Managing the Server

This chapter includes the following sections:

Server Boot Order

Using Cisco IMC, you can configure the order in which the server attempts to boot from available boot device types. In the legacy boot order configuration, Cisco IMC allows you to reorder the device types but not the devices within the device types. With the precision boot order configuration, you can have a linear ordering of the devices. In the web UI or CLI you can change the boot order and boot mode, add multiple devices under each device types, rearrange the boot order, set parameters for each device type.

When you change the boot order configuration, Cisco IMC sends the configured boot order to BIOS the next time that server is rebooted. To implement the new boot order, reboot the server after you make the configuration change. The new boot order takes effect on any subsequent reboot. The configured boot order remains until the configuration is changed again in Cisco IMC or in the BIOS setup.

Note The actual boot order differs from the configured boot order if either of the following conditions occur:

- BIOS encounters issues while trying to boot using the configured boot order.
- A user changes the boot order directly through BIOS.
- BIOS appends devices that are seen by the host but are not configured from the user.

Important While upgrading Cisco UCS C220 M5 or C480 M5 servers to release 4.1(1x) under the following conditions:

- if you are upgrading from any release earlier than 4.0(4x)
- if **Legacy Boot Mode** is enabled and no **Cisco IMC Boot Order** is configured
- and, if the server is booting from Cisco HWRAID adapter

then, you should perform one of the following before upgrading:

- Run XML-API scripts and UCSCFG based scripts provided here.

  OR

- Manually configure the intended boot order through Cisco IMC GUI or CLI interfaces.

Note When you create a new policy using the configure boot order feature, BIOS tries to map this new policy to the devices in the system. It displays the actual device name and the policy name to which it is mapped in the **Actual Boot Order** area. If BIOS cannot map any device to a particular policy in Cisco IMC, the actual device name is stated as **NonPolicyTarget** in the **Actual Boot Order** area.

Note During Cisco IMC 2.0(x) upgrade, the legacy boot order is migrated to the precision boot order. The previous boot order configuration is erased and all device types configured before updating to 2.0 version are converted to corresponding precision boot device types and some dummy devices are created for the same device types. you can view these devices in the **Configured Boot Order** area in the web UI. To view these devices in the CLI, enter **show boot-device** command. During this the server's actual boot order is retained and it can be viewed under actual boot order option in web UI and CLI.

When you downgrade Cisco IMC prior to 2.0(x) verison the server's last legacy boot order is retained, and the same can be viewed under **Actual Boot Order** area. For example:

- If you configured the server in a legacy boot order in 2.0(x) version, upon downgrade a legacy boot order configuration is retained.
- If you configured the server in a precision boot order in 2.0(x), upon downgrade the last configured legacy boot order is retained.

Important

- Boot order configuration prior to 2.0(x) is referred as legacy boot order. If your running version is 2.0(x), then you cannot configure legacy boot order through web UI, but you can configure through CLI and XML API. In the CLI, you can configure it by using **set boot-order HDD,PXE** command. Even though, you can configure legacy boot order through CLI or XML API, in the web UI this configured boot order is not displayed.
- Legacy and precision boot order features are mutually exclusive. You can configure either legacy or precision boot order. If you configure legacy boot order, it disables all the precision boot devices configured. If you configure precision boot order, then it erases legacy boot order configuration.

Configuring the Precision Boot Order

Before you begin

You must log in as a user with admin privileges to configure server the boot order.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the **BIOS** tab, click the **Configure Boot Order** tab.

Step 3 In the **BIOS Properties** area, click **Configure Boot Order** at the bottom of the page.

Configure Boot Order dialog box is displayed.

Step 4 In the **Configure Boot Order** dialog box, update the following properties:

Basic Tab

Name	Description
Device Types table	The server boot options. You can select one or more of the following: • **HDD**—Hard disk drive • **FDD**—Floppy disk drive • **CDROM**—Bootable CD-ROM or DVD • **PXE**—PXE boot • **EFI**—Extensible Firmware Interface
>>	Moves the selected device type to the **Boot Order** table.
<<	Removes the selected device type from the **Boot Order** table.
Boot Order table	Displays the device types from which this server can boot, in the order in which the boot will be attempted.
Down	Moves the selected device type to a higher priority in the **Boot Order** table.
Up	Moves the selected device type to a higher priority in the **Boot Order** table.
Save Changes	Click this button to save the changes made.
Close button	Closes the dialog box without saving any changes and the existing configuration is applied when the server is rebooted.

Advanced Tab

The following list of links are displayed under **Add Boot Device** pane.

- **Add Local HDD**

- **Add PXE Boot**
- **Add SAN Boot**
- **Add iSCSI Boot**
- **Add USB**
- **Add Virtual Media**
- **Add PCHStorage**
- **Add UEFISHELL**
- **Add NVME**
- **Add Local CDD**
- **Add HTTP Boot**

In the **Advanced Boot Order Configuration** pane, the devices are displayed after they are added. You can perform the following actions by selecting the appropriate buttons:

- **Enable or Disable**
- **Modify**
- **Delete**
- **Clone**
- **Re-Apply**
- **Move Up**
- **Move Down**

Step 5 Click **Save Changes**.

Additional device types might be appended to the actual boot order, depending on what devices you have connected to your server.

What to do next

Reboot the server to boot with your new boot order.

Managing a Boot Device

Before you begin

You must log in as a user with admin privileges to add device type to the server boot order.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the **BIOS** tab, click the **Configure Boot Order** tab.

