



# Hardware Monitoring

- [System Monitoring CLI Command Cheat Sheet, on page 1](#)
- [Managing the Chassis, on page 2](#)
- [Managing Blade Servers, on page 3](#)
- [Managing Rack-Mount servers, on page 4](#)
- [Monitoring Fan Modules, on page 6](#)
- [Monitoring Management Interfaces, on page 8](#)
- [Local Storage Monitoring, on page 11](#)
- [Graphics Card Monitoring, on page 23](#)
- [PCI Switch Monitoring, on page 25](#)
- [Managing Transportable Flash Module and Supercapacitor, on page 26](#)
- [TPM Monitoring, on page 27](#)

## System Monitoring CLI Command Cheat Sheet

The following table provides a brief summary of Cisco UCS Manager CLI commands you use to monitor managed objects in the system.

Managed Object	Monitoring Command	Description
<b>Hardware</b>		
Chassis	<b>show chassis</b> [ <b>adaptor</b>   <b>cmc</b>   <b>decommissioned</b>   <b>detail</b>   <b>environment</b>   <b>fabric</b>   <b>fi-iom</b>   <b>firmware</b>   <b>fsm</b>   <b>inventory</b>   <b>psu</b>   <b>version</b> ]	Displays chassis information.
Fabric Interconnect	<b>show fabric-interconnect</b> [ <b>a</b>   <b>b</b> ] [ <b>detail</b>   <b>environment</b>   <b>firmware</b>   <b>fsm</b>   <b>inventory</b>   <b>mac-aging</b>   <b>mode</b>   <b>version</b> ]	Displays Fabric Interconnect information.
FEX	<b>show fex</b> [ <b>detail</b>   <b>firmware</b>   <b>fsm</b>   <b>inventory</b>   <b>version</b> ]	Displays Fabric Extender information
IOM	<b>show iom</b> [ <b>firmware</b>   <b>health</b>   <b>version</b> ]	Displays Fabric Input/Output Module information.

Managed Object	Monitoring Command	Description
Server	<b>show server</b> [ <b>actual-boot-order</b>   <b>adapter</b>   <b>assoc</b>   <b>bios</b>   <b>boot-order</b>   <b>cpu</b>   <b>decommissioned</b>   <b>environment</b>   <b>firmware</b>   <b>health</b>   <b>identity</b>   <b>inventory</b>   <b>memory</b>   <b>status</b>   <b>storage</b>   <b>version</b> ]	Displays server information .
System	<b>show system</b> [ <b>detail</b>   <b>firmware</b>   <b>version</b> ]	Displays system information.
System	<b>scope monitoring</b> [ <b>show</b> ] [ <b>baseline-faults</b>   <b>callhome</b>   <b>event</b>   <b>fault</b>   <b>fault-suppress-policy</b>   <b>fsm</b>   <b>mgmt-if-mon-policy</b>   <b>new-faults</b>   <b>snmp</b>   <b>snmp-trap</b>   <b>snmp-user</b>   <b>stats-collection-policy</b>   <b>stats-threshold-policy</b>   <b>syslog</b> ]	Displays information about commands in Monitoring mode.
<b>Logs</b>		
Event	<b>show event</b> [ <i>event-id</i>   <b>detail</b> ]	Displays the Event log.
Fault	<b>show fault</b> [ <i>fault-id</i>   <b>cause</b>   <b>detail</b>   <b>severity</b>   <b>suppressed</b> ]	Displays the Fault log.
SEL	<b>show sel</b> [ <i>chassis-id/blade-id</i>   <i>rack-id</i> ]	Displays the System Event Log for the chassis, blade, or rack-mount server.
Syslog	<b>scope monitoring</b> [ <b>show</b> ] [ <b>syslog</b> ]	Displays the Syslog.

## Managing the Chassis

### Turning On the Locator LED for a Chassis

#### Procedure

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

**Example**

The following example turns on the locator LED for chassis 2 and commits the transaction:

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

## Turning Off the Locator LED for a Chassis

**Procedure**

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

**Example**

The following example turns off the locator LED for chassis 2 and commits the transaction:

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

## Managing Blade Servers

### Turning On the Locator LED for a Blade Server

**Procedure**

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

**Example**

The following example turns on the locator LED for blade server 4 in chassis 2 and commits the transaction:

```
UCS-A# scope server 2/4
UCS-A /chassis/server # enable locator-led
UCS-A /chassis/server* # commit-buffer
UCS-A /chassis/server #
```

## Turning Off the Locator LED for a Blade Server

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-num / server-num</i>	Enters chassis mode for the specified chassis.
<b>Step 2</b>	UCS-A /chassis/server # <b>disable locator-led</b> [ <b>multi-master</b>   <b>multi-slave</b> ]	Turns off the blade server locator LED.
<b>Step 3</b>	UCS-A /chassis/server # <b>commit-buffer</b>	Commits the transaction to the system configuration.

