

Software Entitlement Commands

For detailed information about software entitlement concepts, configuration tasks, and examples, see the *Software Entitlement on Cisco IOS XR Software* module in *System Management Configuration Guide for Cisco ASR 9000 Series Routers*.

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clear license

To delete all licenses from the router persistent storage, use the **clear license** command in administration EXEC mode.

clear license

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **clear license** command removes all licenses from the router persistent storage.

Task ID

Task ID	Operations
pkg-mgmt	execute

In the following example, all licenses are removed from the router:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# clear license
```

clear license log

To clear the operational or administrative logs for the license system, use the **clear license log** command in administration EXEC mode.

clear license log {**operational** | **administration**}

Syntax Description

operational	Clears the operational logs for the license system.
administration	Clears the administration logs for the license system.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **clear license log** command to clear either the operational or administrative logs for the license system. To view the logs, use the **show license log** command. The license log does not persist between reloads.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example illustrates how to use the **clear license log** command to clear the operational logs:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# clear license log operational
```

Related Topics

show license log, on page 37

license

To configure a license to be used for specific slots or for any slots, use the **license** command in administration configuration mode. To remove the configuration of the license, use the **no** form of this command.

license *feature-id* [**type** [**evaluation** | **permanent**] | **location** *node-id*]
no license *feature-id* [**type** [**evaluation** | **permanent**] | **location** *node-id*]

Syntax Description

feature-id	Identifier for the feature.
type [**evaluation** | **permanent**]	(Optional) Specifies whether the license is evaluation or permanent.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack/slot/module* notation.

Command Default

Licenses are not configured.

Command Modes

Administration configuration

Command History

Release	Modification
Release 4.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If the **license** command is not configured during a license acquisition, the acquisition fails. This command is required to be configured for every licensed feature starting in Cisco IOS XR Release 4.0.0.

Licenses can be optionally configured as either permanent or evaluation. If no location is specified, the license is considered a flexible license available for any location. When a specific location is configured, the feature allowed by the license is considered slot-specific and bound to specific slots only.

Task ID

Task ID	Operation
pkg-mgmt	read, write

The following example shows how to configure a license to a specific slot:

```
RP/0/RSP0/CPU0:router(admin-config)# license A9K-ADV-VIDEO-LIC type permanent
  location 0/1/cpu0
```

Related Topics

show license, on page 18

license add

To add a license to a secure domain router (SDR) license pool, use the **license add** command in administration EXEC mode.

license add [**tar**] *license-name* [**sdr** *sdr-name*]

Syntax Description

tar	(Optional) Indicates that the license file is contained in a tar file.
license-name	Name and location of the license file to be added. The license file can be local to the system or a remote file on a TFTP server.
sdr *sdr-name*	(Optional) Adds the license to the specified SDR license pool. The default is owner. The *sdr-name* argument is the name assigned to the SDR.

Command Default

License is added to the owner SDR.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.0.0	The **tar** keyword was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **license add** command to add a license to an SDR license pool. The license file can be local to the system or a remote file on a TFTP server. The license file is stored in persistent storage on the router.

To acquire a license file, you must provide a manufacturing supplied product authorization key (PAK) and the license unique device identifier (UDI) of the chassis to the license registration tool. To obtain the UDI of your chassis, use the **show license udi** command.

By default, there is one license pool available.

Task ID

Task ID	Operations
pkg-mgmt	execute

The following example shows how to add a software license to the owner SDR:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license add disk1:/P1-LIC-8_TBA09370035_20070207195224661.lic
```

```
License command "license add disk1:/P1-LIC-8_TBA09370035_20070207195224661.lic
  sdr Owner" completed successfully.
```

Related Topics

license move, on page 8
show license udi, on page 41

license backup

To back up all licenses contained on the persistent storage of the router, use the **license backup** command in administration EXEC mode.

license backup *backup-file*

Syntax Description

backup-file	Name and location of the backup file to be created or modified. This can be a local file, or a remote file on a TFTP or rcp server.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **license backup** command to back up the licenses stored in the persistent storage on the router. We recommend this so that you can restore the licenses at one time while recovering from a failed disk situation. The destination location can be local to the system; in other words, a flash disk or hard disk. Alternatively, it can be a remote file on a TFTP or rcp server. The license information includes the licenses as well as the operational information, such as the slot the licenses are allocated to and the current license operation identifier.

If the backup file already exists, you are prompted to confirm before the file is overwritten.

When licenses are backed up, they can be restored as required using the **license restore** command.

Task ID

Task ID	Operations
pkg-mgmt	execute

The following example shows how to back up the licenses on a router:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license backup disk1:/license_back

License command "license backup disk1:/license_back" completed successfully.
```