Step 3 In the **BIOS Properties** area, click **Configure Boot Order**.

A dialog box with boot order instructions appears.

Step 4 In the **Configure Boot Order** dialog box, from the **Add Boot Device** table, choose the device that you want add to the boot order.

To add the local HDD device, click **Add Local HDD**, and update the following parameters:

Name	Description
Name field	The name of the device. **Note** Once created, you cannot rename the device.
State drop-down list	The visibility of the device by BIOS. This can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Slot field	The slot in which the device is installed. Enter the slot number from the available range.
Add Device button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the PXE device, click **Add PXE**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.

Name	Description
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
MAC Address	MAC address of the network ethernet interface. **Note** This option is available only on some C-Series servers.
Slot field	The slot in which the device is installed. Enter the slot number from the available range.
Port field	The port of the slot in which the device is present. Enter a number between 0 and 255.

To add the SAN boot device, click **Add SAN Boot**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Slot field	The slot in which the device is installed. Enter the slot number from the available range.
LUN field	Logical unit in a slot where the device is present. Enter a number between 0 and 255.
Save Changes button	Adds the device to the **Boot Order** table, and saves the changes.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the iSCSI boot device, click **Add iSCSI Boot**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.

Name	Description
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Slot field	The slot in which the device is installed. Enter the slot number from the available range.
Port field	The port of the slot in which the device is present. Enter a number between 0 and 255. **Note** In case of a VIC card, use a vNIC instance instead of the port number.
Save Changes button	Adds the device to the **Boot Order** table, and saves the changes.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the SD card, click **Add SD Card**, and update the following parameters:

Note This option is available only on some UCS C-Series servers.

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
State drop-down list	The visibility of the device by BIOS. This can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Save Changes button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the USB device, click **Add USB**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
Sub Type drop-down list	The subdevice type under a certain device type. This can be one of the following: • **CD** • **FDD** • **HDD**
State drop-down list	The visibility of the device by BIOS. This can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Save Changes button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the virtual media, click **Virtual Media**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
Sub Type drop-down list	The subdevice type under a certain device type. This could be any one of the following: • **KVM Mapped DVD** • **Cisco IMC Mapped DVD** • **KVM Mapped HDD** • **Cisco IMC Mapped HDD** • **KVM Mapped FDD**

Name	Description
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Save Changes button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the PCH storage device, click **PCH Storage**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
State drop-down list	The visibility of the device by BIOS. This can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
LUN field	Logical unit in a slot where the device is present. • Enter a number between 0 and 255 • SATA in AHCI mode—Enter a value between 1 and 10 • SATA in SWRAID mode—Enter 0 for SATA , and enter 1 for SATA **Note** SATA mode is available only on some UCS C-Series servers.
Save Changes button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the UEFI shell device, click **Add UEFI Shell**, and update the following parameters:

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created.
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. Enter between 1 and n, where n is the number of devices.
Add Device button	Adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

To add the HTTP boot device device, click **Add HTTP Boot**, and update the following parameters:

Note The following OS (ISOs) are supported for HTTP Boot device:

- SLES 12.x
- RHEL 8.2
- ESX 6.5

The following OS (ISOs) are not supported for HTTP Boot device:

- Windows 2016
- Windows 2019

Name	Description
Name field	The name of the device. This name cannot be changed after the device has been created. You can enter between 1 and 30 characters, containing alphanumerics, - (hyphen) and _ (underscore). The name cannot begin with hyphen or underscore.

Name	Description
State drop-down list	The visibility of the device by BIOS. The state can be one of the following: • **Enabled**—The default option. The device is visible to BIOS in a boot order configuration. • **Disabled**—The device is not visible to BIOS in a boot order configuration.
Order field	The order of the device in the available list of devices. The default option is 1.
MAC Address field	MAC address of the network ethernet interface.
IP Type drop-down list	The type of IP. Select any one of the following options displayed in the drop-down list: • None • IPv4 • IPv6 The default value is None.
Slot field	The slot in which the device is installed. Enter the slot number from the available range. Enter the required value from the below list:
Port field	The port of the slot in which the device is present. Enter a number between 0 and 255.

Name	Description
IP Config Type drop-down list	The type of IP configuration. The following options are displayed in the drop-down list: • **None** • **DHCP** • **Static** For **DHCP** IP configuration, the following fields are displayed, depending on the IP type that you have selected: • **MAC Address** • **IP Type** • **Slot** • **Port** For **Static** IP configuration, the following fields are displayed, depending on the IP type that you have selected: • **URI** • **IP Address** • **IPv4 Netmask** or **IPv6 Netmask** • **IPv4 Gateway** or **IPv6 Gateway** • **IPv4 Preferred DNS server** or **IPv6 Preferred DNS server**
URI field	The Uniform Resource Identifier HTTP server path location. You can enter between 1 and 255 characters.
Save Changes button	Saves the changes and adds the device to the **Boot Order** table.
Cancel button	Closes the dialog box without saving any changes made while the dialog box was open.

Overview to UEFI Secure Boot

You can use Unified Extensible Firmware Interface (UEFI) secure boot to ensure that all the EFI drivers, EFI applications, option ROM or operating systems prior to loading and execution are signed and verified for authenticity and integrity, before you load and execute the operating system. You can enable this option using either web UI or CLI. When you enable UEFI secure boot mode, the boot mode is set to UEFI mode and you cannot modify the configured boot mode until the UEFI boot mode is disabled.