**Example**

The following example turns off the locator LED for blade server 4 in chassis 2 and commits the transaction:

```
UCS-A# scope chassis 2/4
UCS-A /chassis/server # disable locator-led
UCS-A /chassis/server* # commit-buffer
UCS-A /chassis/server #
```

## Managing Rack-Mount servers

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

**Procedure**

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

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

### Example

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

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

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

### Procedure

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

### Example

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

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

## Showing the Status for a Rack-Mount Server

### Procedure

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

**Example**

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

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

## Monitoring Fan Modules

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope chassis</b> <i>chassis-num</i>	Enters chassis mode for the specified chassis.
<b>Step 2</b>	UCS-A /chassis # <b>show environment fan</b>	Displays the environment status for all fans within the chassis.  This includes the following information: <ul style="list-style-type: none"> <li>• Overall status</li> <li>• Operability</li> <li>• Power state</li> <li>• Thermal status</li> <li>• Threshold status</li> <li>• Voltage status</li> </ul>
<b>Step 3</b>	UCS-A /chassis # <b>scope fan-module</b> <i>tray-num module-num</i>	Enters fan module chassis mode for the specified fan module.  <b>Note</b> Each chassis contains one tray, so the tray number in this command is always 1.
<b>Step 4</b>	UCS-A /chassis/fan-module # <b>show</b> [ <b>detail</b>   <b>expand</b> ]	Displays the environment status for the specified fan module.

## Example

The following example displays information about the fan modules in chassis 1:

```
UCS-A# scope chassis 1
UCS-A /chassis # show environment fan
Chassis 1:
  Overall Status: Power Problem
  Operability: Operable
  Power State: Redundancy Failed
  Thermal Status: Upper Non Recoverable

  Tray 1 Module 1:
    Threshold Status: OK
    Overall Status: Operable
    Operability: Operable
    Power State: On
    Thermal Status: OK
    Voltage Status: N/A

    Fan Module Stats:
      Ambient Temp (C): 25.000000

    Fan 1:
      Threshold Status: OK
      Overall Status: Operable
      Operability: Operable
      Power State: On
      Thermal Status: OK
      Voltage Status: N/A

    Fan 2:
      Threshold Status: OK
      Overall Status: Operable
      Operability: Operable
      Power State: On
      Thermal Status: OK
      Voltage Status: N/A

  Tray 1 Module 2:
    Threshold Status: OK
    Overall Status: Operable
    Operability: Operable
    Power State: On
    Thermal Status: OK
    Voltage Status: N/A

    Fan Module Stats:
      Ambient Temp (C): 24.000000

    Fan 1:
      Threshold Status: OK
      Overall Status: Operable
      Operability: Operable
      Power State: On
      Thermal Status: OK
      Voltage Status: N/A

    Fan 2:
      Threshold Status: OK
      Overall Status: Operable
      Operability: Operable
      Power State: On
```

```

Thermal Status: OK
Voltage Status: N/A

```

The following example displays information about fan module 2 in chassis 1:

```

UCS-A# scope chassis 1
UCS-A /chassis # scope fan-module 1 2
UCS-A /chassis/fan-module # show detail
Fan Module:
  Tray: 1
  Module: 2
  Overall Status: Operable
  Operability: Operable
  Threshold Status: OK
  Power State: On
  Presence: Equipped
  Thermal Status: OK
  Product Name: Fan Module for UCS 5108 Blade Server Chassis
  PID: N20-FAN5
  VID: V01
  Vendor: Cisco Systems Inc
  Serial (SN): NWG14350B6N
  HW Revision: 0
  Mfg Date: 1997-04-01T08:41:00.000

```

## Monitoring Management Interfaces

### Management Interfaces Monitoring Policy

The management interfaces monitoring policy defines how the mgmt0 Ethernet interface on the fabric interconnect is monitored. If Cisco UCS Manager detects a management interface failure, a failure report is generated. If the configured number of failure reports is reached, the system assumes that the management interface is unavailable and generates a fault. By default, the management interfaces monitoring policy is enabled.

When the management interface of a fabric interconnect which is currently the managing instance fails, Cisco UCS Manager first confirms if the status of the subordinate fabric interconnect is up. In addition, if there are no current failure reports logged against the fabric interconnect, Cisco UCS Manager modifies the managing instance for the endpoints.

If the affected fabric interconnect is currently the primary in a high availability setup, a failover of the management plane is triggered. This failover does not affect the data plane. You can set the following properties related to monitoring the management interface:

- The type of mechanism used to monitor the management interface.
- The interval at which the status of the management interface is monitored.
- The maximum number of monitoring attempts that can fail before the system assumes that the management is unavailable and generates a fault message.





- Important** When the management interface fails on a fabric interconnect, the managing instance may not change if one of the following occurs:
- A path to the endpoint through the subordinate fabric interconnect does not exist.
  - The management interface for the subordinate fabric interconnect has failed.
  - The path to the endpoint through the subordinate fabric interconnect has failed.

