Upgrading Cisco HyperFlex Software Components

Overview

This chapter provides detailed instructions to upgrade the supported HyperFlex software components once your HyperFlex cluster has been upgraded.

Note
Cisco HyperFlex users who need to upgrade their environment from a Cisco HyperFlex HX Data Platform software release that is past the last date of support, to the latest suggested release on the Cisco Software Download site. Should use the Cisco HyperFlex Systems Upgrade Guide for Unsupported Cisco HX Releases guide.

Upgrading Cisco UCS Infrastructure Using Cisco UCS Manager

The UCS infrastructure includes UCS Manager, switch firmware, blade chassis IO module firmware and rack server FEX firmware. The UCS infrastructure firmware can be upgraded with no disruption to the HyperFlex workloads. This is achieved by doing a rolling upgrade of the UCS fabric interconnects.

Note
HX M4 servers are incompatible with 1227 VIC and 6332-16UP fabric interconnects.

The HX nodes are configured to failover all Ethernet traffic when a UCS fabric interconnect is rebooted to upgrade the firmware. Refer to the Cisco UCS Manager Firmware Management Guide for more details.

Note Ensure that the hx-storage-data and vMotion upstream switches are configured for **Jumbo Frames** before proceeding forward, otherwise the HyperFlex Cluster will become offline and all datastore will unmount from the ESXi hosts.

Procedure

Step 1 Open the UCS Manager GUI.

Step 2 Select **Equipment** > **Firmware Management > Firmware auto-install**.

Step 3 Click **Install Infrastructure Firmware**.

Step 4 Select the desired Service Pack. Select **Upgrade Now** box to immediately begin the firmware upgrade. Click **Finish**.

A pre-requisite dialog box will pop-up. You will see a list of warnings. Fix them first before proceeding further.

a. Cisco UCS Manager upgrade validation fails.

In that case, stop the upgrade process. Determine the reason for upgrade validation failure. Take corrective action and restart the upgrade process.

b. Cisco UCS Manager GUI is disconnected.

This is expected during UCS Manager upgrade as UCS Manager is stopped, then restarted at the new version. Wait until UCS Manager goes back online. Log back in to UCS Manager to complete the next steps.

You may check **Ignore All** box if the warnings are not critical to user environment.

Step 5 Check **Upgrade Now** box.

Step 6 Click **Finish**. UCS Manager software upgrades first, so UCS Manager may be inaccessible for sometime. Log back into UCS Manager.

Step 7 Wait for IOM to be upgraded (if the UCS blade server chassis is present).

a. Select **Equipment** > **Installed Firmware**, expand each chassis and check the **Update Status** of the IO Module.

b. During upgrade, the **Update Status** of the IO Modules will be **Upgrading**.

c. IOMs will be in a Pending Next Boot for Activate Status once the Update process completes. When IOM upgrade has completed, the Update Status of the IO Modules is set to **Ready**.

Step 8 Wait for Subordinate FI to be activated.

a. Select **Equipment** > **Installed Firmware > Fabric Interconnects**.

b. Check the **Activate Status** of the kernel and switch images. During upgrade, the Activate Status is set to **Activating**.

Step 9   During FI reboot, all HX traffic will be forwarded to primary FI (based on ESXi vSwitch failover policy). This will cause a brief traffic interruption. This will not cause storage IO failures.

Step 10   Verify subordinate FI has rebooted and joined the UCS cluster.

    a. Select **Equipment** > **Installed Firmware > Fabric Interconnects**.

    b. After activation, the Activate Status of the FI is set to Ready.

    c. Check the Overall Status of the FI is **operable**.

    d. Check the kernel and switch versions of the FI match the desired and updated version.

    e. Check the FI has no fault.

    f. Check the FI cluster membership is **Subordinate**.

Step 11   If the UCS blade server chassis is present, wait for IOM activation to complete. Only the IOMs connected to the subordinate FI will enter Ready state, IOMs attached to the Primary FI will remain in *Pending Next Boot* Activate Status.

    a. Select **Equipment** > **Blade Chassis > IO Module**.

    b. Wait for the Activate Status of IO module to change to Ready.

Step 12   Wait until HX traffic is re-pinned to both FIs.

Wait for UCS Manager vNIC faults to be cleared. The fault clearing indicates ESXi has loaded the ENIC driver and the interface is up. The traffic is not re-pinned immediately when the network interface goes up because ESXi has a fail back timer. But the Net.teampolicyupdelay timer is very low by default (100ms).

