



# Managing Licenses

---

This chapter includes the following sections:

- [Licenses, page 1](#)
- [C-Direct Rack Licensing Support, page 3](#)
- [Obtaining the Host ID for a Fabric Interconnect, page 4](#)
- [Obtaining a License, page 5](#)
- [Installing a License, page 5](#)
- [Viewing the Licenses Installed on a Fabric Interconnect, page 6](#)
- [Viewing License Usage for a Fabric Interconnect, page 7](#)
- [Uninstalling a License, page 9](#)

## Licenses

Each Cisco UCS fabric interconnect comes with several port licenses that are factory installed and shipped with the hardware. You can purchase fabric interconnects fully licensed or partially licensed. You can also purchase additional licenses after delivery.

The following four new licenses are added for the 6300 Series FI and are only valid on the 6332 and 6332-16UP Fis.

- `40G_ETH_PORT_ACTIVATION_PKG` – Licenses used for 40 GB Ethernet ports
- `40G_ETH_C_PORT_ACTIVATION_PKG` – Licenses used for 40 GB Ethernet ports directly connected to rack servers (C-Direct)
- `10G_C_PORT_ACTIVATION_PKG` – Licenses used for the first 16 10 GB unified ports on the 6332-16UP that are directly connected to rack servers (C-Direct)
- `10G_PORT_ACTIVATION_PKG` – Licenses used for the first 16 10 GB unified ports on the 6332-16UP



**Note** The 10G\_PORT\_ACTIVATION\_PKG and 10G\_C\_PORT\_ACTIVATION\_PKG licenses are only valid for the 6332-16UP FIs, and can only be installed on them.

At a minimum, each fabric interconnect ships with the following counted licenses pre-installed:

Fabric Interconnect	Default Base Licenses
Cisco UCS 6248 (unified ports)	For the 12 first enabled Ethernet ports and any Fibre Channel ports in the expansion module.
Cisco UCS 6296 (unified ports)	For the first 18 enabled Ethernet ports and any Fibre Channel ports in the expansion module.
Cisco UCS 6324	For 4 non-breakout ports only. The fifth port, which does not include a license, is further broken in to four 10 GB ports.
Cisco UCS 6332 16UP	For four 40 GB ports and eight 10 GB ports. <b>Note</b> The first 16 ports are 10 GB. The remaining are 40 GB.
Cisco UCS 6332	For eight 40 GB ports.

### Port License Consumption

Port licenses are not bound to physical ports. When you disable a licensed port, that license is retained for use with the next enabled port. To use additional fixed ports, you must purchase and install licenses for those ports. All ports, regardless of their type (fibre, ethernet) consume licenses if they are enabled.

For breakout capable ports available in the 6332 and the 6332-16UP platforms, 40 GB licenses remain applied to the main port even if that port is a breakout port, and that port continues to consume only one 40 GB license.



**Note** The initial configuration of a port will enable it, and consume a license.



**Important** Licenses are not portable across product generations. Licenses purchased for 6200 series fabric interconnects cannot be used to enable ports on 6300 series fabric interconnects or vice-versa.

Each Cisco UCS 6324 Fabric Interconnect comes with a factory installed port license that is shipped with the hardware. This license is for the eight 40 GB unified ports, and can be used for any supported purpose. The C-direct port license is factory installed with a grace period, and can be used for Cisco UCS rack servers.

### Grace Period

If you attempt to use a port that does not have an installed license, Cisco UCS initiates a 120 day grace period. The grace period is measured from the first use of the port without a license and is paused when a valid license file is installed. The amount of time used in the grace period is retained by the system.

**Note**

Each physical port has its own grace period. Initiating the grace period on a single port does not initiate the grace period for all ports.

If a licensed port is unconfigured, that license is transferred to a port functioning within a grace period. If multiple ports are acting within grace periods, the license is moved to the port whose grace period is closest to expiring.

**High Availability Configurations**

To avoid inconsistencies during failover, we recommend that both fabric interconnects in the cluster have the same number of ports licensed. If symmetry is not maintained and failover occurs, Cisco UCS enables the missing licenses and initiates the grace period for each port being used on the failover node.