## Configuring the Management Interfaces Monitoring Policy

### Procedure

- Step 1** Enter monitoring mode.
- ```
UCS-A# scope monitoring
```
- Step 2** Enable or disable the management interfaces monitoring policy.
- ```
UCS-A /monitoring # set mgmt-if-mon-policy admin-state {enabled | disabled}
```
- Step 3** Specify the number of seconds that the system should wait between data recordings.
- ```
UCS-A /monitoring # set mgmt-if-mon-policy poll-interval
```
- Enter an integer between 90 and 300.
- Step 4** Specify the maximum number of monitoring attempts that can fail before the system assumes that the management interface is unavailable and generates a fault message.
- ```
UCS-A /monitoring # set mgmt-if-mon-policy max-fail-reports num-mon-attempts
```
- Enter an integer between 2 and 5.
- Step 5** Specify the monitoring mechanism that you want the system to use.
- ```
UCS-A /monitoring # set mgmt-if-mon-policy monitor-mechanism {mii-status | ping-arp-targets | ping-gateway}
```
- **mii-status** —The system monitors the availability of the Media Independent Interface (MII).
  - **ping-arp-targets** —The system pings designated targets using the Address Resolution Protocol (ARP).
  - **ping-gateway** —The system pings the default gateway address specified for this Cisco UCS domain in the management interface.
- Step 6** If you selected **mii-status** as your monitoring mechanism, configure the following properties:
- a) Specify the number of seconds that the system should wait before requesting another response from the MII if a previous attempt fails.
- ```
UCS-A /monitoring # set mgmt-if-mon-policy mii-retry-interval num-seconds
```
- Enter an integer between 3 and 10.

- b) Specify the number of times that the system polls the MII until the system assumes that the interface is unavailable.

```
UCS-A /monitoring # set mgmt-if-mon-policy mii-retry-count num-retries
```

Enter an integer between 1 and 3.

**Step 7** If you selected **ping-arp-targets** as your monitoring mechanism, configure the following properties:

- a) Specify the first IPv4 or IPv6 address the system pings.

```
UCS-A /monitoring # set mgmt-if-mon-policy {arp-target1 | ndisc-target1} {ipv4-addr | ipv6-addr}
```

Type 0.0.0.0 for an IPv4 address to remove the ARP target or :: for an IPv6 address to remove the N-disc target.

- b) Specify the second IPv4 or IPv6 address the system pings.

```
UCS-A /monitoring # set mgmt-if-mon-policy {arp-target2 | ndisc-target2} {ipv4-addr | ipv6-addr}
```

Type 0.0.0.0 for an IPv4 address to remove the ARP target or :: for an IPv6 address to remove the N-disc target.

- c) Specify the third IPv4 or IPv6 address the system pings.

```
UCS-A /monitoring # set mgmt-if-mon-policy {arp-target3 | ndisc-target3} {ipv4-addr | ipv6-addr}
```

Type 0.0.0.0 for an IPv4 address to remove the ARP target or :: for an IPv6 address to remove the N-disc target.

**Note** The ping IPv4 ARP or IPv6 N-disc targets must be in the same subnet or prefix, respectively, as the fabric interconnect.

- d) Specify the number of ARP requests to send to the target IP addresses.

```
UCS-A /monitoring # set mgmt-if-mon-policy arp-requests num-requests
```

Enter an integer between 1 and 5.

- e) Specify the number of seconds to wait for responses from the ARP targets before the system assumes that they are unavailable.

```
UCS-A /monitoring # set mgmt-if-mon-policy arp-deadline num-seconds
```

Enter a number between 5 and 15.

**Step 8** If you selected **ping-gateway** as your monitoring mechanism, configure the following properties:

- a) Specify the number of times the system should ping the gateway.

```
UCS-A /monitoring # set mgmt-if-mon-policy ping-requests
```

Enter an integer between 1 and 5.

- b) Specify the number of seconds to wait for a response from the gateway until the system assumes that the address is unavailable.

```
UCS-A /monitoring # set mgmt-if-mon-policy ping-deadline
```

Enter an integer between 5 and 15.

**Step 9** UCS-A /monitoring # **commit-buffer**

Commits the transaction to the system configuration.

---

### Example

The following example creates a monitoring interface management policy using the Media Independent Interface (MII) monitoring mechanism and commits the transaction:

```
UCS-A# scope monitoring
UCS-A /monitoring # set mgmt-if-mon-policy admin-state enabled
UCS-A /monitoring* # set mgmt-if-mon-policy poll-interval 250
UCS-A /monitoring* # set mgmt-if-mon-policy max-fail-reports 2
UCS-A /monitoring* # set mgmt-if-mon-policy monitor-mechanism set mii-status
UCS-A /monitoring* # set mgmt-if-mon-policy mii-retry-count 3
UCS-A /monitoring* # set mgmt-if-mon-policy mii-retry-interval 7
UCS-A /monitoring* # commit-buffer
UCS-A /monitoring #
```

## Local Storage Monitoring

Local storage monitoring in Cisco UCS provides status information on local storage that is physically attached to a blade or rack server. This includes RAID controllers, physical drives and drive groups, virtual drives, RAID controller batteries (Battery Backup Unit), Transportable Flash Modules (TFM), supercapacitors, FlexFlash controllers, and SD cards.

Cisco UCS Manager communicates directly with the LSI MegaRAID controllers and FlexFlash controllers using an out-of-band interface, which enables real-time updates. Some of the information that is displayed includes:

- RAID controller status and rebuild rate.
- The drive state, power state, link speed, operability, and firmware version of physical drives.
- The drive state, operability, strip size, access policies, drive cache, and health of virtual drives.
- The operability of a BBU, whether it is a supercap or battery, and information about the TFM.

LSI storage controllers use a Transportable Flash Module (TFM) powered by a supercapacitor to provide RAID cache protection.

- Information on SD cards and FlexFlash controllers, including RAID health and RAID state, card health, and operability.
- Information on operations that are running on the storage component, such as rebuild, initialization, and relearning.



