Managing the Server

This chapter includes the following sections:

Configuring the Server Boot Order

Note Do not change the boot order while the host is performing BIOS power-on self test (POST).

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters bios command mode.
Step 2	Server /bios # **set boot-order** *category:device1*[,*category:device2*[,*category:device3*[,*category:device4*[,*category:device5*]]]]	Specifies the boot device options and order. **Note** The options are not case sensitive. You can select one or more of the following: • cdrom—Bootable CD-ROM

	Command or Action	Purpose
		◦ Virtual-CD • fdd—Floppy disk drive ◦ Virtual-Floppy • hdd—Hard disk drive ◦ RAID ◦ Cypress ◦ Virtual-HiFd • pxe—PXE boot ◦ GigEth0 ◦ GigEth1 ◦ GigEth2 ◦ GigEth3 • efi—Extensible Firmware Interface
Step 3	Server /bios # **commit**	Commits the transaction to the system configuration.
Step 4	(Optional) Server /bios # **show detail**	Displays the server boot order.

The new boot order will be used on the next BIOS boot.

This example sets the boot order and commits the transaction:

```
Server# scope bios
Server /bios # set boot-order cdrom:Virtual-CD,hdd:raid,efi
To manage boot-order:
- Reboot server to have your boot-order settings take place
- Do not disable boot options via BIOS screens
- If a specified device type is not seen by the BIOS, it will be removed
  from the boot order configured on the BMC
- Your boot order sequence will be applied subject to the previous rule.
  The configured list will be appended by the additional device types
  seen by the BIOS
Server /bios *# commit
Server /bios #
Server /bios # show detail
BIOS:
    BIOS Version: "UCSES.1.5.0.1 (Build Date: 02/14/2013)"
    Boot Order: CDROM:Virtual-CD,HDD:RAID,EFI
    FW Update/Recovery Status: None, OK
    Active BIOS: main
```

Resetting the Server

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **power hard-reset**	After a prompt to confirm, resets the server. **Note** • Power cycling the server is the same as pressing the physical power button to power off and then powering on the server. • Power hard-reset is the same as pressing the physical reset button on the server.

This example resets the server:

```
Server# scope chassis
Server /chassis # power hard-reset
This operation will change the server's power state.
Continue?[y|N]
```

Shutting Down the Server

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis mode.
Step 2	Server /chassis # **power shutdown**	After the prompt to confirm, shuts down the server. **Note** The NIM E-Series NCE might take up to 60 seconds to shut down. After two or three shut down attempts, if the NIM E-Series NCE does not shut down, enter the following commands from the router: **1** Router # **hw-module subslot 0/***NIM-slot-number* **stop** **2** Router # **hw-module subslot 0/***NIM-slot-number* **start**

	Command or Action	Purpose

This example shuts down the server:

```
Server# scope chassis
Server /chassis # power shutdown
This operation will change the server's power state.
Do you want to continue?[y|N]y
```

Locking Cisco IOS CLI Configuration Changes

Use this procedure to prevent configuration changes from being made using the Cisco IOS CLI.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the IOS lockout (whether it is locked or unlocked).
Step 3	Server /chassis # **set ios-lockout locked**	Prevents configuration changes from being made using the Cisco IOS CLI.
Step 4	Server /chassis* # **commit**	Commits the changes.
Step 5	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the IOS lockout (whether it is locked or unlocked).

This example prevents configuration changes from being made using the Cisco IOS CLI:

```
Server# scope chassis
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: unlocked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
Server /chassis # set ios-lockout locked
Server /chassis* # commit
Server /chassis # show detail
 Chassis:
  Power: on
```

```
  Power Button: unlocked
  IOS Lockout: locked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
```

Unlocking Cisco IOS CLI Configuration Changes

Use this procedure to allow configuration changes to be made using the Cisco IOS CLI.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the IOS lockout (whether it is locked or unlocked).
Step 3	Server /chassis # **set ios-lockout unlocked**	Allows configuration changes to be made using the Cisco IOS CLI.
Step 4	Server /chassis* # **commit**	Commits the changes.
Step 5	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the IOS lockout (whether it is locked or unlocked).