Related Topics

license restore, on page 14
show license backup, on page 27

license move

To move a license from one secure domain router (SDR) license pool to another, use the **license move** command in administration EXEC mode.

license move *feature-id* {**all***count*} **sdr** *source-sdr-name* **sdr** *dest-sdr-name*[**evaluation** | **permanent**]

Syntax Description

feature-id	Identifier for the feature entitled in the licenses to be moved. You can display available licenses using the **show license** command.
all	Specifies to move all available licenses with the specific feature identifier.
count	Number of licenses to move.
sdr *source-sdr-name*	Specifies the SDR license pool from which to move the specified licenses. The *source-sdr-name* argument is the name assigned to the SDR.
sdr *dest-sdr-name*	Specifies the SDR license pool to which the license should be moved. The *source-sdr-name* argument is the name assigned to the SDR.
evaluation	Specifies to move an evaluation license.
permanent	Specifies to move a permanent license.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

By default, there is only one license pool available. If you have created multiple license pools, you can use the **license move** command to move the license to a different SDR license pool.

The **license move** command is used only to move licenses between SDR license pools on the same router. To move licenses between routers, you must first remove the license from the original router using the **license remove** command, and then add it to the new router using the **license add** command. To move licenses between routers, you also need to generate a new license key on Cisco.com.

Licenses can be moved only if they are in the available state. In other words, you have to clear the feature configuration before a license can be released back to the appropriate license pool.

Task ID

Task ID	Operations
pkg-mgmt	execute

The following example shows how to move a license from one license pool to another:

```
RP/0/RSP0/CPU0:router# admin

RP/0/RSP0/CPU0:router(admin)# license move a9k-adv-optic-lic sdr owner sdr mysdr
```

Related Topics

license add, on page 5
show license, on page 18

license move slot

To move a license from one slot to another, use the **license move slot** command in EXEC or administration EXEC mode.

license move *feature-id* **slot** [*count*] **from** {*node-id* | **allocated**} **to** {*node-id* | **available**}[**evaluation** | **permanent**]

Syntax Description

feature-id	Identifier for the feature entitled in the licenses to be moved. You can display available licenses using the show license, on page 18 command.
count	Number of licenses to move. This argument cannot be used in conjunction with the **allocated** and **available** keywords.
from	Specifies from where to move the specified licenses.
node-id	Specific node from which to move the license.
allocated	Specifies to move all allocated licenses with the specific feature identifier. This keyword must be used in conjunction with the **available** keyword.
to	Specifies to where to move the specified licenses.
node-id	Specific node to which to move the license.
available	Specifies to move the specified allocated licenses into the available state. This keyword must be used in conjunction with the **allocated** keyword.
evaluation	Specifies to move an evaluation license.
permanent	Specifies to move a permanent license.

Command Default

One license is moved.

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **license move slot** command moves slot-based licenses from one slot to another slot on the same router.

Use the **allocated** keyword to move all allocated licenses into the available state. The **allocated** keyword must be used in conjunction with the **available** keyword. If no allocated licenses are available that match the feature identifier, the **license move slot** command revokes used licenses on the given slot.

If licenses are going to be revoked on the source card, a warning prompt is displayed.

Licenses can be moved only if they are in the available state. In other words, you have to clear the feature configuration before a license can be released back to the appropriate license pool.

