Rack-Mount Server Hardware Management

Rack-Mount Server Management

You can manage and monitor all rack-mount servers that are integrated with a Cisco UCS domain through Cisco UCS Manager. All management and monitoring features are supported for rack-mount servers except power capping. Some rack-mount server management tasks, such as changes to the power state, can be

performed from both the server and service profile. The remaining management tasks can only be performed on the server.

Cisco UCS Manager provides information, errors, and faults for each rack-mount server that it has discovered.

Tip For information on how to integrate a supported Cisco UCS rack-mount server with Cisco UCS Manager, see the Cisco UCS C-series server integration guide or Cisco UCS S-series server integration guide for your Cisco UCS Manager release.

Guidelines for Removing and Decommissioning Rack-Mount Servers

Consider the following guidelines when deciding whether to remove or decommission a rack-mount server using Cisco UCS Manager:

Decommissioning a Rack-Mount server

Decommissioning is performed when a rack-mount server is physically present and connected but you want to temporarily remove it from the configuration. Because it is expected that a decommissioned rack-mount server will be eventually recommissioned, a portion of the server's information is retained by Cisco UCS Manager for future use.

Removing a Rack-Mount server

Removing is performed when you physically remove the server from the system by disconnecting the rack-mount server from the fabric extender. You cannot remove a rack-mount server from Cisco UCS Manager if it is physically present and connected to the fabric extender. Once the rack-mount server is disconnected, the configuration for that rack-mount server can be removed in Cisco UCS Manager.

During removal, management interfaces are disconnected, all entries from databases are removed, and the server is automatically removed from any server pools that it was assigned to during discovery.

Note Only those servers added to a server pool automatically during discovery will be removed automatically. Servers that have been manually added to a server pool have to be removed manually.

If you need to add a removed rack-mount server back to the configuration, it must be reconnected and then rediscovered. When a server is reintroduced to Cisco UCS Manager it is treated like a new server and is subject to the deep discovery process. For this reason, it's possible that Cisco UCS Manager will assign the server a new ID that may be different from the ID that it held before.

Recommendations for Avoiding Unexpected Server Power Changes

If a server is not associated with a service profile, you can use any available means to change the server power state, including the physical **Power** or **Reset** buttons on the server.

If a server is associated with, or assigned to, a service profile, you should only use the following methods to change the server power state:

- In Cisco UCS Manager GUI, go to the **General** tab for the server or the service profile associated with the server and select **Boot Server** or **Shutdown Server** from the **Actions** area.
- In Cisco UCS Manager CLI, scope to the server or the service profile associated with the server and use the **power up** or **power down** commands.

Important Do *not* use any of the following options on an associated server that is currently powered off:

- **Reset** in the GUI
- **cycle cycle-immediate** or **reset hard-reset-immediate** in the CLI
- The physical **Power** or **Reset** buttons on the server

If you reset, cycle, or use the physical power buttons on a server that is currently powered off, the server's actual power state might become out of sync with the desired power state setting in the service profile. If the communication between the server and Cisco UCS Manager is disrupted or if the service profile configuration changes, Cisco UCS Manager might apply the desired power state from the service profile to the server, causing an unexpected power change.

Power synchronization issues can lead to an unexpected server restart, as shown below:

Desired Power State in Service Profile	Current Server Power State	Server Power State After Communication Is Disrupted
Up	Powered Off	Powered On
Down	Powered On	Powered On **Note** Running servers are not shut down regardless of the desired power state in the service profile.

Booting a Rack-Mount Server

If the **Boot Server** link is dimmed in the **Actions** area, you must shut down the server first.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.
Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.
Step 3 Choose the server that you want to boot.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **Actions** area, click **Boot Server**.
Step 6 If a confirmation dialog box displays, click **Yes**.

After the server boots, the **Overall Status** field on the **General** tab displays an OK status.

Booting a Rack-Mount Server from the Service Profile

Procedure

Step 1 In the **Navigation** pane, click **Servers**.
Step 2 Expand **Servers** > **Service Profiles**.
Step 3 Expand the node for the organization where you want to create the service profile.

If the system does not include multi tenancy, expand the **root** node.

Step 4 Choose the service profile that requires the associated server to boot.
Step 5 In the **Work** pane, click the **General** tab.
Step 6 In the **Actions** area, click **Boot Server**.
Step 7 If a confirmation dialog box displays, click **Yes**.
Step 8 Click **OK** in the **Boot Server** dialog box.

After the server boots, the **Overall Status** field on the **General** tab displays an ok status or an up status.