Note If you enable UEFI secure boot on a nonsupported OS, on the next reboot, you cannot boot from that particular OS. If you try to boot from the previous OS, an error is reported and recorded the under system software event in the web UI. You must disable the UEFI secure boot option using Cisco IMC to boot from your previous OS.

Important Also, if you use an unsupported adapter, an error log event in Cisco IMC SEL is recorded. The error messages is displayed that says:

System Software event: Post sensor, System Firmware error. EFI Load Image Security Violation. [0x5302] was asserted .

UEFI secure boot is supported on the following components:

Components	Types
Supported OS	• Windows Server 2019 • Windows Server 2016 • ESX 6.7 • ESX 6.5 • ESXi 7.0 • Linux
Broadcom PCI adapters	• 5709 dual and quad port adapters • 57712 10GBASE-T adapter • 57810 CNA • 57712 SFP port
Intel PCI adapters	• i350 quad port adapter • X520 adapter • X540 adapter • LOM
QLogic PCI adapters	• 8362 dual port adapter • 2672 dual port adapter
Fusion-io	

Components	Types
LSI	• LSI MegaRAID SAS 9240-8i • LSI MegaRAID SAS 9220-8i • LSI MegaRAID SAS 9265CV-8i • LSI MegaRAID SAS 9285CV-8e • LSI MegaRAID SAS 9285CV-8e • LSI MegaRAID SAS 9266-8i • LSI SAS2008-8i mezz • LSI Nytro card

Enabling UEFI Secure Boot

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 In the **BIOS Properties** area of the **Configure Boot Order** tab, check **UEFI Secure Boot** checkbox.

Note If checked, the boot mode is set to UEFI secure boot. You cannot modify the **Configure Boot Mode** until UEFI secure boot option is disabled.

If you enable UEFI secure boot on a nonsupported OS, on the next reboot, you cannot boot from that particular OS. If you try to boot from the previous OS, an error is reported and recorded under the system software event in the web UI. You must disable the UEFI secure boot option by using Cisco IMC to boot from your previous OS.

Step 4 Click **Save Changes**.

What to do next

Reboot the server to have your configuration boot mode settings take place.

Disabling UEFI Secure Boot

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 In the **BIOS Properties** area, uncheck the **UEFI Secure Boot** check box.

Step 4 Click **Save Changes**.

What to do next

Reboot the server to have your configuration boot mode settings take place.

Viewing the Actual Server Boot Order

The actual server boot order is the boot order actually used by BIOS when the server last booted. The actual boot order can differ from the boot order configured in Cisco IMC.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the **BIOS** tab, click the **Configure Boot Order** tab.

Step 3 In the **BIOS Properties** area, click **Configure Boot Order**.

This area displays the boot order devices configured through Cisco IMC as well as the actual boot order used by the server BIOS.

The **Configured Boot Devices** section displays the boot order (**Basic** or **Advanced**) configured through Cisco IMC. If this configuration changes, Cisco IMC sends this boot order to BIOS the next time that server boots. The Basic configuration allows you to specify only the device type. The Advanced configuration allows you to configure the device with specific parameters such as slot, port and LUN.

To change the configured boot order, or to restore the previously configured boot order, administrators can click the **Configure Boot Order** button. To have these changes take effect immediately, reboot the server. You can verify the new boot order by refreshing the **BIOS** tab.

Note This information is only sent to BIOS the next time the server boots. Cisco IMC does not send the boot order information to BIOS again until the configuration changes.

The **Actual Boot Devices** section displays the boot order actually used by BIOS when the server last booted. The actual boot order will differ from the configured boot order if either of the following conditions occur:

- The BIOS encounters issues while trying to boot using the configured boot order.
- A user changes the boot order directly through the BIOS. To override any manual changes, you can change the configured boot order through Cisco IMC and reboot the server.

Note When you create a new policy using the configured boot order, BIOS tries to map this new policy to the device or devices present in the system. It displays the actual device name and the policy name to which it is mapped under the **Actual Boot Order** area. If BIOS cannot map any device found to a particular policy in Cisco IMC, then the actual device name is stated as **NonPolicyTarget** under the **Actual Boot Order** area.

Configuring a Server to Boot With a One-Time Boot Device

You can configure a server to boot from a particular device only for the next server boot, without disrupting the currently configured boot order. Once the server boots from the one time boot device, all its future reboots occur from the previously configured boot order.

Before you begin

You must log in as a user with admin privileges to configure server the boot order.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the **BIOS** tab, click the **Configure Boot Order** tab.

Step 3 In the **BIOS Properties** area, select an option from the **Configured One Time Boot Device** drop-down.

Note The host boots to the one time boot device even when configured with a disabled advanced boot device.

Creating a Server Asset Tag

Before you begin

You must log in with user or admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Summary**.

Step 3 In the **Server Properties** area, update the **Asset Tag** field.

Step 4 Click **Save Changes**.

Configuring Power Policies

Power Capping

Important This section is valid only for some UCS C-Series servers.

Power capping determines how server power consumption is actively managed. When you enable power capping option, the system monitors power consumption and maintains the power below the allocated power limit. If the server cannot maintain the power limit or cannot bring the platform power back to the specified power limit within the correction time, power capping performs actions that you specify in the **Action** field under the **Power Profile** area.

Once power capping is enabled, you can configure multiple power profiles to either have standard or advanced power profiles with defined attributes. If you choose a standard power profile, you can set the power limit, correction time, corrective-action, suspend period, hard capping, and policy state (if enabled). If you choose an advanced power profile, in addition to the attributes of the standard power profile, you can also set the domain specific power limits, safe throttle level, and ambient temperature based power capping attributes.