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**Note** After a CIMC reboot or build upgrades, the status, start time, and end times of operations running on the storage component may not be displayed correctly.

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- Detailed fault information for all local storage components.



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**Note** All faults are displayed on the **Faults** tab.

---

## Support for Local Storage Monitoring

The type of monitoring supported depends upon the Cisco UCS server.

### Supported Cisco UCS Servers for Local Storage Monitoring

Through Cisco UCS Manager, you can monitor local storage components for the following servers:

- Cisco UCS X210c M7 Compute Node
- Cisco UCS X210c M6 Compute Node
- Cisco UCS B200 M6 Server
- Cisco UCS B200 M5 Server
- Cisco UCS B480 M5 Server
- Cisco UCS C240 M7 Server
- Cisco UCS C220 M7 Server
- Cisco UCS C240 M6 Server
- Cisco UCS C245 M6 Server
- Cisco UCS C220 M6 Server
- Cisco UCS C225 M6 Server
- Cisco UCS C240 M5 Server
- Cisco UCS C480 M5 Server
- Cisco UCS C220 M5 Server

## Prerequisites for Local Storage Monitoring

These prerequisites must be met for local storage monitoring or legacy disk drive monitoring to provide useful status information:

- The drive must be inserted in the server drive bay.
- The server must be powered on.
- The server must have completed discovery.
- The results of the BIOS POST complete must be TRUE.

## Legacy Disk Drive Monitoring



**Note** The following information is applicable only for B200 M1/M2 and B250 M1/M2 blade servers.

The legacy disk drive monitoring for Cisco UCS provides Cisco UCS Manager with blade-resident disk drive status for supported blade servers in a Cisco UCS domain. Disk drive monitoring provides a unidirectional fault signal from the LSI firmware to Cisco UCS Manager to provide status information.

The following server and firmware components gather, send, and aggregate information about the disk drive status in a server:

- Physical presence sensor—Determines whether the disk drive is inserted in the server drive bay.
- Physical fault sensor—Determines the operability status reported by the LSI storage controller firmware for the disk drive.
- IPMI disk drive fault and presence sensors—Sends the sensor results to Cisco UCS Manager.
- Disk drive fault LED control and associated IPMI sensors—Controls disk drive fault LED states (on/off) and relays the states to Cisco UCS Manager.

## Turning On the Local Disk Locator LED

### Procedure

- 
- Step 1** UCS-A# **scope server *id***  
Enters server mode for the specified server.
- Step 2** UCS-A/server # **scope local-disk *id***  
Enters the RAID controller for the specified local disk.
- Step 3** UCS-A /server/local-disk # **enable locator-led**  
Turns on the disk locator LED.
- Step 4** UCS-A/server/local-disk\* # **commit-buffer**  
Commits the command to the system configuration.
- 

### Example

The following example displays how to turn on the local disk Locator LED:

```
UCS-A# scope server 1
UCS-A /server/raid-controller # scope local-disk 2
USA-A /server/raid-controller/local-disk # enable locator-led
USA-A /server/raid-controller/local-disk* # commit-buffer
```

## Turning Off the Local Disk Locator LED

### Procedure

---

- Step 1** UCS-A# **scope server** *id*  
Enters server mode for the specified server.
- Step 2** UCS-A/server # **scope local-disk** *id*  
Enters the RAID controller for the specified local disk.
- Step 3** UCS-A/server/local-disk # **disable locator-led**  
Turns off the disk locator LED.
- Step 4** UCS-A/server/raid-controller/local-disk\* # **commit-buffer**  
Commits the command to the system configuration.
- 

### Example

The following example displays how to disable the local disk Locator LED:

```
UCS-A# server 1
UCS-A /server # scope local-disk 2
USA-A /server/local-disk # disable locator-led
USA-A /server/local-disk* # commit-buffer
```

## Viewing the Local Disk Locator LED State

### Procedure

---

- Step 1** UCS-A# **scope server** *id*  
Enters server mode for the specified server.
- Step 2** UCS-A/server # **scope local-disk** *id*  
Enters the RAID controller for the specified local disk.
- Step 3** UCS-A/server/local-disk # **show locator-led**  
Shows the state of the disk locator LED.
- 

### Example

The following example shows that the state of the local disk Locator LED is on:

```

USA-A# scope server 1
USA-A /server # scope local-disk 2
USA-A /serverlocal-disk # show locator-led
Locator LED:
  Equipment           Operational State
  -----
  1/SAS-1/2          On

```

## Flash Life Wear Level Monitoring

Flash life wear level monitoring enables you to monitor the life span of solid state drives. You can view both the percentage of the flash life remaining, and the flash life status. Wear level monitoring is supported on the Fusion IO mezzanine card with the following Cisco UCS blade servers:

- Cisco UCS B22 M3 blade server
- Cisco UCS B200 M3 blade server
- Cisco UCS B420 M3 blade server
- Cisco UCS B200 M4 blade server
- Cisco UCS B260 M4 blade server
- Cisco UCS B460 M4 blade server



**Note** Wear level monitoring requires the following:

- Cisco UCS Manager must be at release 2.2(2a) or greater.
- The Fusion IO mezzanine card firmware must be at version 7.1.15 or greater.

