

Monitoring Hardware

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Monitoring a Fabric Interconnect

Procedure

Step 1 Step 2	In the Navigation pane, click the On the Equipment table expand E	Equipment tab. quipment > Fabric Interconnects.	
Step 3	Click the node for the fabric interconnect that you want to monitor.		
Step 4	· · · · · · · · · · · · · · · · · · ·		
	Option	Description	
	General tab	Provides an overview of the status of the fabric interconnect, including a summary of any faults, a summary of the fabric interconnect properties, and a physical display of the fabric interconnect and its components.	

Option	Description
Physical Ports tab	Displays the status of all ports on the fabric interconnect. This tab includes the following subtabs:
	Ethernet Ports tab
	FC Ports tab
Displays the status of all fan modules in the fabric interconnect.	
Physical Display tab	Provides a graphical view of the fabric interconnect and all ports and other components. If a component has a fault, the fault icon is displayed next to that component.
Faults tab	Provides details of faults generated by the fabric interconnect.
Events tab	Provides details of events generated by the fabric interconnect.
Statistics tab	Provides statistics about the fabric interconnect and its components. You can view these statistics in tabular or chart format.

Monitoring a Chassis

<u>Р</u> Tip

To monitor an individual component in a chassis, expand the node for that component.

- **Step 2** On the **Equipment** tab, expand **Equipment** > **Chassis**.
- **Step 3** Click the chassis that you want to monitor.
- **Step 4** Click one of the following tabs to view the status of the chassis:

Option	Description
General tab	Provides an overview of the status of the chassis, including a summary of any faults, a summary of the chassis properties, and a physical display of the chassis and its components.
Servers tab	Displays the status and selected properties of all servers in the chassis.

Option	Description
Service Profiles tab	Displays the status of the service profiles associated with servers in the chassis.
FI-IO Modules tab	Displays the status and selected properties of all IO modules in the chassis.
Fans tab	Displays the status of all fan modules in the chassis.
PSUs	Displays the status of all power supply units in the chassis.
Hybrid Display tab	 Displays detailed information about the connections between the chassis and the fabric interconnects. The display has an icon for the following: Each FI-IO module in the system. The selected chassis showing the servers and PSUs, or the selected
	rack server.
Slots tab	Displays the status of all slots in the chassis.
Installed Firmware tab	Displays the current firmware versions on the FI-IO modules and servers in the chassis. You can also use this tab to update and activate the firmware on those components.
SEL Logs tab	Displays and provides access to the system event logs for the servers in the chassis.
Power Control Monitor tab	Provides details of the power group, chassis, and servers.
Connectivity Policy tab	Provides details of the chassis ID, fabric ID, and connectivity type for the fabric.
Faults tab	Provides details of faults generated by the chassis.
Events tab	Provides details of events generated by the chassis.
FSM tab	Provides details about and the status of FSM tasks related to the chassis. You can use this information to diagnose errors with those tasks.
Statistics tab	Provides statistics about the chassis and its components. You can view these statistics in tabular or chart format.
Temperatures tab	Provides temperature statistics for the components of the chassis. You can view these statistics in tabular or chart format.
Power tab	Provides power statistics for the components of the chassis. You can view these statistics in tabular or chart format.

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Monitoring a Blade Server

Step 1	In the Navigation pane, click the Equipment tab. On the Equipment tab, expand Equipment > Chassis > <i>Chassis Number</i> > Servers.		
Step 2			
Step 3	Click the server that you want to monitor.		
Step 4	In the Work pane, click one of the following tabs to view the status of the server:		
	Option	Description	
	General tab	Provides an overview of the status of the server, including a summary of any faults, a summary of the server properties, and a physical display of the server and its components.	

