprise making it easier to purchase, deploy, track and renew Cisco software. It provides visibility into license ownership and consumption through a single user interface.

To find info about platform support and to know which license levels a feature is available with, use Cisco Feature Navigator. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

RTU licenses are available as per the following durations:

- Permanent licenses—Purchased with a specific feature set with no expiration date. It can be transferred from one device to another.
- Term licenses—Purchased with a feature set for a specific subscription period. You can verify the expiration date from Cisco Smart Software Manager (CSSM).
- Evaluation licenses—Pre-installed on the device and valid for a 90-day trial period. They cannot be ordered or transferred to another device. Once activated, this type of license cannot be deactivated until it expires. Warning system messages about the evaluation license expiry are generated 10 and 5 days before the 90-day period and everyday after that. After your evaluation period expires, at the next reload, the device returns to its default license and network operations are not impacted.

When ordering an add-on license with a base license, note the combinations that are permitted and those that are not permitted.

Table 1: License Combinations

Combinations	License Level
Permitted License Combinations	Network Essentials + DNA Essentials
	Network Advantage + DNA Essentials
	Network Advantage + DNA Advantage



Note You cannot add a DNA Advantage license to Network Essentials base license.

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 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 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.

To change the license level on a new stack member, use the console of the active switch to set the same license level on the new stack member and reboot it.



Note A switch stack cannot contain mixed license levels.

How to Configure RTU Licenses

Activating a License

SUMMARY STEPS

1. `license right-to-use [activate | deactivate] [network-essentials | network-advantage] [all | evaluation {all | slot slot-number <1-8>}] [acceptEULA]`
2. `license right-to-use [activate | deactivate] addon [dna-essentials | dna-advantage] [all | evaluation | subscription {all | slot slot-number <1-8>}] [acceptEULA]`
3. `reload [LINE | at | cancel | in | slot device-member-number | standby-cpu]`
4. `show license right-to-use usage [slot slot-number]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>license right-to-use [activate deactivate] [network-essentials network-advantage] [all evaluation {all slot slot-number <1-8>}] [acceptEULA]</code></p> <p>Example:</p> <pre>Device# license right-to-use activate network-essentials 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>license right-to-use [activate deactivate] addon [dna-essentials dna-advantage] [all evaluation subscription {all slot slot-number <1-8>}] [acceptEULA]</code></p> <p>Example:</p> <pre>Device# license right-to-use activate addon dna-essentials subscription 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 3	<p><code>reload [LINE at cancel in slot device-member-number standby-cpu]</code></p> <p>Example:</p>	<p>Reloads a specific device member to complete the activation process.</p>

	Command or Action	Purpose
	<pre>Device# reload slot 1 Proceed with reload? [confirm] y</pre>	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 4	<p>show license right-to-use usage [slot slot-number]</p> <p>Example:</p> <pre>Device# show license right-to-use usage Slot# License Name Type usage-duration(y:m:d) In-Use EULA 1 network-essentials Permanent 0 :0 :3 no yes 1 network-essentials Evaluation 0 :0 :0 no no 1 network-essentials Subscription 0 :0 :0 no no 1 network-advantage Permanent 0 :0 :6 yes yes 1 network-advantage Evaluation 0 :0 :0 no no 1 network-advantage Subscription 0 :0 :0 no no 1 dna-essentials Evaluation 0 :0 :0 no no 1 dna-essentials Subscription 0 :0 :0 no no 1 dna-advantage Evaluation 0 :0 :0 no no 1 dna-advantage Subscription 0 :0 :6 yes yes</pre> <p>Device#</p>	Displays detailed usage information.

Rehosting a License

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

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	license right-to-use deactivate [license-level] slot <i>slot-num</i> Example: Device# <code>license right-to-use deactivate network-essentials slot 1</code>	Deactivates the license on one device. The network-essentials license is considered for the example.
Step 2	license right-to-use activate [license-level] slot <i>slot-num</i> [acceptEULA] Example: Device# <code>license right-to-use activate network-essentials slot 2 acceptEULA</code>	Activates the license on another device. The network-essentials license is considered for the example.

Upgrading a Network Essentials License to Network Advantage

SUMMARY STEPS

1. `license right-to-use activate network-advantage slot switch-ID acceptEULA`
2. `show license right-to-use summary`
3. `reload`

DETAILED STEPS

	Command or Action	Purpose
Step 1	license right-to-use activate network-advantage slot <i>switch-ID</i> acceptEULA	Activates Network Advantage license. Enter the switch ID. Enter acceptEULA to indicate acceptance.
Step 2	<code>show license right-to-use summary</code>	Check the reboot license level is Network Advantage.
Step 3	<code>reload</code>	Reboots the switch to boot with Network Advantage.