## C-Direct Rack Licensing Support

Each Cisco UCS fabric interconnect is shipped with a default number of port licenses that are factory licensed and shipped with the hardware. C-direct support is only applicable on ports that are connected to the rack servers. The 10G\_C\_PORT\_ACTIVATION\_PKG and the 40G\_ETH\_C\_PORT\_ACTIVATION\_PKG are added to the existing license package with all the same properties as the existing licensing feature. The **Subordinate Quantity** property is added to the 10G\_PORT\_ACTIVATION\_PKG and 40G\_ETH\_PORT\_ACTIVATION\_PKG to track ports connected to rack servers.

The License Tab in the Cisco UCS Manager GUI displays the new license and the **Subordinate Quantity** for the license. You can also use the **show feature** and **show usage** commands under **scope license** to view the license feature, the vendor version type, and the grace period for each license.

Ports connected to rack servers can use existing 10G\_PORT\_ACTIVATION\_PKG and 40G\_ETH\_PORT\_ACTIVATION\_PKG if the license is available or if the license is not in use. Otherwise, you must purchase a 10G\_C\_PORT\_ACTIVATION\_PKG and 40G\_ETH\_C\_PORT\_ACTIVATION to avoid the license grace period.

There is no change in the 10 GB ports. The 10G\_PORT\_ACTIVATION\_PKG and 10G\_C\_PORT\_ACTIVATION\_PKG license packages include all of the same properties as the existing the ETH\_PORT\_ACTIVATION\_PKG and the ETH\_PORT\_C\_ACTIVATION\_PKG license features.

**Configuration and Restrictions**

- The C-Direct rack licensing feature accounts for the rack server ports that are directly connected to the FI, but not to a CIMC port. The default quantity for the 10G\_C\_PORT\_ACTIVATION\_PKG and 40G\_ETH\_C\_PORT\_ACTIVATION\_PKG is always 0.
- When a 40 GB port, or a breakout port under a 40 GB breakout port is enabled without any connections, this port is allotted a license under the 40G\_ETH\_PORT\_ACTIVATION\_PKG, if available. If this port is connected to a Direct-Connect rack server after a time lag, it triggers a complete re-allocation of licenses, then this port passes through one of the following license allocation scenarios occurs:

When you enable a breakout port under a 40 GB breakout port, if that port is connected to a Direct-Connect rack server, and the 40G\_C\_PORT\_ACTIVATION\_PKG license files are installed on the FI, the following license allocation occurs:

- If no other ports under the breakout port are enabled, the parent 40 GB port is allotted a license under the 40G\_C\_PORT\_ACTIVATION\_PKG, and the used quantity is incremented for this instance.
- If other ports are enabled, and if at least one port is not connected to a Direct Connect rack server, even if the port is not being used, the parent 40 GB port is allotted a license under the 40G\_ETH\_PORT\_ACTIVATION\_PKG, and the used quantity is incremented for this instance.
- When you enable a breakout port under a 40 GB breakout port and that port is connected to a Direct-Connect rack server, and the 40G\_C\_PORT\_ACTIVATION\_PKG license files are not installed on the FI, the following license allocation occurs:
  - If no ports under the breakout port are enabled, the parent 40 GB port is allotted a license under the 40G\_ETH\_PORT\_ACTIVATION\_PKG. The subordinate quantity is increased if the licenses are available in the 40G\_ETH\_PORT\_ACTIVATION\_PKG. If the licenses are not available, the used quantity under this feature is increased and the entire port goes in to the grace period.
  - If other ports are enabled and at least one port is not connected to a Direct Connect rack server, even if the port is not being used, the parent 40 GB port is allotted a license under the 40G\_ETH\_PORT\_ACTIVATION\_PKG, and the used quantity is incremented for this instance.

## Obtaining the Host ID for a Fabric Interconnect

The host ID is also known as the serial number.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope license</b>	Enters license mode.
<b>Step 2</b>	UCS-A /license # <b>show server-host-id</b>	Obtains the host ID or serial number for the fabric interconnect.  <b>Tip</b> Use the entire host ID that displays after the equal (=) sign.

