



Managing the Server

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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 <i>category:device1[,category:device2[,category:device3</i> <i>[,category:device4[,category:device5]]]]</i>	Specifies the boot device options and order. Note The options are not case sensitive. You can select one or more of the following: <ul style="list-style-type: none">• cdrom—Bootable CD-ROM• Virtual-CD

	Command or Action	Purpose
		<ul style="list-style-type: none"> • fdd—Floppy disk drive <ul style="list-style-type: none"> • Virtual-Floppy • hdd—Hard disk drive <ul style="list-style-type: none"> • RAID • Cypress • Virtual-HiFd • pxe—PXE boot <ul style="list-style-type: none"> • 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.

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **power hard-reset**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Server# scope chassis	Enters chassis command mode.
Step 2	Server /chassis # power hard-reset	<p>After a prompt to confirm, resets the server.</p> <p>Note</p> <ul style="list-style-type: none">• 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.

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **power shutdown**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Server# scope chassis	Enters chassis mode.
Step 2	Server /chassis # power shutdown	<p>After the prompt to confirm, shuts down the server.</p> <p>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:</p> <ul style="list-style-type: none"> a. Router # hw-module subslot 0/NIM-slot-number stop b. Router # hw-module subslot 0/NIM-slot-number start

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **show detail**
3. Server /chassis # **set ios-lockout locked**
4. Server /chassis* # **commit**
5. Server /chassis # **show detail**

DETAILED STEPS

	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 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).

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**

2. Server /chassis # **show detail**
3. Server /chassis # **set ios-lockout unlocked**
4. Server /chassis* # **commit**
5. Server /chassis # **show detail**

DETAILED STEPS

	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).

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **power on**

DETAILED STEPS

	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.

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **power off**

DETAILED STEPS

	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: <ol style="list-style-type: none"> a. Router # hw-module subslot 0/NIM-slot-number stop b. Router # hw-module subslot 0/NIM-slot-number start

Example

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **power cycle**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Server# scope chassis	Enters chassis command mode.
Step 2	Server /chassis # power cycle	<p>After the prompt to confirm, power cycles the server.</p> <p>Note</p> <ul style="list-style-type: none"> • 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. <p>Note</p> <p>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:</p> <ul style="list-style-type: none"> • a. Router # hw-module subslot 0/NIM-slot-number stop • b. Router # hw-module subslot 0/NIM-slot-number start • Router # hw-module subslot 0/NIM-slot-number reload <p>Note This command power-cycles the module. The CIMC and server reboot.</p>

Example

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: <ul style="list-style-type: none"> • power-off—Server power will remain off until manually turned on. • power-on—Server power will be turned on when chassis power is restored. • 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.

Example**Modules on ISRG2**

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

```
Server# scope BIOS
Server /BIOS # scope server-management
Server /BIOS/server-management # set ResumeOnACPowerLoss power-on
Server /BIOS/server-management # commit
Server /BIOS/server-management # show detail
Power Restore Policy:
    Power Restore Policy: power-on

Server /BIOS/server-management #
```



Note Even though you can see the changed settings in the CLI, you have to reboot the server for the settings to take effect.

Modules on ISR4K

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

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **show detail**
3. Server /chassis # **set power-button locked**
4. Server /chassis* # **commit**
5. Server /chassis # **show detail**

DETAILED STEPS

	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.
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).

Example

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

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.

SUMMARY STEPS

1. Server# **scope chassis**
2. Server /chassis # **show detail**
3. Server /chassis # **set power-button unlocked**
4. Server /chassis* # **commit**
5. Server /chassis # **show detail**

DETAILED STEPS

	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).