Note The following changes are applicable for Cisco UCS C-Series release 2.0(13) and later:

- After upgrading to the 2.0(13) release, power characterization automatically runs during the first host power on. Subsequent characterization runs only if initiated as described in section **Run Power Characterization** section.
- Also, when a server is power cycled and there is a change to the CPU or DIMM configurations, power characterization automatically runs on first host boot. For any other hardware change like PCIe adapters, GPU or HDDs, power characterization does not run. The characterized power range is modified depending on the components present after the host power cycle.

The **Run Power Characterization** option in the **Power Cap Configuration** Tab of the Web UI power cycles the host and starts power characterization.

Setting Power Redundancy Policy

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Sensors**.

Step 3 In the **Sensors** working area, click the **Power Supply** tab.

Step 4 Review the following sensor properties for power supply:

Properties Area

Name	Description
Redundancy Status field	The power supply redundancy status.

Name	Description
Redundancy Policy field	The power supply redundancy policy. This can be one of the following: • **Non-Redundant** - N, the available PSU output capacity, equals the number of PSUs installed, where PSU failure or grid failure is not supported. • **N+1** - N, the available PSU output capacity, equals the number of PSUs installed minus 1 (N-1), where the single PSU failure is supported, but grid failure is not supported. • **Grid** - N, the available PSU output capacity, equals half the number of PSUs installed (N/2), where N PSU failure or grid failure is supported. This policy implies that the you have connected N number of PSUs to one feed and the other N number of PSUs to another feed.

Enabling Power Characterization

You can enable power characterization only on some Cisco UCS C-Series servers.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 In the **Power Cap Configuration** tab, click the **Run Power Characterization** link.

A confirmation box appears that says the host is going to be either powered on or rebooted depending on the current power state. Review the message and click **OK** to close the dialog box.

You can verify the progress of the power characterization in the **Status** field. The status can be one of the following:

- **Not Run**—When power characterization has not been run at all since the factory reset.
- **Running**—When a power characterization process is in progress.
- **Completed Successfully**—When a power characterization has run successfully.
- **Using Defaults**—After running the power characterization, if the system fails to obtain the valid values, it uses default value as the recommended maximum and minimum power for power capping.

  After power characterization action is performed, the platform power limit range is populated under the **Recommended Power Cap** area as a minimum and maximum power in watts.

Three values for power capping limits are displayed: **Minimum (Allow Throttling)**, **Minimum (Efficient)** and **Maximum**:

- **Minimum (Allow Throttling)** - This is the lower power limit for the chassis, when the CPU throttling is enabled.

  Note You can use this minimum power limit value only when the **Allow Throttle** checkbox is enabled.

- **Minimum (Efficient)** - This is the lower power limit for the chassis, when the CPU throttling is disabled.
- **Maximum** - This is the upper power limit for the chassis.

Enabling Power Capping

This option is available only on some Cisco UCS C-Series servers.

Before you begin

- You must log in with admin privileges to perform this task.
- Run power characterization.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 Check the **Power Capping** check box.

Note This is the global option to enable or disable power capping. You must enable this option if you want to configure power profile settings.

Step 4 Click **Save Changes**.

Power Profiles

You can configure multiple profiles and set the attributes. These profiles are configured by using either the web UI or CLI. In the web UI, the profiles are listed under the **Power Capping** area. In the CLI, the profiles are configured when you enter the **power-cap-config** command. You can configure the following power profiles for power capping feature:

- **Standard**—Enables you to set a power limit for the platform domain.
- **Advanced**—Enables you to set various attributes such as the power limiting policy, fail-safe power limiting policy, and the ambient temperature-based power limiting policy.

Configuring Standard Power Profiles Settings

This option is available only on some Cisco UCS C-Series servers.

Before you begin

- You must enable power capping.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 In the **Power Profiles** area, complete the following fields:

Name	Description
Name field	The name of the profile selected to set the attributes for power capping.
Enable Profile check box	Enables the power profile for editing.
Allow Throttle check box	If checked, it forces the processor to use more aggressive power management mechanisms such as, CPU the throttling states (T-states) and memory bandwidth throttling to maintain the power limit, in addition to the regular internal mechanisms.
Correction Time field	The time in seconds in which the platform power should be brought back to the specified power limit before taking the action specified in the **Action** field. The range is from 1 and 600. This range varies depending on the server PSU value. **Note** The supported minimum correction time for all PSU models is 1 second, except for DPST-1400AB and DPST-1200DB PSU models for which the supported minimum correction time is 3 seconds.
Action drop-down list	The action to be performed if the specified power limit is not maintained within the correction time. • **Alert**—Logs the event to the Cisco IMC SEL. • **Alert and Shutdown**—Logs the event to the Cisco IMC SEL, and gracefully shuts down the host.

Name	Description
Power Limit check box	The power limit for the server. Enter power in watts within the range specified.
Set Hard Cap check box	If checked, ensure that no platform consumption occurs beyond the set power capping value. The platform power consumption is maintained at a safe offset margin below the configured power cap value.

Step 4 Click **Save Changes**.

Configuring Advanced Power Profile Settings

This option is available only on some Cisco UCS C-Series servers

Before you begin

- You must enable power capping.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 From the **Power Profiles** table in the **Power Cap Configuration** tab, choose the **Advanced** profile. In addition to the standard profile settings, the **Domain Specific Power Limit**, **Safe Throttle Level**, and **Ambient Temperature Based Power Capping** areas are displayed.

