



# Managing Rack-Mount Servers

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# Rack-Mount Server Management

You can manage and monitor all rack-mount servers that have been 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**

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

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## 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**

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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.

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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 may 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 may 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**

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

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**

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

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 #
```

## Power Cycling a Rack-Mount Server

### Procedure

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

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 shut down, the server is power cycled. The option to have Cisco UCS Manager complete all management operations before it resets the server does not guarantee that these operations will be completed 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 will become out of sync with the actual power state and the servers may 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**

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

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 if you need to have Cisco UCS Manager 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**

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

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

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 and then wait for the server decommission FSM to complete before proceeding with the renumbering steps.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>show server inventory</b>	Displays information about your servers.
<b>Step 2</b>	Verify that the server inventory does not include the following:	<ul style="list-style-type: none"> <li>The rack-mount server you want to renumber</li> <li>A rack-mount server with the number you want to use</li> </ul> <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 <b>show server decommissioned</b> command.</p>
<b>Step 3</b>	UCS-A# <b>recommission server</b> <i>vendor-name model-name serial-numnew-id</i>	Recommissions and renumbers the specified rack-mount server.
<b>Step 4</b>	UCS-A# <b>commit-buffer</b>	Commits the transaction to the system configuration.

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 Ackd Cores	Equipped	PID	Equipped VID	Equipped Serial (SN)	Slot	Status	Ackd Memory (MB)	
1/1 16	UCSB-B200-M3	V01		FCH1532718P		Equipped	131072	
1/2 16	UCSB-B200-M3	V01		FCH153271DF		Equipped	131072	
1/3 16	UCSB-B200-M3	V01		FCH153271DL		Equipped	114688	
1/4 1/5 1/6	UCSB-B200-M3	V01				Empty Empty Empty		
1/7 16 1/8	N20-B6730-1	V01		JAF1432CFDH		Equipped	65536	
1 12	R200-1120402W	V01		QCI1414A02J		N/A	49152	
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# recommit chassis "Cisco Systems Inc" "R210-2121605W" QCI1442AHFX 3
```

```
UCS-A* # commit-buffer
```

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

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

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

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 to have Cisco UCS Manager rediscover the server.

For more information, see [Acknowledging a Rack-Mount Server](#), on page 6.

## Turning On the Locator LED for a Rack-Mount Server

**Procedure**

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

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

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

On rare occasions, troubleshooting a server may require you to reset the CMOS. This procedure is not part of the normal maintenance of a server.

### Procedure

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

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

On rare occasions, such as an issue with the current running firmware, troubleshooting a server may require you to reset the CIMC. This procedure is not part of the normal maintenance of a server. After you reset the CIMC, the server boots with the running version of the firmware for that server.

### Procedure

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

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

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

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
```

## Recovering the Corrupt BIOS on a Rack-Mount Server

On rare occasions, an issue with a rack-mount server may require you to recover the corrupted BIOS. This procedure is not part of the normal maintenance of a rack-mount server. After you recover the BIOS, the rack-mount server boots with the running version of the firmware for that server.

### Before You Begin



#### Important

Remove all attached or mapped USB storage from a server before you attempt to recover the corrupt BIOS on that server. If an external USB drive is attached or mapped from vMedia to the server, BIOS recovery fails.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>server-id</i>	Enters server mode for the specified rack-mount server.
<b>Step 2</b>	UCS-A /server # <b>recover-bios</b> <i>version</i>	Loads and activates the specified BIOS version.
<b>Step 3</b>	UCS-A /server # <b>commit-buffer</b>	Commits the transaction.

The following example shows how to recover the BIOS:

```
UCS-A# scope server 1
UCS-A /server # recover-bios S5500.0044.0.3.1.010620101125
UCS-A /server* # commit-buffer
UCS-A /server #
```

## Showing the Status for a Rack-Mount Server

### Procedure

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

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

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 #
```