This example allows configuration changes to be made using the Cisco IOS CLI:

```
Server# scope chassis
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: unlocked
  IOS Lockout: locked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
Server /chassis # set ios-lockout unlocked
Server /chassis* # commit
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: unlocked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
```

Managing Server Power

Powering On the Server

Note If the server was powered off other than through the CIMC, the server will not become active immediately when powered on. In this case, the server will enter standby mode until the CIMC completes initialization.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **power on**	After the prompt to confirm, turns on the server power.

This example turns on the server:

```
Server# scope chassis
Server /chassis # power on
This operation will change the server's power state.
Continue?[y|N]y

Server /chassis # show
Power Serial Number Product Name   PID            UUID
----- ------------- -------------  -------------  ------------------------------------
on    FOC16161F1P   E160D          UCS-E160D-M... 1255F7F0-9F17-0000-E312-94B74999D9E7
```

Powering Off the Server

Note This procedure is not applicable to the NIM E-Series NCE.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **power off**	Turns off the server. **Note** For the NIM E-Series NCE, we recommend that you use the **power shutdown** command. If a power off is necessary, use the following commands from the router: **1** Router # **hw-module subslot 0**/*NIM-slot-number* **stop** **2** Router # **hw-module subslot 0**/*NIM-slot-number* **start**

This example turns off the server:

```
Server# scope chassis
Server /chassis # power off
This operation will change the server's power state.
Continue?[y|N]y

Server /chassis # show
Power Serial Number Product Name   PID            UUID
----- ------------- -------------  -------------  ------------------------------------
off    FOC16161F1P   E160D          UCS-E160D-M... 1255F7F0-9F17-0000-E312-94B74999D9E7
```

Power Cycling the Server

Note This procedure is not applicable to the NIM E-Series NCE.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **power cycle**	After the prompt to confirm, power cycles the server. **Note** • Power cycling the server is the same as pressing the physical power button to power off and then powering on the server. • Power hard-reset is the same as pressing the physical reset button on the server.

	Command or Action	Purpose
		Note For the NIM E-Series NCE, we recommend that you use the **power shutdown** command. If a power cycle is necessary, use one of the following commands from the router: • **1** Router # **hw-module subslot 0/***NIM-slot-number* **stop** **2** Router # **hw-module subslot 0/***NIM-slot-number* **start** • Router # **hw-module subslot 0/***NIM-slot-number* **reload** **Note** This command power-cycles the module. The CIMC and server reboot.

This example power cycles the server:

```
Server# scope chassis
Server /chassis # power cycle
This operation will change the server's power state.
Continue?[y|N]y
```

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.

Note These commands are supported only on ISR 4K routers, not on ISR G2. For ISR G2, refer to the BIOS configuration in CIMC.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the cimc command mode.
Step 2	Server /cimc #**scope power-restore-policy**	Enters the power restore policy command mode.
Step 3	Server /cimc/power-restore-policy # **set policy** {**power-off** | **power-on** | **restore-last-state**}	Specifies the action to be taken when chassis power is restored. Select one of the following: • **power-off—**Server power will remain off until manually turned on. • **power-on—**Server power will be turned on when chassis power is restored.

	Command or Action	Purpose
		• **restore-last-state—**Restores the server to the same power state (off or on) that it was in when the power was lost. This is the default action.
Step 4	Server /cimc/power-restore-policy# **commit**	Commits the transaction to the system configuration.