Task ID

Task ID	Operations
pkg-mgmt	execute

The following example shows how to move a license from one slot to another:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license move a9k-adv-optic-lic slot 1 from 0/1/cpu0 to 0/4/cpu0
```

The following example shows how to move all licenses to the available state:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license move a9k-adv-optic-lic from allocated to available
```

Related Topics

license add, on page 5
show license, on page 18

license remove

To remove a license permanently from a router, use the **license remove** command in administration EXEC mode.

license remove *feature-id* **id** [**sdr** *sdr-name*] {**evaluation** | **permanent**}

Syntax Description

feature-id	Identifier for the feature entitled in the licenses to be removed. You can display available features using the show license command.
id	Specifies to remove licenses using a unique identifier of the license.
sdr *sdr-name*	Removes the license from the specified SDR license pool.
evaluation	Specifies to move an evaluation license.
permanent	Specifies to move a permanent license.

Command Default

None

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **license remove** command permanently removes a license from the router and outputs a key that can be used to prove that the license has been removed.

Licenses can be removed only if they are in the available state. In other words, you have to clear the feature configuration before that the license can be released back to the appropriate license pool.

Task ID

Task ID	Operation
pkg-mgmt	execute

Example

The following example shows how to remove a license from a license pool:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license remove a9k-adv-optic-lic
```

```
ticket disk1:/my_permission disk1:/optic_lic
```

Related Topics

show license, on page 18

license restore

To restore the licenses on a router using an earlier backup copy, use the **license restore** command in administration EXEC mode.

license restore *backup-file*

Syntax Description

backup-file	Name and location of the backup file to be used for the license restore. This can be a local file, or a remote file on a TFTP or rcp server.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **license restore** command restores the licenses on the router using an earlier backup copy that was created using the **license backup** command. The source location can be local to the system, in other words, a flash disk or hard disk. Alternatively, it can be a remote file on a TFTP or rcp server.

Before the licenses are restored, the license manager verifies the following:

- The backup format is valid.
- The licenses are issued for the chassis where the CLI is being run.
- The license operation identifier in the backup file matches the one on the router EEPROM.

Task ID

Task ID	Operations
pkg-mgmt	execute

The following example shows how to move a license from one license pool to another:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# license restore disk1:/license_back

Info: This command will erase all existing licenses.
Info: It is strongly recommended to backup existing licenses first. Do you wish to
proceed? [yes/no]: y

License command "license restore disk1:/license_back" completed successfully.
```

Related Topics

license backup, on page 7

license save credential

To retreive the router credentials and save them to a specified location, use the **license save credential** command in administration EXEC mode.

license save credential *file-name*

Syntax Description

file-name	Name and location of file where the credentials are saved.

Command Default

None

Command Modes

Administration EXEC

Command History

Release	Modification
Release 4.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The following device credentials are saved:

- OPID
- SN—Serial number attached to the chassis.
- UDI—Universal device identifier; the Cisco wide identifier that contains the product ID, serial number, and version.

Task ID

Task ID	Operation
pkg-mgmt	execute

Example

The following example shows how to save the credentials to a file:

```
RP/0/RSP0/CPU0:router:router(admin)# license save credential disk1:/cred_file
```

The following example shows the typical information saved to the credential file:

```
Wed Aug  4 12:20:19.544 DST
Device credentials:
    OPID :5
    SN   :FOX1232H67M
    PID  :ASR-9010-AC
```

Related Topics

show license chassis, on page 29
show license udi, on page 41

license cm update

To perform update of usage on the router and the back end entitlement reporting, run the **license cm update** command on the administration plane.

admin license cm update

Command Default

By default, the license cm update is ON and runs once every 24 hours.

Command Modes

Administration EXEC mode.

Command History

Release	Modification
Release 5.3.2	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
license cm update	Read, Write, Execute

Verification of CM Update

To verify if the cm update has completed, check for the following log message:

```
RP/0/RSP1/CPU0:PE4#sh logging | inc CM
RP/0/RSP1/CPU0:Aug 17 15:09:38.765 : plat_swc_agent[370]:
%LICENSE-ASR9K_LICENSE-6-UPDATE_STARTED : CM entitlement update has started.
RP/0/RSP1/CPU0:Aug 17 15:26:23.041 : plat_swc_agent[370]:
%LICENSE-ASR9K_LICENSE-6-UPDATE_COMPLETED : CM entitlement update is completed.
```

show license

To display all license information, use the **show license** command in EXEC or administration EXEC mode.

show license [*feature-id* | **location** *node-id* | **sdr** *sdr-name*]

Syntax Description

feature-id	(Optional) Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack/slot/module* notation.
sdr *sdr-name*	(Optional) Displays the licenses in the specified SDR license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license** command displays all license information. Alternatively, you can display license information for a specific feature identifier, slot location, or SDR by using the available options.