Option	Description
Inventory tab	Provides details about the properties and status of the components of the server on the following subtabs:
	• Motherboard—Information about the motherboard and information about the server BIOS settings. You can also recover corrupt BIOS firmware from this subtab.
	• CIMC—Information about the CIMC and its firmware, and provides access to the SEL for the server. You can also assign a static or pooled management IP address, and update and activate the CIMC firmware from this subtab.
	• CPUs—Information about each CPU in the server.
	• Memory —Information about each memory slot in the server and the DIMM in that slot.
	• Adapters—Information about each adapter installed in the server.
	• HBAs —Properties of each HBA and the configuration of that HBA in the service profile associated with the server.
	• NICs—Properties of each NIC and the configuration of that NIC in the service profile associated with the server. You can expand each row to view information about the associated VIFs and vNICs.
	• iSCSI vNICs —Properties of each iSCSI vNIC and the configuration of that vNIC in the service profile associated with the server.
	• Storage —Properties of the storage controller, the local disk configuration policy in the service profile associated with the server, and for each hard disk in the server.
	TipIf the server contains one or more SATA devices, such as a hard disk drive o solid state drive, Cisco UCS Manager GUI displays the vendor name for the SATA device in the Vendor field.
	However, Cisco UCS Manager CLI displays ATA in the Vendor field and includes the vendor information, such as the vendor name, in a Vendor Description field. This second field does not exist in Cisco UCS Manager GUI.
Virtual Machines tab	Displays details about any virtual machines hosted on the server.
Installed Firmware tab	Displays the firmware versions on the CIMC, adapters, and other server components. You can also use this tab to update and activate the firmware on those components.
SEL Logs tab	Displays the system event log for the server.
VIF Paths tab	Displays the VIF paths for the adapters on the server.
Faults tab	Displays an overview of the faults generated by the server. You can click any fault to view additional information.

Option	Description
Events tab	Displays an overview of the events generated by the server. You can click any event to view additional information.
FSM tab	Provides details about the current FSM task running on the server, including the status of that task. You can use this information to diagnose errors with those tasks.
Statistics tab	Displays statistics about the server and its components. You can view these statistics in tabular or chart format.
Temperatures tab	Displays temperature statistics for the components of the server. You can view these statistics in tabular or chart format.
Power tab	Displays power statistics for the components of the server. You can view these statistics in tabular or chart format.

Step 5 In the Navigation pane, expand *Server_ID* > Adapters > *Adapter_ID*.

- **Step 6** In the **Work** pane, right-click one or more of the following components of the adapter to open the navigator and view the status of the component:
 - Adapters
 - DCE interfaces
 - HBAs
 - NICs
 - **Tip** Expand the nodes in the table to view the child nodes. For example, if you expand a NIC node, you can view each VIF created on that NIC.

Monitoring a Rack-Mount Server

- **Step 1** In the Navigation pane, click the Equipment tab.
- **Step 2** On the **Equipment** tab, expand **Equipment** > **Rack Mounts** > **Servers**.
- **Step 3** Click the server that you want to monitor.
- **Step 4** In the Work pane, click one of the following tabs to view the status of the server:

(Option	Description
(G eneral tab	Provides an overview of the status of the server, including a summary of any faults, a summary of the server properties, and a physical display of the server and its components.

Option	Description
Inventory tab	Provides details about the properties and status of the components of the server on the following subtabs:
	• Motherboard—Information about the motherboard and information about the server BIOS settings. You can also recover corrupt BIOS firmware from this subtab.
	• CIMC—Information about the CIMC and its firmware, and provides access to the SEL for the server. You can also assign a static or pooled management IP address, and update and activate the CIMC firmware from this subtab.
	• CPU—Information about each CPU in the server.
	• Memory —Information about each memory slot in the server and the DIMM in that slot.
	• Adapters—Information about each adapter installed in the server.
	• HBAs —Properties of each HBA and the configuration of that HBA in the service profile associated with the server.
	• NICs—Properties of each NIC and the configuration of that NIC in the service profile associated with the server. You can expand each row to view information about the associated VIFs and vNICs.
	• iSCSI vNICs —Properties of each iSCSI vNIC and the configuration of that vNIC in the service profile associated with the server.
	• Storage —Properties of the storage controller, the local disk configuration policy in the service profile associated with the server, and for each hard disk in the server.
	TipIf the server contains one or more SATA devices, such as a hard disk drive o solid state drive, Cisco UCS Manager GUI displays the vendor name for the SATA device in the Vendor field.
	However, Cisco UCS Manager CLI displays ATA in the Vendor field and includes the vendor information, such as the vendor name, in a Vendor Description field. This second field does not exist in Cisco UCS Manager GUI.
Virtual Machines tab	Displays details about any virtual machines hosted on the server.
Installed Firmware tab	Displays the firmware versions on the CIMC, adapters, and other server components. You can also use this tab to update and activate the firmware on those components.
SEL Logs tab	Displays the system event log for the server.
VIF Paths tab	Displays the VIF paths for the adapters on the server.
Faults tab	Displays an overview of the faults generated by the server. You can click any fault to view additional information.