This example sets the power restore policy to power-on and commits the transaction:

```
Server# scope CIMC
Server /CIMC # scope power-restore-policy
Server /CIMC/power-restore-policy # set policy power-on
Server /CIMC/power-restore-policy *# commit
Server /CIMC/power-restore-policy #  show detail
Power Restore Policy:
    Power Restore Policy: power-on

Server /CIMC/power-restore-policy #
```

Locking the Server's Front Panel Power Button

Note This procedure is applicable to E-Series Servers and the SM E-Series NCE. This procedure is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

Use this procedure to disable the physical power button, which is located on the front panel of the physical server. Once the power button is disabled, you cannot use the front panel power button to turn the server power on or off.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.
Step 2	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the power button (whether it is locked or unlocked).
Step 3	Server /chassis # **set power-button locked**	Disables the power button. You cannot use the front panel power button to turn the server power on or off.
Step 4	Server /chassis* # **commit**	Commits the changes.

	Command or Action	Purpose
Step 5	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the power button (whether it is locked or unlocked).

This example disables the server's physical power button, which is located on the front panel of the physical server:

```
Server# scope chassis
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: unlocked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
Server /chassis # set power-button locked
Server /chassis* # commit
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: locked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
```

Unlocking the Server's Front Panel Power Button

Note This procedure is applicable to E-Series Servers and the SM E-Series NCE. This procedure is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

Use this procedure to enable the physical power button, which is located on the front panel of the physical server. Once the power button is enabled, you can use the front panel power button to turn the server power on or off.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope chassis**	Enters chassis command mode.

	Command or Action	Purpose
Step 2	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the power button (whether it is locked or unlocked).
Step 3	Server /chassis # **set power-button unlocked**	Enables the power button. You can use the front panel power button to turn the server power on or off.
Step 4	Server /chassis* # **commit**	Commits the changes.
Step 5	Server /chassis # **show detail**	(Optional) Displays server properties, which allows you to determine the current status of the power button (whether it is locked or unlocked).

This example enable the server's physical power button, which is located on the front panel of the physical server:

```
Server# scope chassis
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: locked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
Server /chassis # set power-button unlocked
Server /chassis* # commit
Server /chassis # show detail
 Chassis:
  Power: on
  Power Button: unlocked
  IOS Lockout: unlocked
  Serial Number: FHH16150031
  Product Name: E160DP
  PID : UCS-E160DP-M1/K9
  UUID: 0024C4F4-89F2-0000-A7D1-770BCA4B8924
  Description
```

Configuring BIOS Settings

Viewing BIOS Status

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **show detail**	Displays details of the BIOS status.

The BIOS status information contains the following fields:

Name	Description
BIOS Version	The version string of the running BIOS.
Boot Order	The order of bootable target types that the server will attempt to use.
FW Update/Recovery Status	The status of any pending firmware update or recovery action.
FW Update/Recovery Progress	The percentage of completion of the most recent firmware update or recovery action.

This example displays the BIOS status:

```
Server# scope bios
Server /bios # show detail
    BIOS Version: "C460M1.1.2.2a.0 (Build Date: 01/12/2011)"
    Boot Order: EFI,CDROM,HDD
    FW Update/Recovery Status: NONE
    FW Update/Recovery Progress: 100

Server /bios #
```

Configuring Advanced BIOS Settings

Note Depending on your installed hardware, some configuration options described in this topic may not appear.

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **scope advanced**	Enters the advanced BIOS settings command mode.
Step 3	Configure the BIOS settings.	For the CLI commands, descriptions and information about the options for each BIOS setting, see the following topics: • Advanced: Processor BIOS Settings, on page 15 • Advanced: Memory BIOS Settings, on page 21 • Advanced: Serial Port BIOS Settings, on page 21

	Command or Action	Purpose
		• Advanced: USB BIOS Settings, on page 22
Step 4	Server /bios/advanced # **commit**	Commits the transaction to the system configuration. Changes are applied on the next server reboot. If server power is on, you are prompted to choose whether to reboot now.

