Server License Management

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.

Beginning with release 4.2(3b), for Cisco UCS 6536 Fabric Interconect (UCS-FI-6536), all ports are enabled using a term-based subscription license (Supported license term: 36-60 months).

Note Licensing for UCS-FI-6536 is not a port-based license like in previous FI generations.

Cisco UCS 64108 Fabric Interconnect uses the following licenses:

Table 1: Cisco UCS 64108 Fabric Interconnect Licenses

Ports	Licenses
Ports 1-96	ETH_PORT_ACTIVATION_PKG and ETH_PORT_C_ACTIVATION_PKG (From 6200 Series FI) - Licenses used for 10/25 GB Ethernet ports

Ports	Licenses
Ports 97-108	100G_ETH_PORT_ACTIVATION_PKG – Licenses used for 40/100 GB Ethernet ports

Cisco UCS 6454 Fabric Interconnect uses the following licenses:

Table 2: Cisco UCS 6454 Fabric Interconnect Licenses

Ports	Licenses
Ports 1-48	ETH_PORT_ACTIVATION_PKG and ETH_PORT_C_ACTIVATION_PKG (From 6200 Series FI) - Licenses used for 10/25 GB Ethernet ports
Ports 49-54	100G_ETH_PORT_ACTIVATION_PKG – Licenses used for 40/100 GB Ethernet ports

The following four licenses are 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.

The following licenses are used when S3260 system is connected to FI as appliance (appliance port) or Cisco UCS Manager managed node (server port):

Table 3: S3260 system License Requirement

FI Model	License
6454 and 64108	40G_ETH_PORT_ACTIVATION_PKG
6332-16UP	10G_PORT_ACTIVATION_PKG
6332	40G_ETH_PORT_ACTIVATION_PKG
6200	ETH_PORT_ACTIVATION_PKG

Cisco UCS C125 M5 Servers support Cisco UCS 6500 Series Fabric Interconnect, Cisco UCS 6400 Series Fabric Interconnect and 6300 Series Fabric Interconnect.

At a minimum, each Fabric Interconnect ships with the following counted licenses pre-installed:

Fabric Interconnect	Default Base Licenses
Cisco UCS 6536	All ports are enabled using a term-based subscription license.
Cisco UCS 64108	For 36 10/25 GB ports (ports 1-96) For 4 40/100 GB ports (ports 97-108).
Cisco UCS 6454	For 18 10/25 GB ports (ports 1-48) For 2 40/100 GB ports (ports 49-54).
Cisco UCS 6332	For eight 40 GB ports.
Cisco UCS 6332 16UP	For four 40 GB ports and eight 10 GB ports. **Note** The first 16 ports are 10 GB. The remaining are 40 GB.
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 6296 (unified ports)	For the first 18 enabled Ethernet ports and any Fibre Channel ports in the expansion module.
Cisco UCS 6248 (unified ports)	For the 12 first enabled Ethernet ports and any Fibre Channel ports in the expansion module.

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.

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Important Licenses are not portable across product generations. Licenses purchased for 6200 series Fabric Interconnects cannot be used to enable ports on 6300 Series or 6400 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. The C-direct port license is factory installed with a grace period, measured from first use of the port, and can be used for Cisco UCS rack servers. If multiple ports are acting within grace periods, the license is moved to the port whose grace period is closest to expiring.

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

Release 4.2(3b)

Beginning with release 4.2(3b), Cisco introduces Cisco UCS 6536 Fabric Interconnect. In Cisco UCS 6536 Fabric Interconnect all ports are enabled using a term-based subscription license (Supported license term: 36-60 months).

> **Note** Licensing for FI 6536 is not a port-based license like in previous FI generations.

License Management Tab in the Cisco UCS Manager GUI is deprecated for Cisco UCS 6536 Fabric Interconnect. **scope license** command is also deprecated. You can view the license status through your Cisco account.

Release 4.1(1a) and Higher

Beginning with release 4.1(1a), Cisco UCS 64108 Fabric Interconnects use the ETH_C_PORT_ACTIVATION_PKG feature pack for C-Direct port licenses for ports 1-96. There are no default ETH_C_PORT_ACTIVATION_PKG licenses shipped with the Fabric Interconnect. You may purchase them as required.

C-direct support is only applicable on ports that are connected to the rack servers. The ETH_C_PORT_ACTIVATION_PKG is added to the existing license package with all the same properties as the existing licensing feature. The Subordinate Quantity property is added to the 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.

Release 4.0(1a) and Higher

Beginning with release 4.0(1a), Cisco UCS 6454 Fabric Interconnects use the ETH_C_PORT_ACTIVATION_PKG feature pack for C-Direct port licenses for ports 1-48. There are no default ETH_C_PORT_ACTIVATION_PKG licenses shipped with the Fabric Interconnect. You may purchase them as required.

C-direct support is only applicable on ports that are connected to the rack servers. The ETH_C_PORT_ACTIVATION_PKG is added to the existing license package with all the same properties as the existing licensing feature. The Subordinate Quantity property is added to the 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.

Release 3.2(3o) and Earlier

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, 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, the 40G_ETH_C_PORT_ACTIVATION _PKG 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 the 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

Step 1	In the **Navigation** pane, click **Equipment**.
Step 2	Expand **Equipment** > **Fabric Interconnects**.
Step 3	Click the node for the fabric interconnect for which you want to obtain the host ID.
Step 4	In the **Work** pane, click the **General** tab.
Step 5	In the **Properties** area, the host ID is listed in the **Serial Number (SN)** field.

