



Rack-Mount Server Management

- [Rack-Mount Server Management](#), on page 1
- [Guidelines for Removing and Decommissioning Rack-Mount Servers](#), on page 2
- [Recommendations for Avoiding Unexpected Server Power Changes](#), on page 2
- [Booting a Rack-Mount Server](#), on page 3
- [Shutting Down a Rack-Mount Server](#), on page 4
- [Resetting a Rack-Mount Server to Factory Default Settings](#), on page 5
- [Power Cycling a Rack-Mount Server](#), on page 6
- [Performing a Hard Reset on a Rack-Mount Server](#), on page 7
- [Acknowledging a Rack-Mount Server](#), on page 8
- [Decommissioning a Rack-Mount Server](#), on page 8
- [Renumbering a Rack-Mount Server](#), on page 9
- [Removing a Rack-Mount Server](#), on page 10
- [Turning On the Locator LED for a Rack-Mount Server](#), on page 11
- [Turning Off the Locator LED for a Rack-Mount Server](#), on page 12
- [Resetting the CMOS for a Rack-Mount Server](#), on page 12
- [Resetting the CIMC for a Rack-Mount Server](#), on page 13
- [Clearing TPM for a Rack-Mount Server](#), on page 13
- [Showing the Status for a Rack-Mount Server](#), on page 14
- [Issuing an NMI from a Rack-Mount Server](#), on page 15
- [Viewing the Power Transition Log](#), on page 15

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

Before you begin

Associate a service profile with a rack-mount server.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type <i>/</i> as the <i>org-name</i> .
Step 2	UCS-A /org # scope service-profile <i>profile-name</i>	Enters organization service profile mode for the specified service profile.

	Command or Action	Purpose
Step 3	UCS-A /org/service-profile # power up	Boots the rack-mount server associated with the service profile.
Step 4	UCS-A /org/service-profile # commit-buffer	Commits the transaction to the system configuration.

Example

The following example boots the rack-mount server associated with the service profile named ServProf34 and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # scope service-profile ServProf34
UCS-A /org/service-profile # power up
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

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.

Before you begin

Associate a service profile with a rack-mount server.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
Step 2	UCS-A /org # scope service-profile <i>profile-name</i>	Enters organization service profile mode for the specified service profile.
Step 3	UCS-A /org/service-profile # power down	Shuts down the rack-mount server associated with the service profile.
Step 4	UCS-A /org/service-profile # commit-buffer	Commits the transaction to the system configuration.

Example

The following example shuts down the rack-mount server associated with the service profile named ServProf34 and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope service-profile ServProf34
UCS-A /org/service-profile # power down
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

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 if you need to reset the server to factory default settings.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # reset factory-default [delete-flexflash-storage delete-storage [create-initial-storage-volumes]	Resets server settings to factory default using the following command options: <ul style="list-style-type: none"> • factory-default—Resets the server to factory defaults without deleting storage • delete-flexflash-storage—Resets the server to factory defaults and deletes flexflash storage • delete-storage—Resets the server to factory defaults and deletes all storage • create-initial-storage-volumes—Resets the server to factory defaults, deletes all storage, sets all disks to their initial state <p>Important Do not use the create-initial-storage-volumes command option if you want to use storage profiles. Creating initial volumes when you are using storage profiles may result in configuration errors.</p>
Step 3	UCS-A /server # commit-buffer	Commits the transaction to the system configuration.

Example

The following example resets the server settings to factory default without deleting storage, and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset factory-default
UCS-A /server* # commit-buffer
UCS-A /server #
```

The following example resets the server settings to factory default, deletes flexflash storage, and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset factory-default delete-flexflash-storage
UCS-A /server* # commit-buffer
```

The following example resets the server settings to factory default, deletes all storage, and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset factory-default delete-storage
UCS-A /server* # commit-buffer
```

The following example resets the server settings to factory default, deletes all storage, sets all disks to their initial state, and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset factory-default delete-storage create-initial-storage-volumes
UCS-A /server* # commit-buffer
```

Power Cycling a Rack-Mount Server

Procedure

	Command or Action	Purpose
Step 1	UCS-A# <code>scope server</code> <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # <code>cycle</code> { <code>cycle-immediate</code> <code>cycle-wait</code> }	Power cycles the rack-mount server. Use the cycle-immediate keyword to immediately begin power cycling the rack-mount server; use the cycle-wait keyword to schedule the power cycle to begin after all pending management operations have completed.
Step 3	UCS-A# <code>commit-buffer</code>	Commits the transaction to the system configuration.