This example shows how to enable Intel virtualization technology:

```
Server# scope bios
Server /bios # scope advanced
Server /bios/advanced # set IntelVTD Enabled
Server /bios/advanced *# commit
Changes to BIOS set-up parameters will require a reboot.
Do you want to reboot the system?[y|N] n
Changes will be applied on next reboot.
Server /bios/advanced #
```

Configuring Server Management BIOS Settings

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **scope server-management**	Enters the server management BIOS settings command mode.
Step 3	Configure the BIOS settings.	For the CLI commands, descriptions and information about the options for each BIOS setting, see the following topic: • Server Management BIOS Settings, on page 22
Step 4	Server /bios/server-management # **commit**	Commits the transaction to the system configuration. Changes are applied on the next server reboot. If server power is on, you are prompted to choose whether to reboot now.

This example shows how to set the BAUD rate to 9.6k :

```
Server# scope bios
Server /bios # scope server-management
Server /bios/server-management # set BaudRate 9.6k
Server /bios/server-management *# commit
```

```
Changes to BIOS set-up parameters will require a reboot.
Do you want to reboot the system?[y|N] n
Changes will be applied on next reboot.
Server /bios/server-management #
```

Clearing the BIOS CMOS

On rare occasions, troubleshooting a server may require you to clear the server's BIOS CMOS memory. This procedure is not part of the normal maintenance of a server.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **clear-cmos**	After a prompt to confirm, clears the CMOS memory. **Note** If you run the **clear-cmos** command on Cisco UCS-E160S-M3/K9 servers (UCS-E M3 servers), the CPU goes into a temporary default state, and that causes the boot time to be exceedingly long(35-40 minutes) the next time you power on the server. To work around this issue, during the long boot, wait for one or two minutes and then power-cycle the server again. The boot time will be normal again.

This example clears the BIOS CMOS memory:

```
Server# scope bios
Server /bios # clear-cmos
This operation will clear the BIOS CMOS.
Note: Server should be in powered off state to clear CMOS.
Continue?[y|N] y
```

Clearing the BIOS Password

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **clear-bios-password**	Clears the BIOS password. You must reboot the server for the clear password operation to take effect. You are prompted to create a new password when the server reboots.

This example clears the BIOS password:

```
Server# scope bios
Server /bios # clear-bios-password
```

```
This operation will clear the BIOS Password.
Note: Server should be rebooted to clear BIOS password.
Continue?[y|N]y
```

Restoring BIOS Defaults

Before You Begin

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

Procedure

	Command or Action	Purpose
Step 1	Server# **scope bios**	Enters the BIOS command mode.
Step 2	Server /bios # **bios-setup-default**	Restores BIOS default settings. This command initiates a reboot.

This example restores BIOS default settings:

```
Server# scope bios
Server /bios # bios-setup-default
This operation will reset the BIOS set-up tokens to factory defaults.
All your configuration will be lost.
Changes to BIOS set-up parameters will initiate a reboot.
Continue?[y|N]y
```

Server BIOS Settings

The tables in the following sections list the server BIOS settings that you can view and configure.

Note We recommend that you verify the support for BIOS settings in your server. Depending on your installed hardware, some settings may not be supported.

Advanced: Processor BIOS Settings

Name	Description
Intel Turbo Boost Technology **Intel Turbo Boost Technology**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled—**The processor does not increase its frequency automatically. • **Enabled—**The processor utilizes Turbo Boost Technology if required.

Name	Description
Enhanced Intel Speedstep Technology	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled—**The processor never dynamically adjusts its voltage or frequency. • **Enabled—**The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Intel Hyper-Threading Technology	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled—**The processor does not permit hyperthreading. • **Enabled—**The processor allows for the parallel execution of multiple threads. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Number of Enabled Cores	Sets the state of logical processor cores in a package. If you disable this setting, Hyper Threading is also disabled. This can be one of the following: • **All—**Enables multi processing on all logical processor cores. • **1** through *n***—**Specifies the number of logical processor cores that can run on the server. To disable multi processing and have only one logical processor core running on the server, select 1. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Execute Disable	Classifies memory areas on the server to specify where application code can execute. As a result of this classification, the processor disables code execution if a malicious worm attempts to insert code in the buffer. This setting helps to prevent damage, worm propagation, and certain classes of malicious buffer overflow attacks. This can be one of the following: • **Disabled—**The processor does not classify memory areas. • **Enabled—**The processor classifies memory areas. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Intel Virtualization Technology	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled—**The processor does not permit virtualization. • **Enabled—**The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.
Intel VT for Directed IO	Whether the processor uses Intel Virtualization Technology for Directed I/O (VT-d). This can be one of the following: • **Disabled—**The processor does not use virtualization technology. • **Enabled—**The processor uses virtualization technology.
Intel VT-d Interrupt Remapping	Whether the processor supports Intel VT-d Interrupt Remapping. This can be one of the following: • **Disabled—**The processor does not support remapping. • **Enabled—**The processor uses VT-d Interrupt Remapping as required.
Intel VT-d Coherency Support	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled—**The processor does not support coherency. • **Enabled—**The processor uses VT-d Coherency as required.