Step 4 In the **Domain Specific Power Limit** area, complete the following fields:

Name	Description
CPU field	The power limit for the CPU. Enter power in watts within the range specified.
Memory field	The power limit for the memory. Enter power in watts within the range specified. **Note** This field is not available on servers with Intel® Optane™ DC persistent memory modules.
Platform field	The power limit for the platform. Enter power in watts within the range specified.

Step 5 In the **Suspend Period** area, click **Configure** to configure a suspend period for a specific time period and day.

Step 6 In the **Safe Throttle Level** area, complete the following fields:

Name	Description
Failsafe Timeout field	The safe throttle policy that is applied when power capping is impacted due to internal faults such as missing power readings for platforms or CPUs. Enter value in seconds
Platform field	The throttling level for the platform. The range is from 0 to 100 percentage.

Step 7 In the **Ambient Temperature Based Power Capping** area, complete the following fields:

Name	Description
Platform Temp Trigger field	The inlet (front panel) temperature sensor value in Celsius. **Note** When the inlet temperature on the platform exceeds the specified limit, the system uses the thermal power value as the power capping limit.
Thermal Power Limit field	The power limit to be maintained in watts.

Step 8 Click **Save Changes**.

Resetting Power Profiles to Default

This option is available only on some Cisco UCS C-Series servers.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 In the **Power Profiles** area, click the **Reset Profiles to Default** button.

Note This action resets all the power profile settings to factory default values and disables power capping.

Step 4 Click **Save Changes**.

Power Monitoring

Power monitoring is initiated from the time the host is either powered on or booted. This feature collects the power consumption statistics for a platform, CPU, and memory domains and provides a minimum, maximum, and averaged reading for the duration that is being collected. These readings can be used to calculate the power consumption trends of the domains. Cisco IMC collects and stores these power consumption statistic values to plot graphs for various time periods (such as an hour, a day, and a week).

Note You cannot create additional statistics collection policies or delete the existing monitoring policies. You can only modify the default policies.

Viewing Power Monitoring Summary

This option is available only on some Cisco UCS C-Series servers.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 On the **Work** pane, click the **Power Monitoring** tab.

Step 4 In the **Power Monitoring Summary** area, review the following information:

The following tables display the power consumed by the system and its components since the last time it was rebooted.

Name	Description
Monitoring Period	The time of monitoring the power consumed by the system since the last time it was rebooted. The monitoring period is displayed in Day HH:MM:SS format.

Note **Monitoring Period** is displayed under **Chassis**.

Platform, **CPU**, and **Memory** areas are available under **Server 1** and **Server 2**.

Step 5 In the **Platform** area, review the following information:

Name	Description
Current	The power currently being used by the server, CPU, and memory in watts.
Minimum	The minimum number of watts consumed by the server, CPU, and memory since the last time it was rebooted.
Maximum	The maximum number of watts consumed by the server, CPU, and memory since the last time it was rebooted.

Name	Description
Average	The average amount of power consumed by the server, CPU, and memory in watts over the defined period of time.

Step 6 In the **CPU** area, review the following information:

Name	Description
Current	The power currently being used by the CPU in watts.
Minimum	The minimum number of watts consumed by the CPU since the last time it was rebooted.
Maximum	The maximum number of watts consumed by the CPU since the last time it was rebooted.
Average	The average amount of power consumed by the server, CPU, and memory in watts over the defined period of time.

Step 7 In the **Memory** area, review the following information:

Name	Description
Current	The power currently being used by the memory, in watts.
Minimum	The minimum number of watts consumed by the memory since the last time it was rebooted.
Maximum	The maximum number of watts consumed by the memory since the last time it was rebooted.
Average	The average amount of power consumed by the memory in watts over the defined period of time.

Step 8 In the **Chart Properties** area, review and update the chart, component, and view the power consumption details.

Name	Description
Chart Settings	Enables you to configure the chart properties and the way data is displayed in the chart.
Download Power Statistics and Server Utilization Data	Enables you to download the power statistics and host server utilization information. The files are downloaded to your local download folder. **Note** If the file size of the already downloaded statistics file is less than 256 KB, then when you download, another set of files is downloaded, one for the power statistics and the other for host server utilization. If the size of the existing files exceeds 256 KB, then the next set of files overwrites the existing ones.

Name	Description
Chart drop-down list	Allows you to collect the trends of power consumption from every server for the selected duration. This can be one of the following: • **Last Hour**— Plots the chart for every five minutes • **Last Day**—Plots the chart for every hour from the current time. • **Last Week**—Plots the chart for each day.
Component drop-down list	The component for which you want to view the power consumption over the selected duration. This can be one of the following: • **Chassis** • ***Server 1*** • ***Server 2***
Domain drop-down list	The default value displayed is **Platform**.
Plot button	Displays the power consumed by the selected component for the specified duration.
Chart/Table View (Appears on mouse-over)	Select to view power monitoring summary in either **Chart** or **Table** view.
Chart Type (Appears on mouse-over)	Select the type of chart you wish to view. This could be one of the following: • Line Chart— Power monitoring data appears in lines. • Column Chart— Power monitoring data appears as a column. **Default Chart**: Line Chart. **Note** When the **Chart** drop-down list is selected as **Last Week**, and more than one Component is selected, the Column chart is not displayed, and by default the Line chart is displayed. The following message is displayed in such a scenario: `For the selected Configuration, Column graph cannot be plotted. Reverting to Line Graph.`

Name	Description
Current check box	If checked, the chart displays the current power consumed by the selected component for the selected duration.
Average check box	If checked, the plot displays the average amount of power consumed by the selected component for the selected duration.
Maximum check box	If checked, the plot displays the maximum number of watts consumed by the selected component for the selected duration.
Minimum check box	If checked, the plot displays the minimum number of watts consumed by the selected component for the selected duration.

