Managing Licenses

This chapter includes the following sections:

Licenses

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

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

- Cisco UCS 6120XP fabric interconnect—pre-installed licenses for the first eight Ethernet ports enabled in Cisco UCS Manager and any Fibre Channel ports on expansion modules

- Cisco UCS 6140XP fabric interconnect—pre-installed licenses for the first sixteen Ethernet ports enabled in Cisco UCS Manager and any Fibre Channel ports on expansion modules

- Cisco UCS 6248 fabric interconnect—pre-installed licenses for the first twelve unified ports enabled in Cisco UCS Manager. Expansion modules come with eight licenses that can be used on the expansion module or the base module.

- Cisco UCS 6296 fabric interconnect—pre-installed licenses for the first eighteen unified ports enabled in Cisco UCS Manager. Expansion modules come with eight licenses that can be used on the expansion module or the base module.

Note The eight default licenses that come with a 6200 series fabric interconnect expansion module can be used to enable ports on the base module, but will travel with the expansion module if it is removed. Upon removal of an expansion module, any default expansion module licenses being used by the base module are removed from the ports on the base module, resulting in unlicensed ports.

Port licenses are not bound to physical ports. When you disable a licensed port, that license is then retained for use with the next enabled port. If you want to use additional fixed ports, you must purchase and install licenses for those ports.

Important Licenses are not portable across product generations. Licenses purchased for 6100 series fabric interconnects cannot be used to enable ports on 6200 series fabric interconnects or vice-versa.

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 that are shipped with the hardware. C-direct support is only applicable on ports that are connected to the rack servers. The C-direct feature implementation requires new license files to be installed to add the additional ports that currently use 10 Gig licenses but are enforced on ports that are only connected to the rack servers.

As part of C-Direct rack licensing support, a new license, ETH_PORT_C_ACTIVATION_PKG is added to the existing license package and has all the same properties as the existing licensing feature. A new property, **Subordinate Quantity** is added to the license that keeps a track of the rack servers using the ETH_PORT_ACTIVATION_PKG licenses.

The new license and the **Subordinate Quantity** for the license are displayed under the License Tab in Cisco UCSM GUI. In the CLI, use **show feature** and **show usage** under **scope license** to view the license feature, the vendor version type, and the grace period for each license.

You can connect the rack servers to the existing ETH_PORT_ACTIVATION_PKG if it is available or not in use. Or else an additional ETH_PORT_C_ACTIVATION_PKG needs to be purchased to avoid the feature being in grace period.

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 ETH_PORT_C_ACTIVATION_PKG is always 0. The subordinate port quantity in the ETH_PORT_ACTIVATION_PKG keeps a track of the C-Direct rack units that are connected.

- If a port is enabled as a server administrator without any connection, it is considered to consume a full license and it increments the used quantity under the ETH_PORT_ACTIVATION_PKG. If a rack server is connected on the same port after a time lag, the used quantity under the ETH_PORT_ACTIVATION_PKG decreases and the used count for the rack server is incremented.

- When you enable a port, a rack is connected, and the ETH_PORT_C_ACTIVATION_PKG license files are installed, the used count is increased if the licenses are available in ETH_PORT_C_ACTIVATION_PKG. If the ports are not available in ETH_PORT_C_ACTIVATION_PKG, the system checks if the ports are available in ETH_PORT_ACTIVATION_PKG. If they are, the used count for the Ethernet port is increased. Or else the used count for C-direct is increased and the entire feature goes to a grace period.

- When you enable a port, a rack is connected, and the ETH_PORT_C_ACTIVATION_PKG license files are not installed, the subordinate used count is increased if the licenses are available in ETH_PORT_ACTIVATION_PKG. If the ports are not available in ETH_PORT_ACTIVATION_PKG, the used quantity under ETH_PORT_ACTIVATION_PKG feature is increased and the entire feature goes to a grace period.

Obtaining the Host ID for a Fabric Interconnect

The host ID is also known as the serial number.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# **scope license**	Enters license mode.
Step 2	UCS-A /license # **show server-host-id**	Obtains the host ID or serial number for the fabric interconnect.
		Tip 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, we recommend 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
Step 1	UCS-A# **scope license**	Enters license mode.
Step 2	UCS-A /license # **download license** *from-filesystem*	Downloads the license from its source location. For the *from-filesystem:* argument, use one of the following syntaxes: • **ftp://** *server-ip-addr* • **scp://** *username@server-ip-addr* • **sftp://** *username@server-ip-addr* • **tftp://** *server-ip-addr* **:** *port-num*
Step 3	UCS-A /license # **install file** *license_filename*	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
Step 1	UCS-A# **scope license**	Enters license mode.
Step 2	UCS-A /license # **show file** [*license_filename*	**detail**]	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
Step 1	UCS-A# **scope license**	Enters license mode.

Step 2	UCS-A /license # **show usage**	Displays the license usage table for all license files installed on the fabric interconnect.
		
		This following are included:
		
		• **Feat Name**
		
		    The name of the feature to which the license applies.
		
		• **Scope**
		
		    The fabric associated with the license.
		
		• **Default**
		
		    The default number of licenses provided for this Cisco UCS domain.

Command or Action	Purpose
	• **Total Quant** The total number of licenses available. This value is the sum of the number of default licenses plus the number of purchased licenses. • **Used Quant** 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. • **Subordinate Used Quant** C-Series Rack Servers that are currently being used by the system. • **State** The operational state of the license. • **Peer License Count Comparison** The number of licenses on the peer fabric interconnect compared to this fabric interconnect. This can be one of the following: • **exceeds**—the peer fabric interconnect has more licenses installed than this fabric interconnect • **lacks**—the peer fabric interconnect has fewer licenses installed than this fabric interconnect • **matching**—the same number of licenses are installed on both fabric interconnects • **Grace Used** 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.

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          20           1          1   License Ok  Matching  0
ETH_PORT_C_ACTIVATION_PKG B     16          40           1          1   License Ok  Matching  0
```

```
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 with an error message.

Before You Begin

Back up the Cisco UCS Manager configuration.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# **scope license**	Enters license mode.
Step 2	UCS-A /license # **clear file** *license-filename*	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 #
```