Example

The following example immediately power cycles rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # cycle cycle-immediate
UCS-A /server* # commit-buffer
UCS-A /server #
```

Performing a Hard Reset on 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

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # reset { hard-reset-immediate hard-reset-wait }	Performs a hard reset of the rack-mount server. Use the hard-reset-immediate keyword to immediately begin hard resetting the rack-mount server; use the hard-reset-wait keyword to schedule the hard reset to begin after all pending management operations have completed.
Step 3	UCS-A /server # commit-buffer	Commits the transaction to the system configuration.

Example

The following example performs an immediate hard reset of rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset hard-reset-immediate
UCS-A /server* # commit-buffer
UCS-A /server #
```

Acknowledging 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

	Command or Action	Purpose
Step 1	UCS-A# acknowledge server <i>server-num</i>	Acknowledges the specified rack-mount server.
Step 2	UCS-A# commit-buffer	Commits the transaction to the system configuration.

Example

The following example acknowledges rack-mount server 2 and commits the transaction:

```
UCS-A# acknowledge server 2
UCS-A* # commit-buffer
UCS-A #
```

Decommissioning a Rack-Mount Server

Procedure

	Command or Action	Purpose
Step 1	UCS-A# decommission server <i>server-num</i>	Decommissions the specified rack-mount server.
Step 2	UCS-A# commit-buffer	Commits the transaction to the system configuration.

Example

The following example decommissions rack-mount server 2 and commits the transaction:

```
UCS-A# decommission server 2
UCS-A* # commit-buffer
UCS-A #
```


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

	Command or Action	Purpose
Step 1	UCS-A# show server inventory	Displays information about your servers.
Step 2	Verify that the server inventory does not include the following:	<ul style="list-style-type: none"> • The rack-mount server you want to renumber • A rack-mount server with the number you want to use <p>If either of these rack-mount servers are listed in the server inventory, decommission those servers. You must wait until the decommission FSM is complete and the rack-mount servers are not listed in the server inventory before continuing. This might take several minutes.</p> <p>To see which servers have been decommissioned, issue the show server decommissioned command.</p>
Step 3	UCS-A# recommission server <i>vendor-name model-name serial-numnew-id</i>	Recommissions and renumbers the specified rack-mount server.
Step 4	UCS-A# commit-buffer	Commits the transaction to the system configuration.

Example

The following example decommissions a rack-mount server with ID 2, changes the ID to 3, recommissions that server, and commits the transaction:

```
UCS-A# show server inventory
```

```
Server  Equipped PID Equipped VID Equipped Serial (SN) Slot Status      Ackd Memory (MB)
Ackd Cores
-----
1/1     UCSB-B200-M3 V01           FCH1532718P           Equipped              131072
16
1/2     UCSB-B200-M3 V01           FCH153271DF           Equipped              131072
16
1/3     UCSB-B200-M3 V01           FCH153271DL           Equipped              114688
16
```

```

1/4 UCSB-B200-M3 V01 Empty
1/5 Empty
1/6 Empty
1/7 N20-B6730-1 V01 JAF1432CFDH Equipped 65536
16
1/8 Empty
1 R200-1120402W V01 QCI1414A02J N/A 49152
12
2 R210-2121605W V01 QCI1442AHFX N/A 24576 8
4 UCSC-BSE-SFF-C200 V01 QCI1514A0J7 N/A 8192 8

```

```

UCS-A# decommission server 2
UCS-A*# commit-buffer
UCS-A# show server decommissioned

```

```

Vendor          Model          Serial (SN) Server
-----
Cisco Systems Inc R210-2121605W QCI1442AHFX 2

```

```

UCS-A# recommission chassis "Cisco Systems Inc" "R210-2121605W" QCI1442AHFX 3
UCS-A* # commit-buffer
UCS-A # show server inventory

```

```

Server  Equipped PID Equipped VID Equipped Serial (SN) Slot Status      Ackd Memory (MB)
Ackd Cores
-----
1/1 UCSB-B200-M3 V01 FCH1532718P Equipped 131072
16
1/2 UCSB-B200-M3 V01 FCH153271DF Equipped 131072
16
1/3 UCSB-B200-M3 V01 FCH153271DL Equipped 114688
16
1/4 UCSB-B200-M3 V01 Empty
1/5 Empty
1/6 Empty
1/7 N20-B6730-1 V01 JAF1432CFDH Equipped 65536
16
1/8 Empty
1 R200-1120402W V01 QCI1414A02J N/A 49152
12
3 R210-2121605W V01 QCI1442AHFX N/A 24576 8
4 UCSC-BSE-SFF-C200 V01 QCI1514A0J7 N/A 8192 8

```

Removing a Rack-Mount Server

Before you begin

Physically disconnect the CIMC LOM cables that connect the rack-mount server to the fabric extender before performing the following procedure. For high availability setups, remove both cables.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# remove server <i>server-num</i>	Removes the specified rack-mount server.

	Command or Action	Purpose
Step 2	UCS-A# commit-buffer	Commits the transaction to the system configuration.

Example

The following example removes rack-mount server 4 and commits the transaction:

```
UCS-A# remove server 4
UCS-A* # commit-buffer
UCS-A #
```

What to do next

If you physically reconnect the rack-mount server, you must re-acknowledge it for the Cisco UCS Manager to rediscover the server.