If the feature process has supplied an opaque string while checking out the license, that string is displayed next to the feature identifier in the command output.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example shows sample output from the **show license** command:

```
RP/0/RSP0/CPU0:router(admin)# show license

Wed Aug  4 09:52:24.352 DST

FeatureID: A9K-ADV-OPTIC-LIC (Slot based, Permanent)
  Total licenses 1
  Available for use         1
  Allocated to location     0
  Active                    0
  Store name             Permanent
```

```
  Store index               1
    Pool: Owner
      Total licenses in pool: 1
      Status: Available     1    Operational:    0

FeatureID: A9K-ADV-VIDEO-LIC (Slot based, Permanent)
  Total licenses 1
  Available for use         1
  Allocated to location     0
  Active                    0
  Store name             Permanent
  Store index               2
    Pool: Owner
      Total licenses in pool: 1
      Status: Available     1    Operational:    0

FeatureID: A9K-AIP-LIC-B (Slot based, Permanent)
  Total licenses 1
  Available for use         1
  Allocated to location     0
  Active                    0
  Store name             Permanent
  Store index               3
    Pool: Owner
      Total licenses in pool: 1
      Status: Available     1    Operational:    0

FeatureID: A9K-AIP-LIC-E (Slot based, Permanent)
  Total licenses 1
  Available for use         1
  Allocated to location     0
  Active                    0
  Store name             Permanent
  Store index               4
    Pool: Owner
      Total licenses in pool: 1
      Status: Available     1    Operational:    0

FeatureID: A9K-iVRF-LIC (Slot based, Permanent)
  Total licenses 1
  Available for use         1
  Allocated to location     0
  Active                    0
  Store name             Permanent
  Store index               5
    Pool: Owner
      Total licenses in pool: 1
      Status: Available     1    Operational:    0
```

Table 1: show license Field Descriptions

Field	Description
FeatureID	Feature to which the licenses apply. The type of license is designated as one of the following: • Permanent licenses—Enable a designated feature permanently as long as the license resides on the router. • Evaluation or metered licenses—Enable a feature for a limited period of time. • Implicit licenses—Metered licenses that are included with the software image (upgrade or initial installation).

Field	Description
Total licenses	Number of licenses on the router.
Available for use	Number of licenses that are not currently active.
Allocated to location	Number of licenses allocated to a slot but not used.
Active	Number of licenses currently checked out or being used by applications.
Pool	License pool to which the licenses belong.
Total licenses in pool	Number of licenses in the specific pool.
Status	Indicates the number of licenses in each state. Licenses can have the following states: Available—License is available in the pool and can be assigned to a slot/feature process. For example, a recently added 40-Gbps license to the router is available before it gets checked out by a card. Allocated—License is assigned to a slot but is unused. In other words, the feature process is not using the license. For example, a 40-Gbps license is allocated to slot 5 if the license was previously used but the card is currently in the shutdown state. Active—Feature process has checked out a license. Generally this happens when the feature is actively using the license. For example, if a card is in IOS XR RUN state and is passing traffic at 40 Gbps, a 40-Gbps license is in the used state in that slot. Operational—All licenses that are either active or allocated. Expired—License has expired. This is applicable only for evaluation licenses or licenses granted by Cisco.
Locations with licenses	Slot where the licenses are being used, followed by an indication of whether the license is active or allocated, and to which license pool it belongs.

show license active

To display license information for all licenses that are currently checked out or being used by an application, use the **show license active** command in EXEC or administration EXEC mode.

show license active [*feature-id* | **location** *node-id* | **sdr** *sdr-name*]

Syntax Description

feature-id	(Optional) Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.
sdr *sdr-name*	(Optional) Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license active** command displays all license information regarding licenses that are currently checked out or being used by an application. You can display the information for a specific feature identifier, slot location, or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license active** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license active

FeatureID:
a9k-adv-optic-lic
 (Slot based, Implicit[Remaining time: 90 days])
  Status: Active             2
    SDR: Owner
      Operational:           2