Example

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
```

Configure the Boot Order

Configure the Server Boot Order Using UEFI Map and UEFIOS



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 {hdd:,pxe:,fdd:,.efi,uefimap,uefios.cdrom:} Server /bios # set boot-order uefimap,uefios	Specifies the boot device options and order. Note The options are not case sensitive. You can select one or more of the following: <ul style="list-style-type: none"> • hdd—Hard disk drive <ul style="list-style-type: none"> • RAID • Cypress • Virtual-HiFd • pxe—PXE boot <ul style="list-style-type: none"> • GigEth0 • GigEth1 • GigEth2 • GigEth3 • fdd—Floppy disk drive <ul style="list-style-type: none"> • Virtual-Floppy • efi—Extensible Firmware Interface • uefimap—UEFI virtual-map boot option • uefios—UEFI Operating System • cdrom—Bootable CD-ROM <ul style="list-style-type: none"> • Virtual-CD
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 is used on the next BIOS boot.

Example

This example sets the boot order and commits the transaction:

```

Server# scope bios
Server /bios # set boot-order uefimap,uefios
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:"UCSEDM3.2.10b5 (Build Date:02/27/2020)"
  Boot Order: UEFIMAP,UEFIOS
  FW Update/Recovery Status: None, OK
  Active BIOS on next reboot: main
  UEFI Secure Boot: enabled

```



Note When you enable UEFI secure boot, only the UEFI options—efi, uefimap, uefios are available. Additionally, configure the UEFI secure boot on the M3 modules, this reduces their average boot time by approximately 45-50 seconds.

Configuring BIOS Settings

Viewing BIOS Status

SUMMARY STEPS

1. Server# **scope bios**
2. Server /bios # **show detail**

DETAILED STEPS

	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.

Name	Description
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.

Example

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: <ul style="list-style-type: none"> • Advanced: Processor BIOS Settings, on page 20 • Advanced: Memory BIOS Settings, on page 26 • Advanced: Serial Port BIOS Settings, on page 26 • Advanced: USB BIOS Settings, on page 27
Step 4	Server /bios/advanced # commit	Commits the transaction to the system configuration.

	Command or Action	Purpose
		Changes are applied on the next server reboot. If server power is on, you are prompted to choose whether to reboot now.

Example

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: <ul style="list-style-type: none"> • Server Management BIOS Settings, on page 27
Step 4	Server /bios/server-management # commit	Commits the transaction to the system configuration. <p>Changes are applied on the next server reboot. If server power is on, you are prompted to choose whether to reboot now.</p>

Example

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.

SUMMARY STEPS

1. Server# **scope bios**
2. Server /bios # **clear-cmos**

DETAILED STEPS

	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.

Example

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
```

Setting the BIOS Password

SUMMARY STEPS

1. Server/bios# **set password**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Server/bios# set password	Sets the BIOS password.

Example

This example sets the BIOS password:

```
Server/bios# set password
Warning:
```

Strong Password Policy is enabled!

For CIMC protection your password must meet the following requirements:

- The password must have a minimum of 8 and a maximum of 20 characters.
- The password must not contain the User's Name.
- The password must contain characters from three of the following four categories.
 - English uppercase characters (A through Z)
 - English lowercase characters (a through z)
 - Base 10 digits (0 through 9)
 - Non-alphabetic characters (!, @, #, \$, %, ^, &, *, -, _, +, =)

Clearing the BIOS Password

SUMMARY STEPS

1. Server# **scope bios**
2. Server /bios # **clear-bios-password**

DETAILED STEPS

	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.

Example

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.

SUMMARY STEPS

1. Server# **scope bios**
2. Server /bios # **bios-setup-default**

DETAILED STEPS

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

Example

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: <ul style="list-style-type: none">• Disabled—The processor does not increase its frequency automatically.• Enabled—The processor utilizes Turbo Boost Technology if required.

Name	Description
Enhanced Intel Speedstep Technology	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>We recommend that you contact your operating system vendor to make sure the operating system supports this feature.</p>
Intel Hyper-Threading Technology	<p>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:</p> <ul style="list-style-type: none"> • Disabled—The processor does not permit hyperthreading. • Enabled—The processor allows for the parallel execution of multiple threads. <p>We recommend that you contact your operating system vendor to make sure the operating system supports this feature.</p>
Number of Enabled Cores	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>We recommend that you contact your operating system vendor to make sure the operating system supports this feature.</p>