Name	Description
Intel VT-d Address Translation Services	Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following: • **Disabled—**The processor does not support ATS. • **Enabled—**The processor uses VT-d ATS as required.
Intel VT-d PassThrough DMA	Whether the processor supports Intel VT-d Pass-through DMA. This can be one of the following: • **Disabled—**The processor does not support pass-through DMA. • **Enabled—**The processor uses VT-d Pass-through DMA as required.
Direct Cache Access	Allows processors to increase I/O performance by placing data from I/O devices directly into the processor cache. This setting helps to reduce cache misses. This can be one of the following: • **Disabled—**Data from I/O devices is not placed directly into the processor cache. • **Enabled—**Data from I/O devices is placed directly into the processor cache.
Processor C3 Report	Whether the processor sends the C3 report to the operating system. This can be one of the following: • **Disabled—**The processor does not send the C3 report. • **—**The processor sends the C3 report using the ACPI C2 format. • **—**The processor sends the C3 report using the ACPI C3 format.
Processor C6 Report	Whether the processor sends the C6 report to the operating system. This can be one of the following: • **Disabled—**The processor does not send the C6 report. • **Enabled—**The processor sends the C6 report.

Name	Description
Hardware Prefetcher	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled—**The hardware prefetcher is not used. • **Enabled—**The processor uses the hardware prefetcher when cache issues are detected. **Note** You must select **Custom** in the to specify this value. For any value other than **Custom**, this option is overridden by the setting in the selected CPU performance profile.
Adjacent Cache-Line Prefetch	Whether the processor uses the Intel Adjacent Cache-Line Prefetch mechanism to fetch data when necessary. This can be one of the following: • **Disabled—**The Adjacent Cache-Line Prefetch mechanism is not used. • **Enabled—**The Adjacent Cache-Line Prefetch mechanism is used when cache issues are detected. **Note** You must select **Custom** in the in order to specify this value. For any value other than **Custom**, this option is overridden by the setting in the selected CPU performance profile.

Name	Description
Package C State Limit	The amount of power available to the server components when they are idle. This can be one of the following: • —The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • — System level coordination is in progress resulting in high power consumption. There might be performance issues until the coordination is complete. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0 or C2, but there might be performance issues until the server returns to full power. • —When the CPU is idle, the server makes a minimal amount of power available to the components. This option saves the maximum amount of power but it also requires the longest time for the server to return to high performance mode. • —The server may enter any available C state. **Note** This option is used only if **CPU C State** is enabled.
Patrol Scrub	Whether the system actively searches for, and corrects, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running.
Demand Scrub	Whether the system allows a memory scrub to be performed on demand. This can be one of the following: • **Disabled**—The system does not allow a memory scrub to be performed on demand. • **Enabled**—The system allows a memory scrub to be performed on demand. If errors occur, the system attempts to fix them or marks the location as unreadable. This process makes the system run faster with fewer data processing errors.

Name	Description
Device Tagging	Whether the system allows devices and interfaces to be grouped based on a variety of information, including descriptions, addresses, and names. This can be one of the following: • **Disabled—**The system does not allow the devices and interfaces to be grouped. • **Enabled—**The system allows the devices and interfaces to be grouped.