## Viewing Flash Life Status

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-id / server-id</i>	Enters chassis server mode for the specified server.
<b>Step 2</b>	UCS-A /chassis/server # <b>show raid-controller detail expand</b>	Displays details for the RAID controller.

### Example

The following example shows how to display the flash life status for server 3:

```

UCS-A# scope server 1/3
UCS-A /chassis/server # show raid-controller detail expand

```

```
RAID Controller:
  ID: 1
  Type: FLASH
  PCI Addr: 131:00.0
  Vendor: Cisco Systems Inc
  Model: UCSC-F-FIO-1205M
  Serial: 1315D2B52
  HW Rev: FLASH
  Raid Support: No
  OOB Interface Supported: No
  Rebuild Rate: N/A
  Controller Status: Unknown
```

```
Flash Life:
Flash Percentage: N/A
Flash Status: Error(244)
```

```
UCS-A /chassis/server #
```

## Viewing the Status of Local Storage Components

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-id / server-id</i>	Enters chassis server mode for the specified server.
<b>Step 2</b>	UCS-A /chassis/server # <b>show inventory storage</b>	Displays the local and virtual storage information for the server.

### Example

The following example shows how to display the local disk status for server 2:

```
UCS-A# scope server 1/2
UCS-A /chassis/server # show inventory storage
Server 1/2:
  Name:
  User Label:
  Equipped PID: UCSB-B200-M3
  Equipped VID: V01
  Equipped Serial (SN): FCH16207KXG
  Slot Status: Equipped
  Acknowledged Product Name: Cisco UCS B200 M3
  Acknowledged PID: UCSB-B200-M3
  Acknowledged VID: V01
  Acknowledged Serial (SN): FCH16207KXG
  Acknowledged Memory (MB): 98304
  Acknowledged Effective Memory (MB): 98304
  Acknowledged Cores: 12
  Acknowledged Adapters: 1
  Motherboard:
    Product Name: Cisco UCS B200 M3
    PID: UCSB-B200-M3
    VID: V01
    Vendor: Cisco Systems Inc
    Serial (SN): FCH16207KXG
```



HW Revision: 0

RAID Controller 1:

Type: SAS  
Vendor: LSI Logic Symbios Logic  
Model: LSI MegaRAID SAS 2004 ROMB  
Serial: LSIROMB-0  
HW Revision: B2  
PCI Addr: 01:00.0  
Raid Support: RAID0, RAID1  
OOB Interface Supported: Yes  
Rebuild Rate: 31  
Controller Status: Optimal

Local Disk 1:

Product Name: 146GB 6Gb SAS 10K RPM SFF HDD/hot plug/drive sled mounted  
PID: A03-D146GA2  
VID: V01  
Vendor: SEAGATE  
Model: ST9146803SS  
Vendor Description: Seagate Technology LLC  
Serial: 3SD31S4X  
HW Rev: 0  
Block Size: 512  
Blocks: 285155328  
Operability: Operable  
Oper Qualifier Reason: N/A  
Presence: Equipped  
Size (MB): 139236  
Drive State: Online  
Power State: Active  
Link Speed: 6 Gbps  
Device Type: HDD

Local Disk 2:

Product Name: 600G AL12SE SAS Hard Disk Drive  
PID: A03-D600GA2  
VID: V01  
Vendor: TOSHIBA  
Model: MBF2600RC  
Vendor Description: Toshiba Corporation  
Serial: EA00PB109T4A  
HW Rev: 0  
Block Size: 512  
Blocks: 1169920000  
Operability: Operable  
Oper Qualifier Reason: N/A  
Presence: Equipped  
Size (MB): 571250  
Drive State: Online  
Power State: Active  
Link Speed: 6 Gbps  
Device Type: HDD

Local Disk Config Definition:

Mode: RAID 1 Mirrored  
Description:  
Protect Configuration: No

Virtual Drive 0:

Type: RAID 1 Mirrored  
Block Size: 512  
Blocks: 285155328  
Operability: Operable

```

Presence: Equipped
Size (MB): 139236
Lifecycle: Allocated
Drive State: Optimal
Strip Size (KB): 64
Access Policy: Read Write
Read Policy: Normal
Configured Write Cache Policy: Write Through
Actual Write Cache Policy: Write Through
IO Policy: Direct
Drive Cache: No Change
Bootable: False

```

```
UCS-A /chassis/server #
```

The following example shows how to display the local disk status for server 2 with PCIe\NVMe Flash Storage:

```
UCS-A# scope server 1/2
```

```
UCS-A /chassis/server # show inventory storage
```

```
Server 1/2:
```

```
Name:
```

```

Acknowledged Serial (SN): FCH1901V0FK
Acknowledged Product Name: Cisco UCS C240 M4S2
Acknowledged PID: UCSC-C240-M4S2
Acknowledged VID: 0
Acknowledged Memory (MB): 16384
Acknowledged Effective Memory (MB): 16384
Acknowledged Cores: 24
Acknowledged Adapters: 4
Motherboard:
  Product Name: Cisco UCS C240 M4S2
  PID: UCSC-C240-M4S2
  VID: V01
  Vendor: Cisco Systems Inc
  Serial (SN): FCH1901V0FK
  HW Revision: 0