Determining the Boot Order of a Rack-Mount Server

Tip You can also view the boot order tabs from the **General** tab of the service profile associated with a server.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.
Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Click the server for which you want to determine the boot order.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 If the **Boot Order Details** area is not expanded, click the **Expand** icon to the right of the heading.

Step 6 To view the boot order assigned to the server, click the **Configured Boot Order** tab.

Step 7 To view what will boot from the various devices in the physical server configuration, click the **Actual Boot Order** tab.

Note The **Actual Boot Order** tab always shows "Internal EFI Shell" at the bottom of the boot order list.

Shutting Down a Rack-Mount Server

When you use this procedure to shut down a server with an installed operating system, Cisco UCS Manager triggers the OS into a graceful shutdown sequence.

If the **Shutdown server** link is dimmed in the **Actions** area, the server is not running.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to shut down.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Shutdown Server**.

Step 6 If a confirmation dialog box displays, click **Yes**.

After the server has been successfully shut down, the **Overall Status** field on the **General** tab displays a power-off status.

Shutting Down a Server from the Service Profile

When you use this procedure to shut down a server with an installed operating system, Cisco UCS Manager triggers the OS into a graceful shutdown sequence.

If the **Shutdown Server** link is dimmed in the **Actions** area, the server is not running.

Procedure

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

Step 2 Expand **Servers** > **Service Profiles**.

Step 3 Expand the node for the organization where you want to create the service profile.

If the system does not include multi tenancy, expand the **root** node.

Step 4 Choose the service profile that requires the associated server to shut down.

Step 5 In the **Work** pane, click the **General** tab.

Step 6 In the **Actions** area, click **Shutdown Server**.

Step 7 If a confirmation dialog box displays, click **Yes**.

After the server successfully shuts down, the **Overall Status** field on the **General** tab displays a down status or a power-off status.

Resetting a Rack-Mount Server

When you reset a server, Cisco UCS Manager sends a pulse on the reset line. You can choose to gracefully shut down the operating system. If the operating system does not support a graceful shutdown, the server is power cycled. The option to have Cisco UCS Manager complete all management operations before it resets the server does not guarantee the completion of these operations before the server is reset.

Note If you are trying to boot a server from a power-down state, you should not use **Reset**.

If you continue the power-up with this process, the desired power state of the servers become out of sync with the actual power state and the servers might unexpectedly shut down at a later time. To safely reboot the selected servers from a power-down state, click **Cancel**, then select the **Boot Server** action.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to reset.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Reset**.

Step 6 In the **Reset Server** dialog box, do the following:

a) Click the **Power Cycle** option.

b) (Optional) Check the check box if you want Cisco UCS Manager to complete all management operations that are pending on this server.

c) Click **OK**.

The reset may take several minutes to complete. After the server is reset, the **Overall Status** field on the **General** tab displays an ok status.

Resetting a Rack-Mount Server to Factory Default Settings

You can now reset a rack-mount server to its factory settings. By default, the factory reset operation does not affect storage, including storage drives and flexflash drives. This is to prevent any loss of data. However, you can choose to reset these devices to a known state as well.

Important Resetting storage devices will result in loss of data.

Perform the following procedure to reset the server to factory default settings.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to reset to its factory default settings.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Server Maintenance**.

Step 6 In the **Maintenance** dialog box, click **Reset to Factory Default**, then click **OK**.

Step 7 From the **Maintenance Server** dialog box that appears, select the appropriate options:

- To delete all storage, check the **Scrub Storage** checkbox.
- To place all disks into their initial state after deleting all storage, check the **Create Initial Volumes** checkbox.

  You can check this checkbox only if you check the **Scrub Storage** checkbox. For servers that support JBOD, the disks will be placed in a JBOD state. For servers that do not support JBOD, each disk will be initialized with a single R0 volume that occupies all the space in the disk.

  Important Do not check the **Create Initial Volumes** checkbox if you want to use storage profiles. Creating initial volumes when you are using storage profiles may result in configuration errors.

- To delete all flexflash storage, check the **Scrub FlexFlash** checkbox.
- To delete all Persistent Memory storage, check the **Persistent Memory Scrub** checkbox.

Cisco UCS Manager resets the server to its factory default settings.

Persistent Memory Scrub

Persistent memory scrub allows you to remove the persistent memory configuration and data from the persistent memory modules on a server.

In Cisco IMC, you can scrub persistent memory by resetting the persistent memory modules to factory defaults.