Viewing the Power Statistics in a Chart

This option is available only on some Cisco UCS C-Series servers.

Before you begin

- You must enabled power capping.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 In the **work** pane, click the **Power Monitoring** tab.

Step 4 On the **Power Monitoring** tab, review and update the chart, component, to view the power consumption details.

Name	Description
Chart drop-down list	Allows you to collect the trends of power consumption from every server for the selected duration. This can be one of the following: • **Last One Hour**— Plots the chart for every five minutes • **Last One Day**—Plots the chart for every hour from the current time. • **Last One Week**—Plots the chart for each day.

Name	Description
Component drop-down list	The component for which you want to view the power consumption over the selected duration. This can be one of the following: • **Platform** • **CPU** • **Memory** • **All**
Maximum check box	If checked, the plot displays the maximum number of watts consumed by the selected component for the selected duration.
Minimum check box	If checked, the plot displays the minimum number of watts consumed by the selected component for the selected duration.
Average check box	If checked, the plot displays the average amount of power consumed by the selected component for the selected duration.
Current check box	If checked, the chart displays the current power consumed by the selected component for the selected duration.
Plot button	Displays the power consumed by the selected component for the specified duration.

The power reading chart plots power consumption values of different components for the selected duration. These power consumption values are captured from the time that the host is powered on. When a power profile is enabled, the power limit is plotted in the chart as a red line. This plot can be used to determine the power consumption trend of the system. To view the configured power limit values of a particular domain, move the mouse over these trend lines.

If choose the Standard profile, the trend line represent the power limit. If you choose the Advance profile, it represents the power limit for CPU, memory, and platform depending on your power profile configuration.

Note These trend lines are not displayed if the profile is disabled on the **Power Cap Configuration** tab.

Step 5 Click **Save Changes**.

Downloading Power Statistics and Server Utilization Data

This option is available only on some Cisco UCS C-Series servers.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Power Management**.

Step 3 In the **Work** pane, click the **Power Monitoring** tab.

Step 4 In the **Power Monitoring** tab, click **Download Power Statistics and Server Utilization Data**

The files are downloaded to your local download folder.

Note If the file size of the already downloaded statistics file is less than 256 KB, then when you download, another set of files is downloaded, one for the power statistics and the other for host server utilization. If the size of the existing files exceeds 256 KB, then the next set of files overwrites the existing ones.

Configuring the Power Restore Policy

The power restore policy determines how power is restored to the server after a chassis power loss.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **Power Policies** tab.

Step 3 In the **Power Restore Policy** area, update the following fields:

Name	Description
Power Restore Policy drop-down list	The action to be taken when chassis power is restored after an unexpected power loss. This can be one of the following: • **Power Off**—The server remains off until it is manually restarted. • **Power On**—The server is allowed to boot up normally when power is restored. The server can restart immediately or, optionally, after a fixed or random delay. • **Restore Last State**—The server restarts and the system attempts to restore any processes that were running before power was lost.

Step 4 Click **Save Changes**.

Configuring Fan Policies

Fan Control Policies

Fan Control Policies enable you to control the fan speed to bring down server power consumption and noise levels. Prior to these fan policies, the fan speed increased automatically when the temperature of any server component exceeded the set threshold. To ensure that the fan speeds were low, the threshold temperatures of components are usually set to high values. While this behavior suited most server configurations, it did not address the following situations:

- Maximum CPU performance

  For high performance, certain CPUs must be cooled substantially below the set threshold temperature. This required very high fan speeds which resulted in higher power consumption and increased noise levels.

- Low power consumption

  To ensure the lowest power consumption, fans must run very slowly, and in some cases, stop completely on servers that support it. But slow fan speeds resulted in servers overheating. To avoid this situation, it is necessary to run fans at a speed that is moderately faster than the lowest possible speed.

With the introduction of fan policies, you can determine the right fan speed for the server, based on the components in the server. In addition, it allows you to configure the fan speed to address problems related to maximum CPU performance and low power consumption.

Following are the fan policies that you can choose from:

- **Balanced**—This setting can cool almost any server configuration, but may not be suitable for servers with PCIe cards as these cards overheat easily.
- **Low Power**—This setting is ideal for minimal configuration servers that do not contain any PCIe cards.
- **High Power**—This policy is ideal for servers that contain PCIe cards that overheat easily and have high temperatures.
- **Maximum Power**—This setting can be used for server configurations that required extremely high fan speeds. This policy is ideal for servers that contain PCIe cards that overheat easily and have very high temperatures.
- **Acoustic**—This setting can be used for configuring the fan noise level, thereby enabling noise reduction in the servers.

  Application of this policy might result in performance throttling impacting system performance. If excessive thermal or performance events are recorded in the event logs, select a standard fan control policy like **Low Power**, which is a non-disruptive change.

Note This option is available only on Cisco UCS C220 M5, C240 SD M5, C240 M5 servers. For these servers, **Acoustic** is the default fan policy.

For other servers, default fan policy depends on the server configuration and the number of PCIe cards present in the server.

Note For Cisco UCS M5 servers, although you set a fan policy in Cisco IMC, the actual speed that the fan runs at is determined by the configuration requirements of the server. PCIe cards are tagged with minimum fan speed depending on thermal requirements. If the server is equipped with these PCIe cards, you cannot configure the fan policy, which go below the tagged requirement.