```

```
Raid Controller 1:
```

```

Type: NVMe
Vendor: HGST
Model: HUSPR3280ADP301
Serial: STM0001A74F2
HW Revision:
PCI Addr: 42:00.0
Raid Support: No
OOB Interface Supported: Yes
Rebuild Rate: 0
Controller Status: Optimal

```

```
Local Disk 2:
```

```

Product Name: Cisco UCS 800GB 2.5 in NVMe based PCIeSSD
PID: UCS-SDHPCIE800GB
VID:
Vendor: HGST
Model: HUSPR3280ADP301
Vendor Description:
Serial: 14310CF8E975
HW Rev: 0
Block Size: 512
Blocks: 285155328
Operability: NA
Oper Qualifier Reason: N/A

```

```

Presence: Equipped
Size: 94413
Drive State: NA
Power State: NA
Link Speed: NA
Device Type: SSD
Thermal: N/A

```

```
UCS-A /chassis/server #
```

The following example shows how to display the local disk status for Cisco UCS (P3600) 2.5 inches 800 GB NVMe based PCIe SSD:

```
RAID Controller:
```

```

ID: 1
Type: NVME
PCI Addr: 69:00.0
Vendor: Intel
Model: SSDPE2ME800G4K
Serial: CVMD6083003D800GGN
HW Rev:
Raid Support: No
OOB Interface Supported: Yes
Mode: NVME
Rebuild Rate: 0
Controller Status: Optimal
Config State: Not Applied
Pinned Cache Status: Disabled
Sub OEM ID: 0
Supported Strip Sizes: Not Applicable
Default Strip Size: Unknown

```

```
PCI Slot: FrontPCIe5
```

```

Product Variant: default
Product Name: Cisco UCS (P3600) 2.5 inches 800 GB NVMe based PCIe SSD
PID: UCS-PCI25-8003
VID:
Part Number:
Storage Controller Admin State: Unspecified
Vendor Id: 0x8086
Subvendor Id: 0x1137
Device Id: 0x953
Subdevice Id: 0x15b
Current Task:

```

```
Local Disk:
```

```

ID: 5
Block Size: 512
Physical Block Size: Unknown
Blocks: 1562822656
Size: 763097
Technology:
Operability: N/A
Oper Qualifier Reason: N/A
Presence: Equipped
Connection Protocol: NVME
Product Variant: default
Product Name: Cisco UCS (P3600) 2.5 inches 800 GB NVMe based PCIe SSD
PID: UCS-PCI25-8003
VID:
Vendor: Intel
Model: SSDPE2ME800G4K
Vendor Description:
Serial: CVMD6083003D800GGN
HW Rev: 0
Drive State: Unknown

```

```

Power State: Unknown
Link Speed: Unknown
Enclosure Association Type: Unknown
Device Version: N/A
Device Type: SSD
Thermal: N/A
Admin State Type: N/A
Admin Virtual Drive ID: Unspecified
Current Task:

```

The following example shows how to display the status for Cisco UCS (P3600) HHHH 2000 GB NVMe based PCIe SSD:

```

RAID Controller:
  ID: 3
  Type: NVME
  PCI Addr: 01:00.0
  Vendor: Intel
  Model: SSDPEDME020T401
  Serial: CVMD543200AQ2P0EGN
  HW Rev:
  Raid Support: No
  OOB Interface Supported: Yes
  Mode: NVME
  Rebuild Rate: 0
  Controller Status: Optimal
  Config State: Not Applied
  Pinned Cache Status: Disabled
  Sub OEM ID: 0
  Supported Strip Sizes: Not Applicable
  Default Strip Size: Unknown
  PCI Slot: 2
  Product Variant: default
  Product Name: Cisco UCS (P3600) HHHH 2000 GB NVMe based PCIe SSD
  PID: UCSC-F-I20003
  VID:
  Part Number:
  Storage Controller Admin State: Unspecified
  Vendor Id: 0x8086
  Subvendor Id: 0x1137
  Device Id: 0x953
  Subdevice Id: 0x1ac
  Current Task:

Embedded Storage:
  Size: 2000000
  Block Size: 512
  Number Of Blocks: 3906250000

```

## Viewing the Status of a Disk Drive

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope chassis</b> <i>chassis-num</i>	Enters chassis mode for the specified chassis.
<b>Step 2</b>	UCS-A /chassis # <b>scope server</b> <i>server-num</i>	Enters server chassis mode.

	Command or Action	Purpose
<b>Step 3</b>	UCS-A /chassis/server # <b>scope raid-controller</b> <i>raid-contr-id</i> {sas   sata}	Enters RAID controller server chassis mode.
<b>Step 4</b>	UCS-A /chassis/server/raid-controller # <b>show</b> <b>local-disk</b> [ <i>local-disk-id</i>   detail   expand]	

### Example

The following example shows the status of a disk drive:

```
UCS-A# scope chassis 1
UCS-A /chassis # scope server 6
UCS-A /chassis/server # scope raid-controller 1 sas
UCS-A /chassis/server/raid-controller # show local-disk 1

Local Disk:
  ID: 1
  Block Size: 512
  Blocks: 60545024
  Size (MB): 29563
  Operability: Operable
  Presence: Equipped
```

## Viewing RAID Controller Operations

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-id</i> / <i>server-id</i>	Enters chassis server mode for the specified server.
<b>Step 2</b>	UCS-A /chassis/server # <b>show raid-controller</b> <b>operation</b>	Displays the long running operations for the RAID controller.

