

Licensing the OC-3 and OC-12 Interface Modules

The Cisco Software License Activation feature is a set of processes and components to activate Cisco IOS software feature sets by obtaining and validating fee-based Cisco software licenses.

For information on software license activation and concepts, see the Cisco IOS Software Activation Conceptual Overview.

For information on obtaining and installing licenses, see Configuring the Cisco IOS Software Activation Feature.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco IOS, Catalyst OS, and Cisco IOS XE 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 Licensing the Ports on the OC-3 and OC-12 Interface Module, on page 1
- Information About Licensing the Cisco ASR 900 Series Routers, on page 1
- Installing and Upgrading Licenses on the OC-3 and OC-12 Interface Modules, on page 3
- Verifying the Licenses, on page 6

Restrictions for Licensing the Ports on the OC-3 and OC-12 Interface Module

- The 1 OC12 port license can only be enabled on port 0 of the OC-3 or OC-12 interface module.
- Evaluation licences cannot be used along with permanent licences to enable ports on OC-3 or OC-12 interface module.

Information About Licensing the Cisco ASR 900 Series Routers

For information on software activation and license procedures, see Software Activation Configuration Guide, Cisco IOS XE Release 3S (Cisco ASR 903).

Licensing the OC-3 and OC-12 Interface Modules

The optical modules 4-Port OC3/STM-1 or 1-Port OC12/STM-4 delivers four active ports of OC-3 interface module (IM) or Synchronous Transport Module level 1 (STM-1) connectivity, or one active port of OC-12 IM or STM-4 connectivity, on the Cisco ASR 903 Router. Licensing is applicable to these ports on the interface modules.

The benefits of licensing these ports are:

- Pay-as-you-grow model to enhance the ports by purchasing licenses as required.
- Ability to shift license from one port to another.
- Ability to release a license when the interface module is removed from a slot and reinstall the license when inserted again.
- Support for high availability and OIR of interface modules.

Note For more information on installing the OC-3 and OC-12 interface modules, see the Cisco ASR 903 Series Aggregation Services Router Hardware Installation Guide.

These

are guidelines for licensing the ports:

- Two types of licenses are available for the OC-3 and OC-12 IMs.
- Each port can have only one license at a given point of time.
- Each port needs one license and each license can be used for any of the ports.
- If the card type is changed from OC-3 to OC-12 or vice versa

  , the license installed on the card is automatically released and the new card type uses the license.

Note The OC-12 port license works only on the first port of the IM. U

nless there is a license enabled on the port, no configuration can be performed on the port.

Table 1: OC-3 and OC-12 Port Licenses

License Type	Description	Usability
1 OC3 port license	Single OC3/STM-1 port	STM-1 on OC-3 port
1 OC12 port license	Single OC12/STM-4 port	STM-1 on OC-3 port

Note Licenses are not mapped to any port. All the licenses are in a pool. Licenses can be used to enable any port as long as there are sufficient number of licenses.

Moving Licenses Across Ports

The licenses are not tied to a port and can moved across the ports and interface modules.

For example, if there are four licenses, and we have two interface modules (IM) and four ports, the licenses are distributed to the first IM on slot 0 and second IM on slot 1.

```
Platform enable controller sonet 0/0/0
Platform enable controller sonet 0/0/1

Platform enable controller sonet 0/1/0
Platform enable controller sonet 0/1/1
```

OC-3 and OC-12 Interface Module Online Insertion and Removal (OIR)

If an OIR is performed on the enabled port or controller of the interface module, the license used by the interface module is released. When the interface module is inserted again, the license which was valid before the OIR is re-enabled (assuming that there are non-zero usable ports).

OC-3 and OC-12 Interface Module Stateful Switchover (SSO)

If the license is installed on an active port and enabled on the active RSP module, the license information is synchronized with the standby RSP module. On SSO, the license ports enabled on the active RSP are activated on the standby RSP module.

An port license ISSU upgrade from an unsupported release to a supported release may impact the traffic flow on the router. If the controllers before the ISSU are in UP state, after an upgrade the controllers might remain in DOWN state, until the license in installed and enabled on the ports

Reload of Cisco ASR 903

A router reload may not be required after the license in installed on the ports. However, if the router is reloaded, the ports that are enabled prior to the reload will retain the license and configuration.