The **Configuration Status** displays the status of the configured fan policy in Cisco UCS M5 servers. This can be one of the following:

- SUCCESS —The selected fan policy matches the actual fan speed that runs on the server.
- PENDING —The configured fan policy is not in effect yet. This can be due to one of the following:
  - The server is powered off
  - The BIOS POST is not complete
- FAN POLICY OVERRIDE—Overrides the specified fan speed with the actual speed determined by the configuration requirements of the server.

Configuring the Fan Policy

You can determine the right fan policy based on the server configuration and server components.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **Power Policies** tab.

Step 3 In the **Configured Fan Policy** area, select a fan policy from the drop-down list. It can be one of the following:

Name	Description
Fan Policy drop-down list	This can be one of the following: • **Balanced**—This setting can cool almost any server configuration, but may not be suitable for servers with PCIe cards as these cards overheat easily. • **Low Power**—This setting is ideal for minimal configuration servers that do not contain any PCIe cards. • **High Power**—This policy is ideal for servers that contain PCIe cards that overheat easily and have high temperatures. • **Maximum Power**—This setting can be used for server configurations that required extremely high fan speeds. This policy is ideal for servers that contain PCIe cards that overheat easily and have very high temperatures. • **Acoustic**—This setting can be used for configuring the fan noise level, thereby enabling noise reduction in the servers. Application of this policy might result in performance throttling impacting system performance. If excessive thermal or performance events are recorded in the event logs, select a standard fan control policy like **Low Power**, which is a non-disruptive change. **Note** This option is available only on Cisco UCS C220 M5, C240 SD M5, C240 M5 servers. For Cisco UCS C-Series M6 servers, and Cisco UCS C240 SD M5 servers, **Acoustic** is the default fan policy. For all other servers, **Low Power** is the default fan policy.
Applied Fan Policy field	The actual speed of the fan that runs on the server. When the configured fan policy is not in effect, it displays N/A. The configured fan policy takes effect when the server is powered on and the POST is complete.

Name	Description

Configuration Status field	The configuration status of the fan policy. This can be one of the following:
	• SUCCESS —The fan speed set by you matches the actual fan speed that runs on the server.
	• PENDING —The configured fan policy is not in effect yet. This can be due to one of the following:
	  • The server is powered off
	  • The BIOS POST is not complete
	• FAN POLICY OVERRIDE—Overrides the specified fan speed with the actual speed determined by the configuration requirements of the server.
	Note For Cisco UCS UCS C220 M5, C240 M5, C240 SD M5, C125 M5, C480 M5, C480 ML M5, **Applied Fan Policy** depends on the PCIe cards present in the server.

Step 4 Click **Save Changes**.

Configuring DIMM Blacklisting

DIMM Black Listing

In Cisco IMC, the state of the Dual In-line Memory Module (DIMM) is based on SEL event records. A DIMM is marked bad if the BIOS encounters a non-correctable memory error or correctable memory error with 16000 error counts during memory test execution during BIOS post. If a DIMM is marked bad, it is considered a non-functional device.

If you enable DIMM blacklisting, Cisco IMC monitors the memory test execution messages and blacklists any DIMM that encounters memory errors at any given point of time in the DIMM SPD data. This allows the host to map out those DIMMs.

DIMMs are mapped out or blacklisted only when Uncorrectable errors occur. When a DIMM gets blacklisted, other DIMMs in the same channel are ignored or disabled, which means that the DIMM is no longer considered bad.

Note DIMMs do not get mapped out or blacklisted for 16000 Correctable errors.

Enabling DIMM Black Listing

Before you begin

- You must be logged in as an administrator.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.
Step 2 In the **Chassis** menu, click **Inventory**.
Step 3 In the **Inventory** pane, click the **Memory** tab.
Step 4 In the **Memory** pane's **DIMM Black Listing** area, click the **Enable DIMM Black List** check box.

Configuring BIOS Settings

Configuring BIOS Settings

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.
Step 2 In the Compute menu, click the **BIOS** tab.
Step 3 In the BIOS tab, click the **Configure BIOS** tab.
Step 4 Refer BIOS Parameters by Server Model to update the following tabs:

- I/O
- Server Management
- Security
- Processor
- Memory
- Power/Performance

Note The BIOS parameters available depend on the model of the server that you are using.

Important A BIOS parameter available in one tab may affect the parameters on all available tabs, not just the parameters on the tab that you are viewing.

Entering BIOS Setup

Before you begin

- The server must be powered on.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 In the **Actions** area, click **Enter BIOS Setup**.

Step 4 Click **OK** at the prompt.
Enables enter BIOS setup. On restart, the server enters the BIOS setup.

Clearing the BIOS CMOS

Before you begin

- The server must be powered on.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 In the **Actions** area, click **Clear BIOS CMOS**.

Step 4 Click **OK** to confirm.
Clears the BIOS CMOS.

Restoring BIOS Manufacturing Custom Settings

Before you begin

- The server must be powered on.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.
Step 2 In the **Compute** menu, select a server.
Step 3 In the work pane, click the **BIOS** tab.
Step 4 In the **Actions** area, click **Restore Manufacturing Custom Settings**.
Step 5 Click **Yes** if you wish to reboot the server immediately.
Step 6 Click **OK** to confirm.