Location: 0/1/CPU0           1
```

```
0/6/CPU0            1
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license allocated

To display license information for all licenses allocated to a slot but not used, use the **show license allocated** command in EXEC or administration EXEC mode.

show license allocated [*feature-id* | **location** *node-id* | **sdr** *sdr-name*]

Syntax Description

feature-id	(Optional) Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack/slot/module* notation.
sdr *sdr-name*	(Optional) Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license allocated** command displays all license information regarding licenses that are allocated to a slot but are not currently being used. You can display the information for a specific feature identifier, slot location, or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license allocated** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license allocated

FeatureID:
A9K-ADV-OPTIC-LIC
 (Slot based, Permanent)
 Status: Allocated 1
   SDR: Owner
     Status: Operational:    1
     Locations with licenses: (Active/Allocated)
            0/1/CPU0               (0/1)
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license available

To display all licenses that are not currently in use or allocated to specific slots, use the **show license available** command in EXEC or administration EXEC mode.

show license available {*feature-id* | **location** *node-id* | **sdr** *sdr-name*}

Syntax Description

feature-id	Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	Specifies the location of the card. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.
sdr *sdr-name*	Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license available** command displays all licenses that currently are not being used or allocated to a specific slot. You can display only licenses with a specific feature identifier, slot location, or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license available** command with only implicit licenses available:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license available

FeatureID:
A9K-ADV-OPTIC-LIC
 (Slot based, Implicit[Remaining time: 90
days]) Status: Available 0 SDR: Owner Status: Available 0 Location: 0/1/CPU0 1 0/6/CPU0 1
```

The following example displays sample output from the **show license available** command with permanent licenses installed:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license available

FeatureID:
A9K-ADV-OPTIC-LIC
 (Slot based, Permanent)
 Status: Available       7
   SDR: Owner Status:
      Available          7
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license backup

To display the backup license file, use the **show license backup** command in administration EXEC mode.

show license backup *file-name*

Syntax Description

file-name	Name of the backup license file.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.0.0	Command output was changed.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license backup** command displays the UDI information and license summary of a backup database, so that you can confirm the contents of a particular backup file before restoring it. Create the backup license file using the **license backup** command. Restore licenses from a backup using the **license restore** command.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example shows sample output from the **show license backup** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license backup disk0:/lic_backup.pkg

Tue Jul 27 17:12:44.982 pst

Local Chassis UDI Information:
  S/N         : FOX1316G5TL
  Operation ID:   9

  FeatureID: A9K-ADV-OPTIC-LIC (Slot based, Permanent)
  Total licenses  1
    Pool: Owner  1
    Allocated Node(s):
      0/0/CPU0 1 [Owner]

  FeatureID: A9K-ADV-VIDEO-LIC (Slot based, Evaluation)
  Total licenses  1
    Pool: Owner  1
    Allocated Node(s):
```

```
    0/RSP0/CPU0 1 [Owner]

FeatureID: A9K-AIP-LIC-B (Slot based, Permanent)
Total licenses  2
  Pool: Owner  2
  Allocated Node(s):
    0/6/CPU0 1 [Owner]
    0/1/CPU0 1 [Owner]

FeatureID: A9K-AIP-LIC-E (Slot based, Permanent)
Total licenses  2
  Pool: Owner  2
  Allocated Node(s):
    0/4/CPU0 1 [Owner]

FeatureID: A9K-iVRF-LIC (Slot based, Permanent)
Total licenses  1
  Pool: Owner  1

FeatureID: A9K-iVRF-LIC (Slot based, Evaluation)
Total licenses  3
  Pool: Owner  3
  Allocated Node(s):
    0/1/CPU0 1 [Owner]
```

Table 2: show license backup Field Descriptions

Field	Description
S/N	Chassis serial number.
Operation ID	License operation ID number. The license operation ID is incremented by the license manager every time there is a successful license add or remove operation.
FeatureID	Feature to which the licenses apply.
Type	Type of license: slot-based or chassis-based; permanent, evaluation, or implicit.
#installed	Number of such licenses installed.