### Example

The following example shows how to display the RAID controller operations for server 3:

```
UCS-A# scope server 1/3
UCS-A /chassis/server # show raid-controller operation

Name: Rebuild
Affected Object: sys/chassis-1/blade-3/board/storage-SAS-1/disk-1
State: In Progress
Progress: 4
Start Time: 2013-11-05T12:02:10.000
End Time: N/A

UCS-A /chassis/server #
```

## Viewing RAID Controller Stats

The following procedure shows how to display controller stats for a server with PCIe\NVMe Flash Storage:

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-id / server-id</i>	Enters chassis server mode for the specified server.
<b>Step 2</b>	UCS-A /chassis/server # <b>scope raid-controller</b> <i>raid-contr-id {flash   sas   sata   sd   unknown}</i>	Enters RAID controller server chassis mode.
<b>Step 3</b>	UCS-A /chassis/server/raid-controller # <b>show stats</b>	Displays the raid controller stats.

### Example

The following example shows how to display the RAID controller stats:

```
UCS-A# scope server 1/3
UCS-A /chassis/server # scope raid-controller
UCS-A /chassis/server/raid-controller # show stats

Nvme Stats:
  Time Collected: 2016-06-22T12:37:55.043
  Monitored Object: sys/rack-unit-6/board/storage-NVME-1/nvme-stats
  Suspect: Yes
  Temperature (C): 27.000000
  Life Used Percentage: 0
  Thresholded: 0

UCS-A /chassis/server/raid-controller #
```

## Monitoring RAID Battery Status

This procedure applies only to Cisco UCS servers that support RAID configuration and TFM. If the Battery Backup Unit (BBU) has failed or is predicted to fail, you should replace the unit as soon as possible.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A # <b>scope chassis</b> <i>chassis-num</i>	Enters chassis mode for the specified chassis.
<b>Step 2</b>	UCS-A /chassis # <b>scope server</b> <i>server-num</i>	Enters server chassis mode.
<b>Step 3</b>	UCS-A /chassis/server # <b>scope raid-controller</b> <i>raid-contr-id {flash   sas   sata   sd   unknown}</i>	Enters RAID controller server chassis mode.
<b>Step 4</b>	UCS-A /chassis/server/raid-controller # <b>show raid-battery expand</b>	Displays the RAID battery status.

### Example

This example shows how to view information on the BBU of a server:

```
UCS-A # scope chassis 1
UCS-A /chassis #scope server 3
UCS-A /chassis/server #scope raid-controller 1 sas
UCS-A /chassis/server/raid-controller # show raid-battery expand
RAID Battery:
  Battery Type: Supercap
  Presence: Equipped
  Operability: Operable
  Oper Qualifier Reason:
  Vendor: LSI
  Model: SuperCaP
  Serial: 0
  Capacity Percentage: Full
  Battery Temperature (C): 54.000000

  Transportable Flash Module:
    Presence: Equipped
    Vendor: Cisco Systems Inc
    Model: UCSE-RAID-1GBFM
    Serial: FCH164279W6
```

# Graphics Card Monitoring

## Graphics Card Server Support

With Cisco UCS Manager, you can view the properties for certain graphics cards and controllers. Graphics cards are supported on the following servers:

- Cisco UCS X410c M7 Compute Node
- Cisco UCS X210c M7 Compute Node
- Cisco UCS X210c M6 Compute Node
- Cisco UCS C240 M7 Server
- Cisco UCS C220 M7 Server
- Cisco UCS C240 M6 Server
- Cisco UCS C220 M6 Server
- Cisco UCS C245 M6 Server
- Cisco UCS C225 M6 Server
- Cisco UCS C240 M5 Server
- Cisco UCS C220 M5 Server
- Cisco UCS B200 M6 Server
- Cisco UCS B480 M6 Server

- Cisco UCS B200 M5 Server
- Cisco UCS B480 M5 Server



**Note** Certain NVIDIA Graphics Processing Units (GPU) do not support Error Correcting Code (ECC) and vGPU together. Cisco recommends that you refer to the release notes published by NVIDIA for the respective GPU to know whether it supports ECC and vGPU together.

## Viewing Graphics Card Properties

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>blade-id</i>	Enters server mode for the specified server.
<b>Step 2</b>	UCS-A /server # <b>show graphics-card detail</b>	Displays information about the graphics card.

### Example

The following example shows how to display the graphics card properties on server 1:

```
UCS-A# scope server 1
UCS-A /server # show graphics-card detail

ID: 1
Slot Id: 2
Magma Expander Slot Id:
Is Supported: Yes
Vendor: Cisco Systems Inc
Model: UCSB-GPU-M6
Serial: FHH1924002B
Mode: Graphics
PID: UCSB-GPU-M6
Firmware Version: 84.04.89.00.01|2754.0200.01.02
Vendor Id: 0x10de
Subvendor Id: 0x10de
Device Id: 0x13f3
Subdevice Id: 0x1143

UCS-A /server #
```

## Viewing Graphics Controller Properties

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>blade-id</i>	Enters server mode for the specified server.



