



# Licensing 1G and 10G Ports on the Cisco 520 Series Routers

---

The Cisco Software License Activation feature is a set of processes and components to activate Cisco IOS-XE 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](#).

Refer the following link for the License Registration Portal: <https://slexui.cloudapps.cisco.com/SWIFT/LicensingUI/Quickstart>

- [Prerequisites for Port Upgrade Licensing, on page 1](#)
- [Restrictions for Port Upgrade Licensing, on page 1](#)
- [Port Upgrade License, on page 2](#)
- [Configuring Ports Using Port Upgrade License, on page 3](#)
- [Verifying Port Upgrade Licensing, on page 4](#)
- [Additional References, on page 4](#)

## Prerequisites for Port Upgrade Licensing

Before activating the Port Upgrade and Bulk Port license, you must obtain and install the license. For information on obtaining and installing licenses, see [Configuring the Cisco IOS Software Activation Feature](#).

## Restrictions for Port Upgrade Licensing



---

**Note** Port Upgrade Licensing is applicable for 10G ports only.

---

- If 10G license is installed and activated for a dual rate port and an SFP is inserted in that port, the interface will come up in 1G mode.
- If 10G license is installed and activated for a dual rate port and an SFP+ is inserted in that port, the interface will come up in 10G mode.

- If 10G license is **not** installed for particular port and SFP is inserted, the interface will come up in 1G mode.
- If there is no license and a 1G SFP is inserted in the chassis, ports Te0/0/4-Te0/0/7 will be administratively down.

If there is a license and a 1G SFP is inserted in the chassis, ports Te0/0/4-Te0/0/7 will come up in 1G mode only.

- If sufficient 10G licenses are not available or not activated for a port and an SFP+ is inserted, the 10G mode is not enabled. The interface will be in 'link down state' and the following system warning message will be generated. `Warning: SFP+ inserted at port X tengig license not in use`
- If an activated 10G license is uninstalled or deactivated for a particular port with SFP+, the interface is initialized to 1G mode and 10G interfaces will be in administratively down state.

## Port Upgrade License

Port upgrade license is available in pay-as-you-grow model. Few ports in the router are enabled by default. However, you must purchase the licenses to enable other ports.

10 GigabitEthernet Upgrade License (**N520-10G-2**)—10G ports are bundled as a group of two ports. You must purchase one license bundle to enable two 10G ports.

The Cisco NCS 520 routers support dual rate 10G ports. Initially all the 10G ports operate in 1G mode. You must purchase 10G Upgrade license to operate in 10G mode.

**Table 1: Cisco NCS 520 Models Licensed and Non-licensed Ports**

Cisco NCS 520 Series Models	1G ports	10G ports
N520-4G4Z-A N520-X-4G4Z-A N520-X-4G4Z	<p>There are 4*1G ports. These ports are grouped as:</p> <ul style="list-style-type: none"> <li>• Two copper ports</li> <li>• Two SFP ports</li> </ul> <p>All the four ports (Gi0/0/0 - Gi0/0/3) are non-licensed ports and all are enabled by default</p>	<p>There are 4*10G ports and they are disabled by default. All the 10G ports work in 1G mode by default. Upon installing one 10G license, two ports which are enabled first by using the "no shut" command, are enabled to work in 10G mode. Upon installing the second 10G license, all the four ports work in 10G mode.</p>

Table 2: Cisco NCS 520 Series Models Ports Behavior

Cisco NCS 520 Series Models	1G ports	10G ports
N520-4G4Z-A N520-X-4G4Z-A N520-X-4G4Z	Without License: The ports Gi0/0/0 - Gi0/0/3 operate in 1G mode.	Without License: The licensed ports Te0/0/4-Te0/0/7 operate in 1G mode.  With license, all the 10G ports work in 1G mode by default. Upon installing one 10G license, two ports which are enabled first by using the "no shut" command, are enabled to work in 10G mode. Upon installing the second 10G license, all the four ports work in 10G mode.

## Configuring Ports Using Port Upgrade License

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Router# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	<b>license install</b> <i>licensefilelocation:licensefilename</i>  <b>Example:</b> Router(config)# <b>license install</b> <b>bootflash:10G.lic</b> Installing licenses from "bootflash:10G.lic" Installing...Feature:10GUpgradeLicense...Successful:Supported 1/1 licenses were successfully installed  0/1 licenses were existing licenses 0/1 licenses were failed to install	Installs the 10G Port Upgrade license and enables the associated ports.  <b>Note</b> Upon installing one 10G license, two ports which are enabled first by using the "no shut" command, are enabled to work in 10G mode. Upon installing the second 10G license, all the four ports work in 10G mode.
<b>Step 4</b>	<b>interface range Te0/0/4-7</b>  <b>Example:</b> Router(config)# <b>interface range Te0/0/4-7</b>	Enter the interface mode.
<b>Step 5</b>	<b>no shut</b>  <b>Example:</b>	Activates the 10G Port Upgrade license.

	Command or Action	Purpose
	Router(config-if-range)#no shut	

## Verifying Port Upgrade Licensing

### Verifying the installed license

This example shows only license installed but not activated.

```
Router# show license all
License Store: Primary License Storage
StoreIndex: 1   Feature: 10GEupgradelicense           Version: 1.0
                License Type: Permanent
                License State: Active, In Use
                License Count: 2/2/0 (Active/In-use/Violation)
                License Priority: Medium
License Store: Built-In License Storage
StoreIndex: 0   Feature: metroaccess                 Version: 1.0
                License Type: Evaluation
                License State: Active, Not in Use, EULA not accepted
                Evaluation total period: 8 weeks 4 days
                Evaluation period left: 8 weeks 4 days
                Period used: 0 minute 0 second
                License Count: Non-Counted
                License Priority: None
```

### Uninstalling the 10GigabitEthernet Port Upgrade License

```
Router# license clear 10GEupgradelicense

Feature: 10GEupgradelicense
  1   License Type: Permanent
      License State: Active, Not in Use
      License Addition: Exclusive
      License Count: 2
      Comment:
      Store Index: 1
      Store Name: Primary License Storage

Are you sure you want to clear? (yes/[no]): yes
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mcl/allreleasemcl/all-book.html">https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mcl/allreleasemcl/all-book.html</a>

**Standards and RFCs**

Standard/RFC	Title
No specific Standards and RFCs are supported by the features in this document.	—

**MIBs**

MB	MIBs Link
—	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:  <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**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>	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