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.

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

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.

Downloading Licenses to the Fabric Interconnect from the Local File System

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

Step 1   In the **Navigation** pane, click **Admin**.

Step 2   Expand **All** > **License Management**.

Step 3   Click the node for the fabric interconnect to which you want to download the license.

Step 4   In the **Work** pane, click the **Download Tasks** tab.

Step 5   Click **Download License**.

Step 6 In the **Download License** dialog box, click the **Local File System** radio button in the **Location of the Image File** field.

Step 7 In the **Filename** field, type the full path and name of the license file.

You cannot have spaces anywhere in the path name or the file name. For example, `c:\Path\Folder_Name\License.lic` is a valid path, but `c:\Path\Folder Name\License.lic` is invalid due to the space in `"Folder Name"`.

If you do not know the exact path to the folder where the license file is located, click **Browse** and navigate to the file.

Step 8 Click **OK**.

Cisco UCS Manager GUI begins downloading the license to the fabric interconnect.

Step 9 (Optional) Monitor the status of the download on the **Download Tasks** tab.

Note	If Cisco UCS Manager reports that the bootflash is out of space, delete obsolete bundles on the **Packages** tab to free up space. To view the available space in bootflash, navigate to the fabric interconnect, click **Equipment**, and expand the **Local Storage Information** area on the **General** tab.

Step 10 Repeat this task until all the required licenses have been downloaded to the fabric interconnect.

What to do next

After all of the download tasks complete, install the licenses.

Downloading Licenses to the Fabric Interconnect from a Remote Location

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

Step 1 In the **Navigation** pane, click **Admin**.

Step 2 Expand **All** > **License Management**.

Step 3 Click the node for the fabric interconnect to which you want to download the license.

Step 4 In the **Work** pane, click the **Download Tasks** tab.

Step 5   Click **Download License**.

Step 6   In the **Download License** dialog box, click the **Remote File System** radio button in the **Location of the Image File** field.

Step 7   Specify the protocol, and enter the required information.

        You cannot have spaces anywhere in the path name or the file name. For example, `c:\Path\Folder_Name\License.lic` is a valid path, but `c:\Path\Folder Name\License.lic` is invalid due to the space in "`Folder Name`".

| **Note** | If you use a hostname rather than an IPv4 or IPv6 address, you must configure a DNS server. If the Cisco UCS domain is not registered with Cisco UCS Central or DNS management is set to **local**, configure a DNS server in Cisco UCS Manager. If the Cisco UCS domain is registered with Cisco UCS Central and DNS management is set to **global**, configure a DNS server in Cisco UCS Central. |

Step 8   Click **OK**.

        Cisco UCS Manager GUI begins downloading the license to the fabric interconnect.

Step 9   (Optional) Monitor the status of the download on the **Download Tasks** tab.

| **Note** | If Cisco UCS Manager reports that the bootflash is out of space, delete obsolete bundles on the **Packages** tab to free up space. To view the available space in bootflash, navigate to the fabric interconnect, click **Equipment**, and expand the **Local Storage Information** area on the **General** tab. |

Step 10   Repeat this task until all the required licenses have been downloaded to the fabric interconnect.

What to do next

After all of the download tasks complete, install the licenses.

Installing a License

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

Before you begin

Obtain the required licenses from Cisco.

Procedure

Step 1   In the **Navigation** pane, click **Admin**.

Step 2   Expand **All** > **License Management**.

Step 3   In the **Work** pane, click the **Downloaded License Files** tab.

Step 4   Choose the license you want to install from the table.

| **Note** | There is no downtime required or impact to traffic when installing a new port license. |

Step 5   Click the **Install License** button.

Step 6   In the **Install License** dialog box, click **Yes**.

Cisco UCS Manager GUI installs the license and activates the unlicensed port or feature.

Viewing the Licenses Installed on a Fabric Interconnect

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

Procedure

Step 1   In the **Navigation** pane, click **Admin**.

Step 2   Expand **All** > **License Management**.

Step 3   In the **Work** pane, click the **Installed Licenses** tab to view the details of all licenses installed on the fabric interconnect.

Step 4   Click a license in the table to view the details of that license in the **Contents** tab.

You may need to expand the license file to view the details of individual licenses in the file.

Determining the Grace Period Available for a Port or Feature

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

Procedure

Step 1   In the **Navigation** pane, click **Admin**.

Step 2   Expand **All** > **License Management**.

Step 3   In the **Work** pane, click the **General** tab.

Step 4   Click a feature in the table to view details for that feature, including the operational state and used grace period.

Determining the Expiry Date of a License

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

Procedure

Step 1	In the **Navigation** pane, click **Admin**.
Step 2	Expand **All** > **License Management**.
Step 3	In the **Work** pane, click the **Installed Licenses** tab.
Step 4	Click a license in the table to view the details of that license in the **Contents** tab below.
Step 5	In the **Contents** tab, expand the license file to view all licenses in the file.
Step 6	In the **Expiry** column, view the expiry date of the 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.

This procedure is not applicable for Cisco UCS 6536 Fabric Interconnect.

Before you begin

Back up the Cisco UCS Manager configuration.

Procedure

Step 1	In the **Navigation** pane, click **Admin**.
Step 2	Expand **All** > **License Management**.
Step 3	In the **Work** pane, click the **Installed Licenses** tab.
Step 4	Choose the license you want to uninstall from the table.
Step 5	Click the **Clear License** button.
Step 6	If a confirmation dialog box displays, click **Yes**.

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.