Activating DNA Essentials License on a SKU with a Network Essentials License

SUMMARY STEPS

1. `license right-to-use activate addon dna-essentials subscription slot switch-ID acceptEULA`
2. `show license right-to-use summary`
3. `reload`

DETAILED STEPS

	Command or Action	Purpose
Step 1	license right-to-use activate addon dna-essentials subscription slot <i>switch-ID</i> acceptEULA	Activates DNA Essentials license. Enter the switch ID. Enter acceptEULA to indicate acceptance.
Step 2	show license right-to-use summary	Check the reboot license level is DNA Essentials.
Step 3	reload	Reboots the switch to boot with DNA Essentials.

Evaluating a Network Advantage License on a SKU with a Network Essentials License

SUMMARY STEPS

1. **license right-to-use activate network-advantage evaluation slot *switch-ID* acceptEULA**
2. **show license right-to-use summary**
3. **reload**

DETAILED STEPS

	Command or Action	Purpose
Step 1	license right-to-use activate network-advantage evaluation slot <i>switch-ID</i> acceptEULA	Activates the Network Advantage evaluation license. Enter the switch ID. Enter acceptEULA to indicate acceptance.
Step 2	show license right-to-use summary	Check the reboot license level is Network Advantage evaluation.
Step 3	reload	Reboots the switch to boot with Network Advantage evaluation license.

Deactivating an Evaluation Network Advantage License on a Network Essentials SKU

SUMMARY STEPS

1. **license right-to-use deactivate network-advantage evaluation slot *switch-ID* acceptEULA**
2. **show license right-to-use summary**
3. **reload**

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>license right-to-use deactivate network-advantage evaluation slot <i>switch-ID</i> acceptEULA</code>	Deactivates the Network Advantage evaluation license. Enter the switch ID.
Step 2	<code>show license right-to-use summary</code>	Check the reboot license level is Network Essentials.
Step 3	<code>reload</code>	Reboots the switch to boot with Network Essentials.

Upgrading a Network Essentials Stack to a Network Advantage Stack

SUMMARY STEPS

1. `license right-to-use activate network-advantage all acceptEULA`
2. `show license right-to-use summary`
3. `reload`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>license right-to-use activate network-advantage all acceptEULA</code>	Activates the Network Advantage license on all the switches in the stack. Enter acceptEULA to indicate acceptance.
Step 2	<code>show license right-to-use summary</code>	Check the reboot license level is Network Advantage for all the switches.
Step 3	<code>reload</code>	Reboots all the switches to boot with Network Advantage.

Changing the License Level of License Mismatch Switch from Active's Console

If the license mismatch switch has a lower license level than other switches in the stack, and the stack is running at Network Advantage and the mismatch switch is booted with Network Essentials license:

SUMMARY STEPS

1. `show switch`
2. `show license right-to-use mismatch`
3. `license right-to-use activate network-advantage slot switch-ID`
4. `reload slot switch-ID`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>show switch</code>	Get the switch number in license mismatch state.

	Command or Action	Purpose
Step 2	<code>show license right-to-use mismatch</code>	Check the license level of the license mismatch switch.
Step 3	<code>license right-to-use activate network-advantage slot switch-ID</code>	<p>Activates Network Advantage license on all the mismatched switches in the stack.</p> <p>Enter <code>acceptEULA</code> to indicate acceptance.</p> <p>If the license mismatch switch has a higher license level than other switches in the stack, and the stack is running at Network Essentials and the mismatch switch is booted with Network Advantage license, use network-essentials instead of network advantage .</p>
Step 4	<code>reload slot switch-ID</code>	Reboots the switch to boot with Network Advantage.

CLI for Permissible License Combinations

Table 2: Base Licenses

Network Essentials
Network Essentials (Single Device)
<code>license right-to-use [activate deactivate] network-essentials [acceptEULA]</code>
<code>license right-to-use [activate deactivate] network-essentials evaluation [acceptEULA]</code>
Network Essentials (Stack: all)
<code>license right-to-use [activate deactivate] network-essentials all [acceptEULA]</code>
<code>license right-to-use [activate deactivate] network-essentials evaluation all [acceptEULA]</code>
Network Essentials (Stack: slot)
<code>license right-to-use [activate deactivate] network-essentials slot <switch id> [acceptEULA]</code>
<code>license right-to-use [activate deactivate] network-essentials evaluation slot <switch id> [acceptEULA]</code>
Network Advantage
Network Advantage (Single Device)
<code>license right-to-use [activate deactivate] network-advantage [acceptEULA]</code>
<code>license right-to-use [activate deactivate] network-advantage evaluation [acceptEULA]</code>
Network Advantage (Stack: all)
<code>license right-to-use [activate deactivate] network-advantage all [acceptEULA]</code>
<code>license right-to-use [activate deactivate] network-advantage evaluation all [acceptEULA]</code>
Network Advantage (Stack: slot)