Advanced: Memory BIOS Settings

Name	Description
Select Memory RAS	How the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **—**System performance is optimized. • **Mirroring—**System reliability is optimized by using half the system memory as backup. • **Sparing—**System reliability is enhanced with a degree of memory redundancy while making more memory available to the operating system than mirroring.

Advanced: Serial Port BIOS Settings

Name	Description
Serial A Enable	Whether serial port A is enabled or disabled. This can be one of the following: • **Disabled—**The serial port is disabled. • **Enabled—**The serial port is enabled.

Advanced: USB BIOS Settings

Name	Description
USB Port 0	Whether the processor uses USB port 0. This can be one of the following: • **Disabled—**The server does not use the USB port 0. • **Enabled—**The processor uses the USB port 0.
USB Port 1	Whether the processor uses USB port 1. This can be one of the following: • **Disabled—**The server does not use the USB port 1. • **Enabled—**The processor uses the USB port 1.

Server Management BIOS Settings

Name	Description
Assert NMI on SERR	Whether the BIOS generates a non-maskable interrupt (NMI) and logs an error when a system error (SERR) occurs. This can be one of the following: • **Disabled—**The BIOS does not generate an NMI or log an error when a SERR occurs. • **Enabled—**The BIOS generates an NMI and logs an error when a SERR occurs. You must enable this setting if you want to enable **Assert NMI on PERR**.
Assert NMI on PERR	Whether the BIOS generates a non-maskable interrupt (NMI) and logs an error when a processor bus parity error (PERR) occurs. This can be one of the following: • **Disabled—**The BIOS does not generate an NMI or log an error when a PERR occurs. • **Enabled—**The BIOS generates an NMI and logs an error when a PERR occurs. You must enable **Assert NMI on SERR** to use this setting.
FRB2 Enable	Whether the FRB2 timer is used by CIMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled—**The FRB2 timer is not used. • **Enabled—**The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
Console Redirection	Allows a serial port to be used for console redirection during POST and BIOS booting. After the BIOS has booted and the operating system is responsible for the server, console redirection is irrelevant and has no effect. This can be one of the following: • **Disabled—**No console redirection occurs during POST. • **—**Enables serial port A for console redirection during POST. This option is valid for blade servers and rack-mount servers. Note that **Serial Port A** option also requires that you enabled **Serial Port A** in the Advanced menu. **Note** If you enable this option, you also disable the display of the Quiet Boot logo screen during POST.
Flow Control	Whether a handshake protocol is used for flow control. Request to Send/Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None—**No flow control is used. • **RTS-CTS—**RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.
Baud Rate	What BAUD rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k—**A 9600 BAUD rate is used. • **19.2k—**A 19200 BAUD rate is used. • **38.4k—**A 38400 BAUD rate is used. • **57.6k—**A 57600 BAUD rate is used. • **115.2k—**A 115200 BAUD rate is used. **Note** This setting must match the setting on the remote terminal application.

Name	Description
Terminal Type	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI—**The PC-ANSI terminal font is used. • **VT100—**A supported vt100 video terminal and its character set are used. • **VT100-PLUS—**A supported vt100-plus video terminal and its character set are used. • **VT-UTF8—**A video terminal with the UTF-8 character set is used. **Note** This setting must match the setting on the remote terminal application.
OS Boot Watchdog Timer	Whether the BIOS programs the watchdog timer with a specified timeout value. If the operating system does not complete booting before the timer expires, the CIMC resets the system and an error is logged. This can be one of the following: • **Disabled—**The watchdog timer is not used to track how long the server takes to boot. • **Enabled—**The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified
OS Boot Watchdog Timer Policy	The action the system takes when the watchdog timer expires. This can be one of the following: • **Do Nothing—**The state of the server power does not change when the watchdog timer expires during OS boot. • **Power Down—**The server is powered off if the watchdog timer expires during OS boot. • **Reset—**The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.