In Cisco UCS Manager, you can scrub persistent memory by using one of the following methods:

- Disassociating the service profile and the scrub policy, which has the persistent memory scrub option set to yes
- Performing a **Reset to Factory Default** operation on the server with the persistent memory scrub option set to yes
- Deleting a goal

Excluding namespace and region configurations, persistent memory SKUs with encryption capabilities will have encryption keys changed internally by the device if a persistent memory policy is applied in Cisco UCS Manager. For SKUs without encryption capabilities or host-managed persistent memory modules, persistent memory data and configuration will be retained.

Persistent memory configuration is reset to factory default settings as described here:

- For B-Series and C-Series servers, 100% Memory Mode is applied. For S-Series servers, 0% Memory Mode and App Direct Non Interleaved type are applied.
- For UCS-Managed persistent memory modules, security will be disabled and frozen. For host-managed persistent memory modules, existing configuration will be retained.

Reacknowledging a Rack-Mount Server

Perform the following procedure to rediscover the server and all endpoints in the server. For example, you can use this procedure if a server is stuck in an unexpected state, such as the discovery state.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to acknowledge.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Server Maintenance**.

Step 6 In the **Maintenance** dialog box, do the following:

a) Click **Re-acknowledge**.

b) Click **OK**.

Cisco UCS Manager disconnects the server, then builds the connections between the server and the fabric interconnect or fabric interconnects in the system. The acknowledgment may take several minutes to complete. After the server is acknowledged, the **Overall Status** field on the **General** tab displays an OK status.

Deleting the Inband Configuration from a Rack-Mount Server

This procedure removes the inband management IP address configuration from a rack server. If this action is greyed out, no inband configuration was configured.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers** > ***Server Number***.

Step 3 In the **Work** area, click the **Inventory** tab.

Step 4 Click the **CIMC** subtab.

Step 5 In the **Actions** area, click **Delete Inband Configuration**.

Step 6 Click **Yes** in the **Delete** confirmation dialog box.

The inband configuration for the server is deleted.

Note If an inband service profile is configured in Cisco UCS Manager with a default VLAN and pool name, the server CIMC automatically gets an inband configuration from the inband profile approximate one minute after deleting the inband configuration here.

Decommissioning a Rack-Mount Server

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to decommission.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Server Maintenance**.

Step 6 In the **Maintenance** dialog box, click **Decommission**, then click **OK**.

The server is removed from the Cisco UCS configuration.

Recommissioning a Rack-Mount Server

Procedure

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

Step 2 Under **Equipment**, click the **Rack-Mounts** node.

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

Step 4 On the row for each rack-mount server that you want to recommission, do the following:

a) In the **Recommission** column, check the check box.

b) Click **Save Changes**

Step 5 If a confirmation dialog box displays, click **Yes**.

Step 6 (Optional) Monitor the progress of the server recommission and discovery on the **FSM** tab for the server.

Renumbering a Rack-Mount Server

Before you begin

If you are swapping IDs between servers, you must first decommission both servers, then wait for the server decommission FSM to complete before proceeding with the renumbering steps.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Expand the **Servers** node and verify that it does not include the following:

- The rack-mount server you want to renumber
- A rack-mount server with the number you want to use

If either of these servers are listed in the **Servers** node, decommission those servers. You must wait until the decommission FSM is complete and the servers are not listed in the node before continuing. This might take several minutes.

Step 4 Choose the rack-mount server that you want to renumber.

Step 5 On the **Equipment** tab, click the **Rack-Mounts** node.

Step 6 In the **Work** pane, click the **Decommissioned** tab.

Step 7 On the row for each rack-mount server that you want to renumber, do the following:

a) Double-click in the **ID** field, and enter the new number that you want to assign to the rack-mount server.

b) In the **Recommission** column, check the check box.

c) Click **Save Changes**

Step 8 If a confirmation dialog box displays, click **Yes**.

Step 9 (Optional) Monitor the progress of the server recommission and discovery on the **FSM** tab for the server.

Removing a Non-Existent Rack-Mount Server from the Configuration Database

Perform the following procedure if you physically removed the server hardware without first decommissioning the server. You cannot perform this procedure if the server is physically present.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to remove from the configuration database.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Server Maintenance**.

Step 6 In the **Maintenance** dialog box, click **Remove**, then click **OK**.

Cisco UCS Manager removes all data about the server from its configuration database. The server slot is now available for you to insert new server hardware.

Turning the Locator LED for a Rack-Mount Server On and Off

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server for which you want to turn the locator LED on or off.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click one of the following:

- **Turn on Locator LED**
- **Turn off Locator LED**

Turning the Local Disk Locator LED on a Rack-Mount Server On and Off

Before you begin

- Ensure the server, on which the disk is located, is powered on. If the server is off, you are unable to turn on or off the local disk locator LED.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server for which you want to turn the local disk locator LED on or off.