Name	Description
Execute Disable	<p>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:</p> <ul style="list-style-type: none"> • Disabled—The processor does not classify memory areas. • Enabled—The processor classifies memory areas. <p>We recommend that you contact your operating system vendor to make sure the operating system supports this feature.</p>
Intel Virtualization Technology	<p>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:</p> <ul style="list-style-type: none"> • Disabled—The processor does not permit virtualization. • Enabled—The processor allows multiple operating systems in independent partitions. <p>Note If you change this option, you must power cycle the server before the setting takes effect.</p>
Intel VT for Directed IO	<p>Whether the processor uses Intel Virtualization Technology for Directed I/O (VT-d). This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not use virtualization technology. • Enabled—The processor uses virtualization technology.
Intel VT-d Interrupt Remapping	<p>Whether the processor supports Intel VT-d Interrupt Remapping. This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not support remapping. • Enabled—The processor uses VT-d Interrupt Remapping as required.
Intel VT-d Coherency Support	<p>Whether the processor supports Intel VT-d Coherency. This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not support coherency. • Enabled—The processor uses VT-d Coherency as required.

Name	Description
Intel VT-d Address Translation Services	<p>Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not support ATS. • Enabled—The processor uses VT-d ATS as required.
Intel VT-d PassThrough DMA	<p>Whether the processor supports Intel VT-d Pass-through DMA. This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not support pass-through DMA. • Enabled—The processor uses VT-d Pass-through DMA as required.
Direct Cache Access	<p>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:</p> <ul style="list-style-type: none"> • 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	<p>Whether the processor sends the C3 report to the operating system. This can be one of the following:</p> <ul style="list-style-type: none"> • 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	<p>Whether the processor sends the C6 report to the operating system. This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The processor does not send the C6 report. • Enabled—The processor sends the C6 report.

Name	Description
Hardware Prefetcher	<p>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:</p> <ul style="list-style-type: none"> • Disabled—The hardware prefetcher is not used. • Enabled—The processor uses the hardware prefetcher when cache issues are detected. <p>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.</p>
Adjacent Cache-Line Prefetch	<p>Whether the processor uses the Intel Adjacent Cache-Line Prefetch mechanism to fetch data when necessary. This can be one of the following:</p> <ul style="list-style-type: none"> • Disabled—The Adjacent Cache-Line Prefetch mechanism is not used. • Enabled—The Adjacent Cache-Line Prefetch mechanism is used when cache issues are detected. <p>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.</p>
Boot Option Rom	<p>Sets the ROM type. This can be one of the following:</p> <ul style="list-style-type: none"> • Legacy—The server launches the legacy Option ROM. • UEFI—The server launches the legacy UEFI ROM. • Disabled—Option ROM is not available.

Name	Description
Package C State Limit	<p>The amount of power available to the server components when they are idle. This can be one of the following:</p> <ul style="list-style-type: none"> • —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. <p>Note This option is used only if CPU C State is enabled.</p>
Boot Order Rules	<p>Whether the system boots according to the boot order that is specified in CIMC or specified in the BIOS setup utility. This can be one of the following:</p> <ul style="list-style-type: none"> • Strict—The system boots according to the boot order specified in CIMC. • Loose—The system boots according to the boot order specified in the BIOS setup utility.
Patrol Scrub	<p>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:</p> <ul style="list-style-type: none"> • 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.

Name	Description
Demand Scrub	<p>Whether the system allows a memory scrub to be performed on demand. This can be one of the following:</p> <ul style="list-style-type: none"> • 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.
Device Tagging	<p>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:</p> <ul style="list-style-type: none"> • 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	<p>How the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following:</p> <ul style="list-style-type: none"> • —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	<p>Whether serial port A is enabled or disabled. This can be one of the following:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>Note If you enable this option, you also disable the display of the Quiet Boot logo screen during POST.</p>
Flow Control	<p>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:</p> <ul style="list-style-type: none"> • None—No flow control is used. • RTS-CTS—RTS/CTS is used for flow control. <p>Note This setting must match the setting on the remote terminal application.</p>
Baud Rate	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>Note This setting must match the setting on the remote terminal application.</p>

Name	Description
Terminal Type	<p>What type of character formatting is used for console redirection. This can be one of the following:</p> <ul style="list-style-type: none"> • 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. <p>Note This setting must match the setting on the remote terminal application.</p>
OS Boot Watchdog Timer	<p>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:</p> <ul style="list-style-type: none"> • 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	<p>The action the system takes when the watchdog timer expires. This can be one of the following:</p> <ul style="list-style-type: none"> • 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. <p>Note This option is only applicable if you enable the OS Boot Watchdog Timer.</p>