Step 13   Verify the HX Cluster is online, and healthy before rebooting the primary fabric interconnect.

Access summary tab from the vSphere Web Client Navigator. Select **Home** > **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Summary**.

Step 14   In the UCS manager GUI, on the toolbar, click **Pending Activities**. Click on **Fabric Interconnects** tab that display the tasks requiring user acknowledgment before they can complete.

    a. Click **Reboot Now** for each pending activity that you want to deploy immediately.

    b. Click **OK**. Cisco UCS Manager immediately reboots the primary FI. This will cause the subordinate FI to become primary (FI failover).

Step 15   During FI reboot, all HX traffic will be forwarded to the new primary FI. This will cause a brief traffic interruption. However, this will not cause storage IO failures.

Step 16   Wait for UCS Manager to be disconnected, then reconnected on the other FI. This is because a UCS Manager fail over occurs due to primary FI reboot.

Step 17   Check subordinate FI has become primary.

Check that the FI cluster membership is **Primary**.

Step 18   Wait for FI to be activated.

    a. Select **Equipment** > **Installed Firmware > Fabric Interconnects**.

    b. Wait for the **Activate Status** of the FI to be **Ready**.

     c. Check the **Overall Status** of FI is **operable**.

     d. Check the FI has no fault.

Step 19   Verify FI has rebooted and joined the UCS cluster as subordinate.

Check that the FI cluster membership is **Subordinate**.

Step 20   Wait for IOM activation to complete

a) Select **Equipment** > **Blade Chassis > IO Module**.
b) Wait for the **Activate Status** of the IP module to be **Ready**.
c) You can monitor the status on the FSM tab.

    Note   You will lose connectivity to UCS Manager throughout the entire upgrade. This is a normal behavior.

Step 21   Wait until HX traffic is re-pinned to both FIs.

In the UCS manager GUI, wait until all server vNIC faults have been cleared.

Step 22   Verify the HX Cluster is online, and healthy after rebooting the FI.

Access summary tab from the vSphere Web Client Navigator. Select **Home** > **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Summary**.

Upgrading from 3.0 or Later Releases

Upgrading Cisco HyperFlex Data Platform Using HX Connect

Before you begin

- Complete pre-upgrade validation checks. See Upgrade Prerequisites for more details.

- Download the latest *Cisco HX Data Platform Upgrade Bundle for upgrading existing clusters from previous releases*, from Software Download .

- Complete steps 1 to 6 in the *Online Upgrade Process Work flow*. See Online Upgrade Process Workflow for more details.

  - Upgrade Cisco UCS Infrastructure.

  - Bootstrap to upgrade Cisco HX Data Platform.

Note If you are running HyperFlex release 3.5(1a) or later, you can upgrade the Cisco HX Data Platform by performing the auto-bootstrap process from the HX Connect UI (Auto Bootstrap Upgrade Process from HX Connect UI). However, if you are running a HyperFlex release that is earlier than release 3.5(1a) you must run the manual bootstrap process to upgrade the Cisco HX Data Platform (Manual Bootstrap Upgrade Process).

• Disable snapshot schedule, on the bootstrapped storage controller VM.

• If DRS is *Enabled*, the VMs are automatically vMotioned to other hosts.

Note If DRS is *Disabled*, vMotion the VMs manually to continue the upgrade process. For more information, see VMware Documentation for Migration with vMotion.

Procedure

Step 1 Log in to HX Connect.

    a) Enter the HX Storage Cluster management IP address in a browser. Navigate to *https://<storage-cluster-management-ip>*.

    b) Enter the administrative username and password.

    c) Click **Login**.

Step 2 In the Navigation pane, select **Upgrade**.

Step 3 On the **Select Upgrade Type** page, select **HX Data Platform** and complete the following fields:

UI Element	Essential Information
Drag the HX file here or click to browse	Upload the latest *Cisco HyperFlex Data Platform Upgrade Bundle for upgrading existing clusters with previous release.tgz* package file from Download Software - HyperFlex HX Data Platform. Sample file name format: *storfs-packages-3.5.2a-31601.tgz*.
Current version	Displays the current HyperFlex Data Platform version.
Current cluster details	Lists the HyperFlex cluster details like the **HyperFlex version** and **Cluster upgrade state**.
Bundle version	Displays the HyperFlex Data Platform version of the uploaded bundle.
(Optional) **Checksum** field	The *MD5 Checksum number* is stored in a separate text file at the `/tmp` directory where the upgrade package was downloaded. This is an optional step that helps you verify the integrity of the uploaded upgrade package bundle.