For more information, see [Acknowledging a Rack-Mount Server, on page 8](#).

Turning On the Locator LED for a Rack-Mount Server

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # enable locator-led	Turns on the rack-mount server locator LED.
Step 3	UCS-A /server # commit-buffer	Commits the transaction to the system configuration.

Example

The following example turns on the locator LED for rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # enable locator-led
UCS-A /server* # commit-buffer
UCS-A /server #
```

Turning Off the Locator LED for a Rack-Mount Server

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # disable locator-led	Turns off the rack-mount server locator LED.
Step 3	UCS-A /server # commit-buffer	Commits the transaction to the system configuration.

Example

The following example turns off the locator LED for rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # disable locator-led
UCS-A /server* # commit-buffer
UCS-A /server #
```

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

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the rack-mount server.
Step 2	UCS-A /server # reset-cmos	Resets the CMOS for the rack-mount server.
Step 3	UCS-A /server # commit-buffer	Commits the transaction to the system configuration.

Example

The following example resets the CMOS for rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # reset-cmos
UCS-A /server* # commit-buffer
UCS-A /server #
```

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 with the running version of the firmware for that server.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the specified rack-mount server.
Step 2	UCS-A /server # scope CIMC	Enters server CIMC mode
Step 3	UCS-A /server/CIMC # reset	Resets the CIMC for the rack-mount server.
Step 4	UCS-A /server/CIMC # commit-buffer	Commits the transaction to the system configuration.

Example

The following example resets the CIMC for rack-mount server 2 and commits the transaction:

```
UCS-A# scope server 2
UCS-A /server # scope CIMC
UCS-A /server/cimc # reset
UCS-A /server/cimc* # commit-buffer
UCS-A /server/cimc #
```

Clearing TPM for a Rack-Mount Server

You can clear TPM only on Cisco UCS M4 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

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the rack-mount server.
Step 2	UCS-A# /server # scope tpm <i>tpm-ID</i>	Enters org TPM mode for the specified TPM.

	Command or Action	Purpose
Step 3	UCS-A# /server/tpm # set adminaction clear-config	Specifies that the TPM is to be cleared.
Step 4	UCS-A# /server/tpm # commit-buffer	Commits the transaction to the system configuration.

Example

The following example shows how to clear TPM for a rack-mount server:

```
UCS-A# scope server 3
UCS-A# /server # scope tpm 1
UCS-A# /server/tpm # set adminaction clear-config
UCS-A# /server/tpm* # commit-buffer
```

Showing the Status for a Rack-Mount Server

Procedure

	Command or Action	Purpose
Step 1	UCS-A# show server status	Shows the status for all servers in the Cisco UCS domain.

Example

The following example shows the status for all servers in the Cisco UCS domain. The servers numbered 1 and 2 do not have a slot listed in the table because they are rack-mount servers.

```
Server Slot  Status  Availability  Overall Status  Discovery
-----
1/1          Equipped  Unavailable  Ok              Complete
1/2          Equipped  Unavailable  Ok              Complete
1/3          Equipped  Unavailable  Ok              Complete
1/4          Empty     Unavailable  Ok              Complete
1/5          Equipped  Unavailable  Ok              Complete
1/6          Equipped  Unavailable  Ok              Complete
1/7          Empty     Unavailable  Ok              Complete
1/8          Empty     Unavailable  Ok              Complete
1            Equipped  Unavailable  Ok              Complete
2            Equipped  Unavailable  Ok              Complete
```

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

	Command or Action	Purpose
Step 1	UCS-A# scope server [<i>chassis-num/server-num</i> <i>dynamic-uuid</i>]	Enters server mode for the specified server.
Step 2	UCS-A /chassis/server # diagnostic-interrupt	
Step 3	UCS-A /chassis/server* # commit-buffer	Commits any pending transactions.

Example

The following example sends an NMI from server 4 in chassis 2 and commits the transaction:

```
UCS-A# scope server 2/4
UCS-A /chassis/server # diagnostic-interrupt
UCS-A /chassis/server* # commit-buffer
UCS-A /chassis/server #
```

Viewing the Power Transition Log

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>server-num</i>	Enters server mode for the rack-mount server.
Step 2	UCS-A# /chassis/server # show power-transition-log	Displays the computeRebootLog instances for the specified server.

Example

The following example shows how to view the power transition log for server 3.

```
UCS-A# scope server 3
UCS-A# /chassis/server # show power-transition-log

Last 5 server reboots (Newest first):

Pwr Change Source                               Last pwr transition timestamp
-----
UCSM TURNUP                                     2016-10-28T09:35:04.498
HOST PWR TRANSITION                             2016-10-27T17:06:56.157
```

UCSM TURNUP	2016-10-27T17:06:24.734
UCSM ASSOCIATE	2016-10-27T17:06:24.068
UCSM SERVER DISCOVER	2016-10-27T16:56:56.153