Related Topics

license backup, on page 7
license restore, on page 14

show license chassis

To display all licenses with their serial number information, use the **show license chassis** command in administration EXEC mode.

show license chassis

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Administration EXEC

Command History

Release	Modification
Release 3.7.2	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
pkg-mgmt	read

show license evaluation

To display information about any evaluation licenses currently allocated, available, or in use, use the **show license evaluation** command in EXEC or administration EXEC mode.

show license evaluation [*feature-id* | **location** *node-id* | **sdr** *sdr-name*]

Syntax Description

feature-id	(Optional) Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack/slot/module* notation.
sdr *sdr-name*	(Optional) Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license evaluation** command displays information regarding any evaluation licenses that are currently allocated, available, or in use, including the number of days left until they expire. You can display the information for a specific feature identifier, slot location, or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license evaluation** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license evaluation

FeatureID: XC-L3VPN (Non slot based, Evaluation[Valid])
 Valid for 2day(s) from 15:13:16 Nov 17 2006
 Remaining time: 1 day(s) 21:07:46
 Status: Available      6    Allocated      0   Active      0
   SDR: Owner
      Status: Available      6    Operational:      0
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license expired

To display information regarding evaluation licenses that have expired, use the **show license expired** command in EXEC or administration EXEC mode.

show license expired [*feature-id* | **location** *node-id* | **sdr** *sdr-name*]

Syntax Description

feature-id	(Optional) Identifier for the feature entitled in the licenses to be displayed.
location *node-id*	(Optional) Specifies the location of the card. The *node-id* argument is entered in the *rack/slot/module* notation.
sdr *sdr-name*	(Optional) Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license expired** command displays information regarding evaluation licenses that have expired. You can display the information for a specific feature identifier, slot location, or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license expired** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license expired

FeatureID: XC-L3VPN (Non slot based, Evaluation[Expired])

Status: Available 6 Allocated 0 Active 0

  SDR: Owner

  Status: Available 6 Operational: 0
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license features

To display all features that can be licensed on the router, use the **show license features** command in administration EXEC mode.

show license features

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
pkg-mgmt	read

Example

The following example illustrates sample output from the **show license features** command.

```
RP/0/RSP0/CPU0:router(admin)# show license features

Tue Aug 18 06:36:09.180 DST

Platform Feature ID:
  A9K-G709-LIC
  A9K-VidMon-LIC
  A9K-iVRF-LIC
  A9K-AIP-LIC-B
  A9K-AIP-LIC-E
```

show license file

To display all the XML license files that have been added to a router, use the **show license file** command in administration EXEC mode.

show license file

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Administration EXEC

Command History

Release	Modification
Release 4.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
pkg-mgmt	read