The following example obtains the host ID for a fabric interconnect:

```
UCS-A# scope license
UCS-A /license # show server-host-id
Server host id:
  Scope Host Id
  -----
  A      VDH=SSI12121212
  B      VDH=SSI13131313
UCS-A /license #
```

### What to Do Next

Obtain the required licenses from Cisco.

# Obtaining a License



**Note** This process may change after the release of this document. If one or more of these steps no longer applies, contact your Cisco representative for information on how to obtain a license file.

## Before You Begin

Obtain the following:

- Host ID or serial number for the fabric interconnect
- Claim certificate or other proof of purchase document for the fabric interconnect or expansion module

## Procedure

- Step 1** Obtain the product authorization key (PAK) from the claim certificate or other proof of purchase document.
- Step 2** Locate the website URL in the claim certificate or proof of purchase document.
- Step 3** Access the website URL for the fabric interconnect and enter the serial number and the PAK. Cisco sends you the license file by email. The license file is digitally signed to authorize use on only the requested fabric interconnect. The requested features are also enabled once Cisco UCS Manager accesses the license file.

## What to Do Next

Install the license on the fabric interconnect.

# Installing a License



**Note** In a cluster setup, Cisco recommends that you download and install licenses to both fabric interconnects in matching pairs. An individual license is only downloaded to the fabric interconnect that is used to initiate the download.

## Before You Begin

Obtain the required licenses from Cisco.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope license</b>	Enters license mode.

	Command or Action	Purpose
<b>Step 2</b>	UCS-A /license # <b>download license from-filesystem</b>	Downloads the license from its source location. For the <i>from-filesystem:</i> argument, use one of the following syntaxes: <ul style="list-style-type: none"> <li>• <b>ftp:// server-ip-addr</b></li> <li>• <b>scp:// username@server-ip-addr</b></li> <li>• <b>sftp:// username@server-ip-addr</b></li> <li>• <b>tftp:// server-ip-addr : port-num</b></li> </ul> <p>You cannot have spaces anywhere in the path name or the file name. For example, <code>c:\Path\Folder_Name\License.lic</code> is a valid path, but <code>c:\Path\Folder Name\License.lic</code> is invalid due to the space in "Folder Name".</p>
<b>Step 3</b>	UCS-A /license # <b>install file license_filename</b>	Installs the license.

The following example uses FTP to download and install a license:

```
UCS-A # scope license
UCS-A /license # download license ftp://192.168.10.10/license/port9.lic
UCS-A /license # install file port9.lic
UCS-A /license #
```

## Viewing the Licenses Installed on a Fabric Interconnect

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope license</b>	Enters license mode.
<b>Step 2</b>	UCS-A /license # <b>show file [license_filename   detail]</b>	Displays the licenses installed on the fabric interconnect with the level of detail specified in the command.

The following example displays the full details for the licenses installed on a fabric interconnect:

```
UCS-A# scope license
UCS-A /license # show file detail

License file: UCSFEAT20100928112305377.lic
  Id: 1212121212121212
  Version: 1.0
  Scope: A
  State: Installed
  Features
```

```

Feature Name: ETH_PORT_ACTIVATION_PKG
Vendor: cisco
Version: 1.0
Quantity: 24
Lines
  Line Id: 1
  Type: Increment
  Expiry Date: Never
  Pak:
  Quantity: 24
  Signature: B10101010101

License file: UCSFEAT20100928112332175.lic
Id: 1313131313131313
Version: 1.0
Scope: B
State: Installed
Features
Feature Name: ETH_PORT_ACTIVATION_PKG
Vendor: cisco
Version: 1.0
Quantity: 24
Lines
  Line Id: 1
  Type: Increment
  Expiry Date: Never
  Pak:
  Quantity: 24
  Signature: F302020202020

UCS-A /license #
    
```