Restoring BIOS Defaults

Before you begin

- The server must be powered on.
- You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.
Step 2 In the **Compute** menu, select a server.
Step 3 In the work pane, click the **BIOS** tab.
Step 4 In the **Actions** area, click **Restore Defaults**.
Step 5 Click **Yes** if you wish to reboot the server immediately.
Step 6 Click **OK** to confirm.

BIOS Profiles

On the Cisco UCS server, default token files are available for every S3260 server platform, and you can configure the value of these tokens using the Graphic User Interface (GUI), CLI interface, and the XML API interface. To optimize server performance, these token values must be configured in a specific combination.

Configuring a BIOS profile helps you to utilize pre-configured token files with the right combination of the token values. Some of the pre-configured profiles that are available are virtualization, high-performance, low power, and so on. You can download the various options of these pre-configured token files from the Cisco website and apply it on the servers through the BMC.

You can edit the downloaded profile to change the value of the tokens or add new tokens. This allows you to customize the profile to your requirements without having to wait for turnaround time.

Uploading a BIOS Profile

You can upload a BIOS profile either from a remote server location or through a browser client.

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 Click the **Configure BIOS Profile** tab.

Step 4 To upload the BIOS profile using a remote server location, in the **BIOS Profile** area, click the **Upload** button.

Step 5 In the **Upload BIOS Profile** dialog box, update the following fields:

Name	Description
Upload BIOS Profile from drop-down list	The remote server type. This can be one of the following: • **TFTP** • **FTP** • **SFTP** • **SCP** • **HTTP**
Server IP/Hostname field	The IP address or hostname of the server on which the BIOS profile information is available. Depending on the setting in the Upload BIOS Profile from drop-down list, the name of the field may vary.
Path and Filename field	The path and filename of the BIOS profile on the remote server.
Username field	Username of the remote server.
Password field	Password of the remote server.

Name	Description
Upload button	Uploads the selected BIOS profile. **Note** If you chose SCP or SFTP as the remote server type while performing this action, a pop-up window is displayed with the message *Server (RSA) key fingerprint is <server_finger_print _ID> Do you wish to continue?*. Click Yes or No depending on the authenticity of the server fingerprint. The fingerprint is based on the host's public key and helps you to identify or verify the host you are connecting to.
Cancel button	Closes the wizard without making any changes to the firmware versions stored on the server.

Step 6 To upload the BIOS profile using a browser client, in the **BIOS Profile** area, click the **Upload** button.

Step 7 In the **Upload BIOS Profile** dialog box, update the following fields:

Name	Description
File field	The BIOS profile that you want to upload.
Browse button	Opens a dialog box that allows you to navigate to the appropriate file.

What to do next

Activate a BIOS profile.

Activating a BIOS Profile

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the work pane, click the **BIOS** tab.

Step 3 Click the **Configure BIOS Profile** tab.

Step 4 Select a BIOS profile from the **BIOS Profile** area and click **Activate**.

Step 5 At the prompt, click **Yes** to activate the BIOS profile.

Deleting a BIOS Profile

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.
Step 2 In the **Compute** menu, select a server.
Step 3 In the work pane, click the **BIOS** tab.
Step 4 Select a BIOS profile from the **BIOS Profile** area and click **Delete**.
Step 5 At the prompt, click **OK** to delete the BIOS profile.

Backing up a BIOS Profile

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.
Step 2 In the **Compute** menu, select a server.
Step 3 In the work pane, click the **BIOS** tab.
Step 4 Select a BIOS profile from the **BIOS Profile** area and click **Take Backup**.
Step 5 At the prompt, click **OK** to take a backup of the BIOS profile.

What to do next

Activate a BIOS profile.

Viewing BIOS Profile Details

Before you begin

You must log in with admin privileges to perform this task.

Procedure

Step 1 In the **Navigation** pane, click the **Compute** menu.

Step 2 In the **Compute** menu, select a server.

Step 3 In the work pane, click the **BIOS** tab.

Step 4 Select a BIOS profile from the **BIOS Profile** area and click **Details**.

Step 5 Review the following information in the **BIOS Profile Details** window:

Name	Description
Token Name column	Displays the token name of the BIOS profile.
Display Name column	Displays the user name of the BIOS profile.
Profile Value column	Displays the value that was provided in the uploaded file.
Actual Value column	Displays the value of the active BIOS configuration.

Setting Dynamic Front Panel Temperature Threshold

The Dynamic Front Panel Temperature Threshold option allows you to set the upper critical threshold for the front panel temperature sensor.

Procedure

Step 1 In the **Navigation** pane, click the **Chassis** menu.

Step 2 In the **Chassis** menu, click **Sensors**.

Step 3 In the **Sensors** pane, click the **Temperature** tab.

Step 4 Expand the **Dynamic Front Panel Temperature Threshold** area, and enter an upper critical threshold for the front panel temperature sensor in the **Critical** field. You can enter a value between 8 and 50.

Step 5 Click **Save Changes**.

Persistent Memory Modules

Cisco UCS C-Series Release 4.0(4) introduces support for the Intel® Optane™ Data Center persistent memory modules on the UCS M5 servers that are based on the Second Generation Intel® Xeon® Scalable processors. These persistent memory modules can be used only with the Second Generation Intel® Xeon® Scalable processors.

Persistent memory modules are non-volatile memory modules that bring together the low latency of memory and the persistence of storage. Data stored in persistent memory modules can be accessed quickly compared to other storage devices, and is retained across power cycles.

For detailed information about configuring persistent memory modules, see the Cisco UCS: Configuring and Managing Intel® Optane™ Data Center Persistent Memory Modules Guide.