Example

The following example shows sample output from the **show license file** command:

```
RP/0/RSP0/CPU0:router(admin)# show license file

Wed Aug  4 03:01:53.506 DST
License File Info:

  Store Name:  Permanent
  Store Index: 1
  License Line:11 A9K-ADV-OPTIC-LIC 3.9 LONG NORMAL STANDALONE EXCL 1_KEYS INFINITE_KEYS
    NEVER NEVER NiL SLM_CODE CL_ND_LCK NiL *14BFZ88N4WTJ7GU400 NiL NiL NiL 5_MINS
    <UDI><PID>ASR-9010-AC</PID><SN>FOX1232H67M</SN></UDI><SEQ>0</SEQ>
    q:1jK6WAOl4od1xDXWnQ3J6xDiU1o1aCgQLgCXrnqsLmnGFo78DkiH9E0GWQzabIVe4jB9EUrAe5u:
    N8eDRPXcfZjGwcgBECfKU4OPobqbfQVkeVa:LRYQG2poKwPPHYaRVym0MMluk7n46Awe6GZJcBLX
  Store Name:  Permanent
  Store Index: 2
  License Line:11 A9K-ADV-VIDEO-LIC 3.9 LONG NORMAL STANDALONE EXCL 1_KEYS INFINITE_KEYS
    NEVER NEVER NiL SLM_CODE CL_ND_LCK NiL *14BFZ88N4WTJ7GU400 NiL NiL NiL 5_MINS
    <UDI><PID>ASR-9010-AC</PID><SN>FOX1232H67M</SN></UDI><SEQ>1</SEQ>
    ,WGrW73h2JqIhAwAt6dQVhKICQaivZh:eW4ZYJ2c6wLlE1ln0f9eEsU2hwv6V1KKLRo0S2AeLSrBp85nJLO
    8yCVmzUnQrCYojSFHAcpu2aRmfFVxR1BNBMUf7Ik,Urcg16fMaLQc58X0JFUpwM86Hkz2LV

  Store Name:  Permanent
  Store Index: 3
  License Line:11 A9K-AIP-LIC-B 3.9 LONG NORMAL STANDALONE EXCL 1_KEYS INFINITE_KEYS
```

```
    NEVER NEVER NiL SLM_CODE CL_ND_LCK NiL *14BFZ88N4WTJ7GU400 NiL NiL NiL 5_MINS
    <UDI><PID>ASR-9010-AC</PID><SN>FOX1232H67M</SN></UDI><SEQ>2</SEQ>
7:Pr2QJwiHdoYnhjRPs13i09kpWOj:
   ,sNex7JziswOf7A9IDCzuZ48e4qRl4QSFELOQHlwT6rfWUbKt4Yt,OoXV876r1M:3APZS4pPxzNQd03NWVak0HP,

    YZq7jRh8H,HEVwf2FrNcwqEpVdEpkS4tiufs

  Store Name:  Permanent
  Store Index: 4
  License Line:11 A9K-AIP-LIC-E 3.9 LONG NORMAL STANDALONE EXCL 1_KEYS INFINITE_KEYS
    NEVER NEVER NiL SLM_CODE CL_ND_LCK NiL *14BFZ88N4WTJ7GU400 NiL NiL NiL 5_MINS
    <UDI><PID>ASR-9010-AC</PID><SN>FOX1232H67M</SN></UDI><SEQ>3</SEQ> F44b2Phw6KdqjSnFPU,
   QL7oJjk9q1syjp1XuD3wZBGfDb0TsUx:QPDKx5ee:xrbOf7ib,OxtDNojwpFbdGMQt8VoO2sAkpaK7ezSyVD:I:

    46VvFYd4:WsO87aa8kVgRJGM3RsixQ1tiKk7deWfIygtlofr

  Store Name:  Permanent
  Store Index: 5
  License Line:11 A9K-iVRF-LIC 3.9 LONG NORMAL STANDALONE EXCL 1_KEYS INFINITE_KEYS NEVER
    NEVER NiL SLM_CODE CL_ND_LCK NiL *14BFZ88N4WTJ7GU400 NiL NiL NiL 5_MINS
   <UDI><PID>ASR-9010-AC</PID><SN>FOX1232H67M</SN></UDI><SEQ>4</SEQ> oYkhxBsT:bmcqh3CU9EbLb,


1LKLtOknjPwjf7k83X7f0Xy:DZflBXjgnTozUn7FCf0Jaya9L81hhhS73k4AtrtVOsKvDmh7EdGWAu2WI78E3VnEfZka:

    uSHTBxhNpQ1Blpf0qj5UTH8QxLz6psFsi,KwVd
```

show license log

To display the operational or administrative logs for the license system, use the **show license log** command in EXEC or administration EXEC mode.

show license log {**operational** | **administration**} {*request-idfeature-id* | **sdr** *sdr-name*}

Syntax Description

operational	Displays the operational logs for the license system.
administration	Displays the administration logs for the license system.
request-id	Identifier of a particular log entry.
feature-id	Identifier for the feature entitled in the licenses to be displayed.
sdr *sdr-name*	Displays the licenses in the specified secure domain router (SDR) license pool. The *sdr-name* argument is the name assigned to the SDR.

Command Default

No default behavior or values

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license log** command displays the operational or administrative logs for the license system. The administrative log displays all licenses that are added, removed, or moved along with a timestamp and username of the person who initiated the request. This log persists across reloads. The operation log displays when a license was checked out or released by a feature. The license release can be done by the license manager if it detects that the feature is not responding. This log does not persist between reloads.