Step 4 Enter the **vCenter credentials**.

UI Element	Essential Information
User Name field	Enter the vCenter *<admin>* username.
Admin Password field	Enter the vCenter *<admin>* password.

Step 5   Click **Upgrade** to begin the cluster upgrade process.

Step 6   The **Validation Screen** on the **Upgrade Progress** page displays the progress of the checks performed. Fix validation errors, if any. Confirm that the upgrade is complete.

When upgrade is in progress, you may see an error message, *'Websocket connection failed. Automatic refresh disabled'*. You can either refresh the page or log out and log back in to clear the error message. You can safely ignore this error message.

Upgrading Cisco UCS Firmware

Important

- Do not manually acknowledge the pending activities in Cisco UCS Manager.

- Make sure that the HX Data Platform is already upgraded. When performing a split upgrade, ensure Cisco UCS Firmware is upgraded around the same time as the HX Data Platform upgrade.

Before you begin

- Complete pre-upgrade validation checks. See Upgrade Prerequisites for more details.

- Download the latest Cisco HX Data Platform upgrade bundle for upgrading existing clusters, from Download Software.

- Complete steps 1 to 6 in the *Online Upgrade Process Work flow*.

    - Upgrade Cisco UCS Infrastructure.

    - Bootstrap to upgrade Cisco HX Data Platform plug-in.

    - Disable snapshot schedule, on the bootstrapped storage controller VM.

    - Log in to the Cisco HX Data Platform plug-in with administrator credentials.

- If DRS is *Enabled*, the VMs are automatically vMotioned to other hosts.

Note   If DRS is *Disabled*, vMotion the VMs manually to continue the upgrade process. For more information, see VMware Documentation for Migration with vMotion.

Procedure

Step 1   From the vSphere Web Client Navigator, select **vCenter Inventory Lists** > **Cisco HyperFlex Systems** > **Cisco HX Data Platform** > *HX-Cluster* > **Summary**.

Step 2   Select **Upgrade Cluster**.

Step 3   Select only, **UCS Firmware**. Click **Next**.

Step 4   Enter administrator level UCS Manager credentials.

Field	Data
UCS Manager Host Name	For example: `eng-fi12.eng.storvisor.com`
User Name	*<admin>* username
Password	*<admin>* password

Step 5   Click **Discover** to view the *current firmware package* version.

Step 6   Type in the exact, latest version of Cisco UCS firmware in the **Target version** field.

Step 7   Click **Upgrade**.

The Cisco UCS servers are now upgraded with the desired firmware packages. The pending activities will be automatically acknowledged in a rolling fashion.

Note   You can monitor the progress in the Cisco UCS Manager GUI, under the **FSM** tab for the service profile.

The Validation screen shows the progress of checks performed. Fix validation errors, if any.

The upgrade process proceeds as follows:

- HyperFlex cluster readiness for upgrade is checked.

- One by one, the HX nodes enter maintenance mode.

- The HX Data Platform requests Cisco UCS Manager to begin firmware upgrade. This process can take up to 1 hour.

  Note   You can monitor the progress in the Cisco UCS Manager GUI, under the **FSM** tab for the service profile.

- HX node exits maintenance mode.

- Cluster begins to rebuild back to full health.

- Once the cluster is healthy, upgrade moves on to the next node in the HyperFlex cluster.

What to do next

Confirm that the upgrade is complete. See *Post Upgrade Tasks* for more details.

Upgrading Cisco UCS Server Firmware Using the HX Connect UI

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Caution Ensure you upgrade HX Data Platform first. After HX Data Platform is upgraded to 3.5(x), you can upgrade the UCS server firmware.

Before you begin

- Complete pre-upgrade validation checks. See Upgrade Prerequisites for more details.

- Download the latest *Cisco HX Data Platform Upgrade Bundle for upgrading existing clusters from previous releases*, from Software Download .

- Complete steps 1 to 6 in the *Online Upgrade Process Work flow*. See Online Upgrade Process Workflow for more details.

  - Upgrade Cisco UCS Infrastructure.

  - Bootstrap to upgrade Cisco HX Data Platform.

  - Disable snapshot schedule, on the bootstrapped storage controller VM.

- If DRS is *Enabled*, the VMs are automatically vMotioned to other hosts.

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  Note If DRS is *Disabled*, vMotion the VMs manually to continue the upgrade process. For more information, see VMware Documentation for Migration with vMotion.