Network Essentials
license right-to-use [activate deactivate] network-advantage slot <switch id> [acceptEULA]
license right-to-use [activate deactivate] network-advantage evaluation slot <switch id> [acceptEULA]

Table 3: Add-on Licenses

DNA Essentials
DNA Essentials (Single Device)
license right-to-use [activate deactivate] addon dna-essentials subscription [acceptEULA]
license right-to-use [activate deactivate] addon dna-essentials evaluation [acceptEULA]
DNA Essentials (Stack: all)
license right-to-use [activate deactivate] addon dna-essentials subscription all [acceptEULA]
license right-to-use [activate deactivate] addon dna-essentials evaluation all [acceptEULA]
DNA Essentials (Stack: slot)
license right-to-use [activate deactivate] addon dna-essentials subscription slot <switch id> [acceptEULA]
license right-to-use [activate deactivate] addon dna-essentials evaluation slot <switch id> [acceptEULA]
DNA Advantage
DNA Advantage (Single Device)
license right-to-use [activate deactivate] addon dna-advantage subscription [acceptEULA]
license right-to-use [activate deactivate] addon dna-advantage evaluation [acceptEULA]
DNA Advantage (Stack: all)
license right-to-use [activate deactivate] addon dna-advantage subscription all [acceptEULA]
license right-to-use [activate deactivate] addon dna-advantage evaluation all [acceptEULA]
DNA Advantage (Stack: slot)
license right-to-use [activate deactivate] addon dna-advantage subscription slot <switch id> [acceptEULA]
license right-to-use [activate deactivate] addon dna-advantage evaluation slot <switch id> [acceptEULA]

Monitoring and Maintaining RTU Licenses

Command	Purpose
show license right-to-use default	Displays the default license information.

Command	Purpose
show license right-to-use detail	Displays detailed information of the licenses on the device.
show license right-to-use eula {evaluation permanent subscription}	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 summary	Displays a summary of the license information on the device.
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 usage [slot <i>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.

Configuration Examples for RTU Licensing

Example: Displaying RTU Licensing Information

This example shows the RTU licensing information on the device.

Example Output with Base (Permanent) License

```
Switch# show license right-to-use summary
      License Name           Type      Period left
-----
network-essentials         Permanent  Lifetime
-----
```

```
License Level In Use: network-essentials
License Level on Reboot: network-essentials
```

Example Output with Add-on (Term) License

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

Switch#show license right-to-use summary
      License Name           Type      Period left
-----
network-advantage         Permanent  Lifetime
dna-advantage             Subscription  CSSM Managed
-----
```

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

Example Output with Evaluation License

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

```
Switch#show license right-to-use summary
  License Name          Type      Period left
-----
network-advantage      Evaluation  90
dna-advantage          Evaluation  90
-----
```

```
License Level In Use: network-advantage Evaluation+dna-advantage Evaluation
License Level on Reboot: network-advantage Evaluation+dna-advantage Evaluation
```

Example: Displaying RTU License Details

Example: Displaying RTU Licensing Usage

This example shows the detailed licensing usage on your switch. 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 network-essentials      Permanent  0 : 0 : 0              no      no
1 network-essentials      Evaluation 0 : 0 : 0              no      no
1 network-essentials      Subscription 0 : 0 : 0              no      yes
1 network-advantage      Permanent  0 : 0 : 0              no      no
1 network-advantage      Evaluation  0 : 0 : 0              no      no
1 network-advantage      Subscription 0 : 0 : 0              yes     yes
1 dna-essentials          Evaluation  0 : 0 : 0              no      no
1 dna-essentials          Subscription 0 : 0 : 0              no      yes
1 dna-advantage          Evaluation  0 : 0 : 0              no      no
1 dna-advantage          Subscription 0 : 0 : 0              yes     yes
-----
```

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      Standby  046c.9d01.b580   1      V01      Ready
```

```

2      Member  046c.9d01.be00  1      V01      Lic-Mismatch
*3     Active  046c.9d01.b180  1      V01      Ready

```



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 Network Advantage license was activated for the member switch to match the active switch.

```
Switch# license right-to-use activate network-advantage slot 2 acceptEULA
```

Additional References for RTU Licensing

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	

Standards and RFCs

Standard/RFC	Title
None	—

MIBs

MIB	MIBs Link
Object ciscoLicenseMIB OID 1.3.6.1.4.1.9.9.359 CISCO-LICENSE-MGMT-MIB ; - View Supporting Images	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 16.5.1a	This feature is introduced.