You can display license information for a specific feature identifier or SDR by using the available options.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license log** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license log operational
#ID  :SDR    :FeatureID    :NodeID    :Time:    Log
```

```
1    :Owner  :
A9K-ADV-OPTIC-LIC
  :0/6/CPU0  :Tue Feb  6 21:33:16 2007:
      license_acquire: opaque_string , result(No error)
2    :Owner  :
A9K-ADV-OPTIC-LIC
  :0/1/CPU0  :Tue Feb  6 21:33:16 2007:
      license_acquire: opaque_string , result(No error)
```

See Table 1: show license Field Descriptions, on page 19 for a description of the significant fields shown in the display.

show license pools

To display the currently configured set of license pools, use the **show license pools** command in administration EXEC mode.

show license pools [**detail**]

Syntax Description

detail	(Optional) Displays the locations of the licenses in each pool.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license pools** command displays all license pools, and the features that are enabled with the licenses in each pool. By default, all licenses are contained in the owner SDR pool. If you have created SDR license pools with the **license pool create** command, you can place licenses in separate pools.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license pools** command. In this example, the owner SDR has both 40-Gbps and Layer_3 VPN licenses, while the SDR sdr2 has only 40-Gbps licenses.

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license pools

Pool Name        Feature
=============================================
Owner
A9K-ADV-OPTIC-LIC
```

Table 3: show license pools Field Descriptions

Field	Description
Owner	SDR license pool.

Field	Description
Feature	Feature that is enabled in the specified license pool.

show license udi

To display unique device identifier (UDI) information for the router, use the **show license udi** command in administration EXEC mode.

show license udi

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show license udi** command displays the complete UDI of the router to which any license is associated. The UDI comprises the chassis serial number, along with a license operation ID number. The UDI is used to acquire a license file using the license registration tool on CCO.

Task ID

Task ID	Operations
pkg-mgmt	read

The following example displays sample output from the **show license udi** command:

```
RP/0/RSP0/CPU0:router# admin
RP/0/RSP0/CPU0:router(admin)# show license udi
Mon Apr 26 06:40:06.234 DST

Local Chassis UDI Information:
  PID         : ASR-9010-AC
  S/N         : FOX1232H67M
  Operation ID: 5
```

Table 4: show license udi Field Descriptions

Field	Description
PID	Product ID number.
S/N	Chassis serial number.

Field	Description
Operation ID	License operation ID number. The license operation ID is incremented by the license manager every time there is a successful license add or remove operation.

show license status

To display the status of all relevant licenses, use the **show license status** command. On Cisco IOS XR, this command runs in Administration mode, and on Cisco IOS XR 64-bit, it runs in EXEC mode.

show license status

Usage Guidelines

This command has no keywords or arguments.

Command Default

None

Command Modes

Administration for Cisco IOS XR

EXEC for Cisco IOS XR 64-bit

Command History

Release	Modification
Release 4.0.0	This command was introduced on Cisco IOS XR.
Release 6.2.1	This command was supported on Cisco IOS XR 64-bit.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
pkg-mgmt	read

Example

The following example shows output for the **show license status** command on Cisco IOS XR:

```
RP/0/RSP0/CPU0:router(admin)# show license status

Sun Jul 18 05:25:09.855 DST
License Type Supported
     permanent   Non-expiring node-locked licenses
     evaluation  Expiring node-locked licenses

License Operation Supported
     add         Add license file to the system
     backup      Backup License
     move        Move licenses
     pool        License pool creation
     remove      Remove license file
     restore     Restore backedup licenses

Device Status
     Device Credential type: IMAGE
     Device Credential Verification: PASS
     Rehost Type: Hardware
```

The following example shows output for the **show license status** command on Cisco IOS XR 64-bit:

```
RP/0/RSP0/CPU0:router # show license status

Smart Licensing is ENABLED
  Initial Registration: SUCCEEDED on Fri Dec 08 2017 15:42:43 UTC
  Last Renewal Attempt: None
  Next Renewal Attempt: Wed Jun 06 2018 15:45:33 UTC
  Registration Expires: Sat Dec 08 2018 15:39:56 UTC

License Authorization:
  Status: OUT OF COMPLIANCE on Fri Dec 08 2017 15:45:34 UTC
  Last Communication Attempt: SUCCEEDED on Fri Dec 08 2017 15:45:34 UTC
  Next Communication Attempt: Sat Dec 09 2017 03:45:33 UTC
  Communication Deadline: Thu Mar 08 2018 15:39:58 UTC
```