	Command or Action	Purpose
<b>Step 2</b>	UCS-A /server # <b>scope graphics-card</b> <i>card-id</i>	Enters graphics card mode for the specified graphics card.
<b>Step 3</b>	UCS-A /server/graphics-card # <b>show graphics-controller detail</b>	Displays information about the graphics controllers.

### Example

The following example shows how to display the graphics controller properties for graphics card 1 on server 1:

```
UCS-A# scope server 1
UCS-A /server # scope graphics-card 1
UCS-A /server/graphics-card # show graphics-controller detail
Graphics Controller:
  ID: 1
  Pci Address: 07:00.0

  ID: 2
  Pci Address: 08:00.0
UCS-A /server/graphics-card #
```

## PCI Switch Monitoring

### PCI Switch Server Support

With Cisco UCS Manager, you can view the properties for PCI switches. PCI switches are supported on the following servers:

- Cisco UCS C480 M5 ML Server

### Viewing PCI Switch Properties

PCI Switch properties are visible only for servers which support PCI switch.

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>server-num</i>	Enters server mode for the specified server.
<b>Step 2</b>	UCS-A /server # <b>show pci-switch</b>	Displays information about the PCI switches.
<b>Step 3</b>	UCS-A /server # <b>scope pci-switch</b> <i>pci-switch-number</i>	Enters the PCI switch mode for the specified PCI switch.
<b>Step 4</b>	UCS-A /server # <b>show detail</b>	

**Example**

The following example shows how to display the PCI switch properties:

```
UCS-A# scope server 1
UCS-A /server # show pci-switch
Pci Switch:
ID Pci Switch name Firmware Version
-----
1 PCI-Switch-1 xxxx
2 PCI-Switch-2 xxxxxxxx
3 PCI-Switch-3 xxx
4 PCI-Switch-4 xxxxx
UCS-A /server # scope pci-switch 1
UCS-A /server/pci-switch #show detail

Pci Switch:
ID: 1
Pci Switch name: PCI-Switch-1
No of Adapters: 3
Switch Status: Good
Switch Temperature (C): 45.000000
Switch Product Revision: 0XxB
Firmware Version: xxxx
Vendor Id: xxx
Subvendor Id: xxx
Device Id: xxxx
Subdevice Id: xxxxx
Switch Vendor: xxxxxx
Pci Address: xx:00.0
UCS-A /server/pci-switch #
```

## Managing Transportable Flash Module and Supercapacitor

LSI storage controllers use a Transportable Flash Module (TFM) powered by a supercapacitor to provide RAID cache protection. With Cisco UCS Manager, you can monitor these components to determine the status of the battery backup unit (BBU). The BBU operability status can be one of the following:

- **Operable**—The BBU is functioning successfully.
- **Inoperable**—The TFM or BBU is missing, or the BBU has failed and needs to be replaced.
- **Degraded**—The BBU is predicted to fail.

TFM and supercap functionality is supported beginning with Cisco UCS Manager Release 2.1(2).

## TFM and Supercap Guidelines and Limitations

### Supported Cisco UCS Servers for TFM and Supercap

The following Cisco UCS servers support TFM and supercap:

- Cisco UCS X410c M7 Compute Node
- Cisco UCS C240 M7 Server

- Cisco UCS C220 M7 Server
- Cisco UCS X210c M7 Compute Node
- Cisco UCS X210c M6 Compute Node
- Cisco UCS B200 M6 Server
- Cisco UCS B200 M5 Server
- Cisco UCS B480 M5 Server
- Cisco UCS C220 M5 Server
- Cisco UCS C240 M5 Server
- Cisco UCS C480 M5 Server

## TPM Monitoring

Trusted Platform Module (TPM) is included on all Cisco UCS M3 blade and rack-mount servers. Operating systems can use TPM to enable encryption. For example, Microsoft's BitLocker Drive Encryption uses the TPM on Cisco UCS servers to store encryption keys.

Cisco UCS Manager enables monitoring of TPM, including whether TPM is present, enabled, or activated.

## Viewing TPM Properties

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope server</b> <i>chassis-id / server-id</i>	Enters chassis server mode for the specified server.
<b>Step 2</b>	UCS-A /chassis/server # <b>scope tpm</b> <i>tpm-id</i>	Enters TPM mode for the specified TPM ID.
<b>Step 3</b>	UCS-A /chassis/server/tpm # <b>show</b>	Displays the TPM properties.
<b>Step 4</b>	UCS-A /chassis/server/tpm # <b>show detail</b>	Displays detailed TPM properties.

### Example

The following example shows how to display the TPM properties for blade 3 in chassis 1:

```
UCS-A# scope server 1/3
UCS-A /chassis/server # scope tpm 1
UCS-A /chassis/server/tpm # show
```

```
Trusted Platform Module:
  Presence: Equipped
  Enabled Status: Enabled
  Active Status: Activated
  Ownership: Unowned
```

```
UCS-A /chassis/server/tpm # show detail
```

```
Trusted Platform Module:  
  Enabled Status: Enabled  
  Active Status: Activated  
  Ownership: Unowned  
  Tpm Revision: 1  
  Model: UCSX-TPM1-001  
  Vendor: Cisco Systems Inc  
  Serial: FCH16167DEJ  
UCS-A /chassis/server/tpm #
```