## Viewing License Usage for a Fabric Interconnect

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# scope license	Enters license mode.
<b>Step 2</b>	UCS-A /license # show usage	<p>Displays the license usage table for all license files installed on the fabric interconnect.</p> <p>This following are included:</p> <ul style="list-style-type: none"> <li>• <b>Feat Name</b> The name of the feature to which the license applies.</li> <li>• <b>Scope</b> The fabric associated with the license.</li> <li>• <b>Default</b> The default number of licenses provided for this Cisco UCS domain.</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li data-bbox="672 344 834 373">• <b>Total Quant</b> The total number of licenses available. This value is the sum of the number of default licenses plus the number of purchased licenses.</li> <li data-bbox="672 501 834 531">• <b>Used Quant</b> The number of licenses currently being used by the system. If this value exceeds the total number of licenses available, then some ports will stop functioning after their associated grace period expires.</li> <li data-bbox="672 690 915 720">• <b>Subordinate Quant</b> C-Series Rack Servers that are currently being used by the system.</li> <li data-bbox="672 821 753 850">• <b>State</b> The operational state of the license.</li> <li data-bbox="672 947 971 976">• <b>Peer Count Comparison</b> The number of licenses on the peer fabric interconnect compared to this fabric interconnect. This can be one of the following: <ul style="list-style-type: none"> <li data-bbox="792 1077 1481 1136">• <b>exceeds</b>—the peer fabric interconnect has more licenses installed than this fabric interconnect</li> <li data-bbox="792 1157 1481 1215">• <b>lacks</b>—the peer fabric interconnect has fewer licenses installed than this fabric interconnect</li> <li data-bbox="792 1236 1481 1295">• <b>matching</b>—the same number of licenses are installed on both fabric interconnects</li> </ul> </li> <li data-bbox="672 1367 829 1396">• <b>Grace Used</b> The amount of time (in seconds) used in the grace period. After the grace period ends, Cisco UCS sends alert messages until a new license is purchased.</li> </ul>

The following examples display full details of the licenses installed on a fabric interconnect:

```

UCS-A# scope license
UCS-A /license # show usage
Feat Name                               Scope Default Total Quant Used Quant Subordinate Quant
State                                   Peer Count Comparison Grace Used
-----
ETH_PORT_ACTIVATION_PKG                 A           20           48           12           0

```

```

License Ok           Matching
ETH_PORT_C_ACTIVATION_PKG  A    0    0    0    0
Not Applicable      Matching
ETH_PORT_ACTIVATION_PKG    B    20   48   0    11
License Ok           Matching
ETH_PORT_C_ACTIVATION_PKG  B    0    0    0    0
Not Applicable      Matching
UCS-A /license #

UCS-A# scope license
UCS-A /license # show feature

License feature:
Name                               Vendor Version Type                Grace Period
-----
ETH_PORT_ACTIVATION_PKG            cisco  1.0    Counted                    120
ETH_PORT_C_ACTIVATION_PKG          cisco  1.0    Counted                    120
UCS-A /license #
    
```

# Uninstalling a License



**Note**

Permanent licenses cannot be uninstalled if they are in use. You can only uninstall a permanent license that is not in use. If you try to delete a permanent license that is being used, Cisco UCS Manager rejects the request and display an error message.

**Before You Begin**

Back up the Cisco UCS Manager configuration.

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope license</b>	Enters license mode.
<b>Step 2</b>	UCS-A /license # <b>clear file license-filename</b>	Uninstalls the specified license.

Cisco UCS Manager deactivates the license, removes the license from the list of licenses, and deletes the license from the fabric interconnect. The port is moved into unlicensed mode. In a cluster setup, you must uninstall the license from the other fabric interconnect.

The following example shows the uninstallation of port9.lic:

```

UCS-A # scope license
UCS-A /license # clear file port9.lic
Clearing license port9.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT ETH_PORT_ACTIVATION_PKG cisco 1.0 permanent 1 \
  VENDOR_STRING=<LIC_SOURCE>UCS_SWIFT</LIC_SOURCE><SKU>N10-L001=</SKU> \
  HOSTID=VDH=FLC12360025 \
  NOTICE="<LicFileID>20090519200954833</LicFileID><LicLineID>1</LicLineID> \
  <PAK></PAK>" SIGN=C01FAE4E87FA

Clearing license .....done
UCS-A /license #
    
```