Installing and Upgrading Licenses on the OC-3 and OC-12 Interface Modules

Before you begin

To install or upgrade a license by using the **license install** command, you must have already received the license file from the Cisco Product License Registration portal at http://www.cisco.com/go/license (or you already backed up the license by using the **license save** command).

If you use Microsoft Entourage and receive the license file from Cisco in an e-mail attachment, the license file will contain UTF-8 marking. These extra bytes in the license file cause it to be unusable during license installation. To work around this issue, you can use a text editor to remove the extra characters and then install the license file. For more information about UTF-8 encoding, go to this URL: http://www.w3.org/International/questions/qa-utf8-bom.

Note The installation process does not install duplicate licenses. This message appears when duplicate licenses are detected:

```
Installing...Feature:xxx-xxx-xxx...Skipped:Duplicate
```

Note A standby device reboots twice when there is a mismatch of licenses.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**show license udi** **Example:** `Device# show license udi`	Displays all the UDI values that can be licensed in a system. • You need the UDI of the device as part of the process to obtain a license.
Step 3	Convert the PAK to a license by entering the PAK and the UDI into the Cisco Product License Registration portal: http://www.cisco.com/go/license.	After entering the appropriate information, you will receive an e-mail containing the license information that you can use to install the license: • Copy the license file received from the Cisco Product License Registration portal to the appropriate file system on the device. or • Click the **Install** button on the web page.
Step 4	**license install** *stored-location-url* **Example:** `Router# license install bootflash:*.lic`	Installs the license. Accept the end-user license agreement if prompted.
Step 5	**show license detail** **Example:** `Router# show license detail`	Displays the license information and verifies the number of licenses obtained.

	Command or Action	Purpose
Step 6	**end** **Example:** `Router# end`	Returns to privileged EXEC mode.

What to do next

You need to enable the ports on the interface module slot for the license to take effect.

Enabling Ports on the Slot

After installing and verifying the licenses on the router, enable the ports on the router.

Note The **no platform enable controller** disables the ports on the interface module.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**platform enable controller** *controller-type slot/subslot/port* **Example:** `Router(config)# platform enable controller sonet 0/1/2`	Enables the ports on slot where the interface is present. **Note** The slot number for the **controller sonet** is always zero on the Cisco ASR 903 Router. • **controller**—Configures a specific controller • *controller-type*—Type of controller.
Step 4	**controller sonet controller** *controller-type slot/subslot/port* **Example:** `Router(config)# controller sonet 0/1/2`	Selects the controller to configure and enters controller configuration mode.

	Command or Action	Purpose
Step 5	**no shutdown** **Example:** `Router(config-controller)# no shutdown`	Enables the controller.
Step 6	**end** **Example:** `Router# end`	Returns to privileged EXEC mode.

Uninstalling the License on OC-3 and OC-12 Interface Modules

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**no platform enable controller** *controller-type slot/subslot/port* **Example:** `Router# no platform enable controller sonet 0/1/2`	Uninstalls the licenses on the controllers for the feature.
Step 4	**license clear** *feature-name* **Example:** `Router# license clear oc3`	Removes a license entry from license storage once it has been verified that the license line is valid and was explicitly installed.
Step 5	**end** **Example:** `Router# end`	Returns to privileged EXEC mode.

Verifying the Licenses

- **show license detail**

  Use the **show license detail** command to view the license on the ports.

```
Router# show license detail
Index: 4        Feature: oc3                              Version: 1.0
```

```
License Type: Permanent
License State: Active, Not in Use
License Count: 13/0/0 (Active/In-use/Violation)
License Priority: Medium
Store Index: 2
Store Name: Primary License Storage
```

- **show license udi**

  Use the **show license udi** command to view the UDI details of the license.

```
Router# show license udi
SlotID   PID                  SN                     UDI
-------------------------------------------------------------------------------
*6       ASR-903              FOX1637P0UB     ASR-903:FOX1637P0UB
```