- Downgrading the UCSM firmware is not supported.

Procedure

Step 1 Log in to HX Connect.

a) Enter the HX Storage Cluster management IP address in a browser. Navigate to *https://<storage-cluster-management-ip>*.

b) Enter the administrative username and password.

c) Click **Login**.

Step 2 In the Navigation pane, select **Upgrade**.

Step 3 On the **Select Upgrade Type** page, select **UCS Server Firmware** and complete the following fields:

Field	Essential Information
UCS Manager Connectivity	

Field	Essential Information
UCS Manager FQDN/IP field	Enter the Cisco UCS Manager FQDN or IP address. Example: *10.193.211.120*.
User Name field	Enter the Cisco UCS Manager *<admin>* username.
Admin Password field	Enter the Cisco UCS Manager *<admin>* password.
HX Server Firmware	
Discover button	Click **Discover** to view the *current UCS firmware package* version, in the **Current Version** field.

Step 4   Click **Upgrade** to begin the UCS firmware upgrade process.

Step 5   The **Validation Screen** on the **Upgrade Progress** page displays the progress of the checks performed. Fix validation errors, if any. Confirm that the upgrade is complete.

When upgrade is in progress, you may see an error message, *'Websocket connection failed. Automatic refresh disabled'*. You can either refresh the page or log out and log back in to clear the error message. You can safely ignore this error message.

Upgrading ESXi Using the HX Connect UI

Caution   Ensure that you upgrade HX Data Platform first. After HX Data Platform is upgraded to 3.5(x), you can upgrade the UCS server firmware.

Before you begin

Note   The ESXi upgrade option is supported in the HyperFlex Connect UI for HyperFlex release 3.5(1a) or later.

- Complete pre-upgrade validation checks. See Upgrade Prerequisites for more details.

- Download the latest *Cisco HX Data Platform Upgrade Bundle for upgrading existing clusters from previous releases*, from Software Download .

- Complete steps 1 to 6 in the *Online Upgrade Process Work flow*. See Online Upgrade Process Workflow for more details.

    - Upgrade Cisco UCS Infrastructure.

    - Bootstrap to upgrade Cisco HX Data Platform.

    - Disable snapshot schedule, on the bootstrapped storage controller VM.

- If DRS is *Enabled*, the VMs are automatically vMotioned to other hosts.

Note	If DRS is *Disabled*, vMotion the VMs manually to continue the upgrade process. For more information, see VMware Documentation for Migration with vMotion.

Procedure

Step 1   Log in to HX Connect.

    a) Enter the HX Storage Cluster management IP address in a browser. Navigate to *https://<storage-cluster-management-ip>*.

    b) Enter the administrative username and password.

    c) Click **Login**.

Step 2   In the Navigation pane, select **Upgrade**.

Step 3   On the **Select Upgrade Type** page, select **ESXi** and complete the following fields:

UI Element	Essential Information
Drag the ESXi file here or click to browse field	Upload the latest *Cisco HyperFlex Custom Image Offline Bundle for upgrading existing ESXi* hosts from Download Software - HyperFlex HX Data Platform. Example: *HX-ESXi-6.5U2-10884925-Cisco-Custom-6.5.2.4-upgrade-bundle.zip*.
Current version field	Displays the current ESXi version.
Current hypervisor details field	Lists the HyperFlex cluster details like the **Hypervisor version** and **Cluster upgrade state**.
Bundle details field	Displays the ESXi version of the uploaded bundle.

Step 4   Enter the **vCenter credentials**.

UI Element	Essential Information
User Name field	Enter the vCenter *<admin>* username.
Admin Password field	Enter the vCenter *<admin>* password.

Step 5   Click **Upgrade** to begin the VMware ESXi upgrade process.

Step 6   The **Validation Screen** on the **Upgrade Progress** page displays the progress of the checks performed. Fix validation errors, if any. Confirm that the upgrade is complete.

When upgrade is in progress, you may see an error message, *'Websocket connection failed. Automatic refresh disabled'*. You can either refresh the page or log out and log back in to clear the error message. You can safely ignore this error message.

Upgrading from an Unsupported Cisco HyperFlex HX Data Platform Software Release

Cisco HyperFlex users who need to upgrade their environment from a Cisco HyperFlex HX Data Platform software release that is past the last date of support, to the latest suggested release on the Cisco Software Download site, should follow the upgrade steps for their current release as defined in the Cisco HyperFlex Systems Upgrade Guide for Unsupported Cisco HX Releases Guide.