Step 4 In the **Work** pane, click the **Inventory** > **Storage** > **Disks** tabs.

The Storage Controller inventory appears.

Step 5 Click a disk.
The disk details appear.

Step 6 In the **Details** area, click **Toggle Locator LED**.
If the **Locator LED** state is **On**, it will turn **Off**. If the **Locator LED** state is **Off**, it will turn **On**.

Step 7 Click **Save Changes.**

Resetting the CMOS for a Rack-Mount Server

Sometimes, troubleshooting a server might require you to reset the CMOS. Resetting the CMOS is not part of the normal maintenance of a server.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server for which you want to reset the CMOS.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Recover Server**.

Step 6 In the **Recover Server** dialog box, click **Reset CMOS**, then click **OK**.

Resetting the CIMC for a Rack-Mount Server

Sometimes, with the firmware, troubleshooting a server might require you to reset the CIMC. Resetting the CIMC is not part of the normal maintenance of a server. After you reset the CIMC, the CIMC reboots the management controller of the blade server.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.
Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.
Step 3 Choose the server for which you want to reset the CIMC.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **Actions** area, click **Recover Server**.
Step 6 In the **Recover Server** dialog box, click **Reset CIMC (Server Controller)**, then click **OK**.

Clearing TPM for a Rack-Mount Server

You can clear TPM only on Cisco UCS M4 and higher blade and rack-mount servers that include support for TPM.

Caution Clearing TPM is a potentially hazardous operation. The OS may stop booting. You may also see loss of data.

Before you begin

TPM must be enabled.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.
Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.
Step 3 Choose the server for which you want to clear TPM.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **Actions** area, click **Recover Server**.
Step 6 In the **Recover Server** dialog box, click **Clear TPM**, then click **OK**.

Issuing an NMI from a Rack-Mount Server

Perform the following procedure if the system remains unresponsive and you need Cisco UCS Manager to issue a Non-Maskable Interrupt (NMI) to the BIOS or operating system from the CIMC. This action creates a core dump or stack trace, depending on the operating system installed on the server.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server that you want to issue the NMI.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **Server Maintenance**.

Step 6 In the **Maintenance** dialog box, click **Diagnostic Interrupt**, then click **OK**.

Cisco UCS Manager sends an NMI to the BIOS or operating system.

Viewing Health Events for a Rack-Mount Server

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server for which you want to view health events.

Step 4 In the **Work** pane, click the **Health** tab

The health events triggered for this server appear. The fields in this tab are:

Name	Description
Health Summary area	
Health Qualifier field	Comma-separated names of all the heath events that are triggered for the component.

Name	Description
Health Severity field	Highest severity of all the health events that are triggered for the component. This can be one of the following: • **critical** • **major** • **minor** • **warning** • **info** • **cleared** **Note** The severity levels listed here are from highest to lowest severity.
Health Details area	
Severity column	Severity of the health event. This can be one of the following: • **critical** • **major** • **minor** • **warning** • **info** • **cleared** **Note** The severity levels listed here are from highest to lowest severity.
Name column	Name of the health event.
Description column	Detailed description of the health event.
Value column	Current value of the health event.
Details area	The **Details** area displays the **Name**, **Description**, **Severity**, and **Value** details of any health event that you select in the **Health Details** area.

Viewing the POST Results for a Rack-Mount Server

You can view any errors collected during the Power On Self-Test process for a server and its adapters.

Procedure

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

Step 2 Expand **Equipment** > **Rack Mounts** > **Servers**.

Step 3 Choose the server for which you want to view the POST results.

Step 4 In the **Work** pane, click the **General** tab.

Step 5 In the **Actions** area, click **View POST Results**.

The **POST Results** dialog box lists the POST results for the server and its adapters.

Step 6 (Optional) Click the link in the **Affected Object** column to view the properties of that adapter.

Step 7 Click **OK** to close the **POST Results** dialog box.

Viewing the Power Transition Log

You can view the **Power Transition Log**, which displays the last five server power transitions. The information provided includes the **Power Change Source** and the **Timestamp**.

Only unique power transition events are displayed. In case of a UCSM initiated power transition, the FSM causing the power transition is displayed.

Procedure

Step 1 Navigate to **Equipment** > **Rack-Mounts** > **Servers**

Step 2 Choose the server for which you want to view the power transition log.

The **Power Transition Log** is under the **General** tab.