Option	Description
Events tab	Displays an overview of the events generated by the server. You can click any event to view additional information.
FSM tab	Provides details about the current FSM task running on the server, including the status of that task. You can use this information to diagnose errors with those tasks.
Statistics tab	Displays statistics about the server and its components. You can view these statistics in tabular or chart format.
Temperatures tab	Displays temperature statistics for the components of the server. You can view these statistics in tabular or chart format.
Power tab	Displays power statistics for the components of the server. You can view these statistics in tabular or chart format.

Step 5 In the Navigation pane, expand *Server_ID* > Adapters > *Adapter_ID*.

- **Step 6** In the **Work** pane, right-click one or more of the following components of the adapter to open the navigator and view the status of the component:
 - Adapters
 - DCE interfaces
 - HBAs
 - NICs
 - **Tip** Expand the nodes in the table to view the child nodes. For example, if you expand a NIC node, you can view each VIF created on that NIC.

Monitoring an FI-IO Module

- **Step 1** In the Navigation pane, click the Equipment tab.
- Step 2 On the Equipment tab, expand Equipment > Chassis > Chassis Number > FI-IO Modules.
- **Step 3** Click the module that you want to monitor.
- **Step 4** Click one of the following tabs to view the status of the module:

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Option	Description
General tab	Provides an overview of the status of the FI-IO module, including a summary of any faults, a summary of the module properties, and a physical display of the module and its components.

Option	Description
Backplane Ports tab	Displays the status and selected properties of all backplane ports in the module.
Faults tab	Provides details of faults generated by the module.
Events tab	Provides details of events generated by the module.
FSM tab	Provides details about and the status of FSM tasks related to the module. You can use this information to diagnose errors with those tasks.
Statistics tab	Provides statistics about the module and its components. You can view these statistics in tabular or chart format.

Monitoring Management Interfaces

Management Interfaces Monitoring Policy

This policy defines how the mgmt0 Ethernet interface on the fabric interconnect should be monitored. If Cisco UCS 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 disabled.

If the affected management interface belongs to a fabric interconnect which is the managing instance, Cisco UCS confirms that the subordinate fabric interconnect's status is up, that there are no current failure reports logged against it, and then modifies the managing instance for the endpoints.

If the affected fabric interconnect is currently the primary inside of a high availability setup, a failover of the management plane is triggered. The data plane is not affected by this failover.

You can set the following properties related to monitoring the management interface:

- Type of mechanism used to monitor the management interface.
- Interval at which the management interface's status is monitored.
- Maximum number of monitoring attempts that can fail before the system assumes that the management is unavailable and generates a fault message.

Important

In the event of a management interface failure 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

- **Step 1** In the Navigation pane, click the Admin tab.
- **Step 2** In the Admin tab, expand All > Communication Management.
- Step 3 Click Management Interfaces.
- Step 4 In the Work pane, click the Management Interfaces Monitoring Policy tab.
- **Step 5** Complete the following fields:

Name	Description
Admin Status field	Whether the monitoring policy is enabled or disabled for the management interfaces.
Poll Interval field	The number of seconds Cisco UCS should wait between data recordings. Enter an integer between 90 and 300.
Max Fail Report Count field	The maximum number of monitoring attempts that can fail before Cisco UCS assumes that the management interface is unavailable and generates a fault message. Enter an integer between 2 and 5.

Name	Description
Monitoring Mechanism field	The type of monitoring you want Cisco UCS to use. This can be one of the following:
	• Mii Status—Cisco UCS monitors the availability of the Media Independent Interface (MII). If you select this option, Cisco UCS Manager GUI displays the Media Independent Interface Monitoring area.
	• Ping Arp Targets —Cisco UCS pings designated targets using the Address Resolution Protocol (ARP). If you select this option, Cisco UCS Manager GUI displays the ARP Target Monitoring area.
	• Ping Gateway —Cisco UCS pings the default gateway address specified for this Cisco UCS domain on the Management Interfaces tab. If you select this option, Cisco UCS Manager GUI displays the Gateway Ping Monitoring area.

Step 6 If you chose **Mii Status** for the monitoring mechanism, complete the following fields in the **Media Independent Interface Monitoring** area:

Name	Description
Retry Interval field	The number of seconds Cisco UCS should wait before requesting another response from the MII if a previous attempt fails. Enter an integer between 3 and 10.
Max Retry Count field	The number of times Cisco UCS polls the MII until the system assumes the interface is unavailable. Enter an integer between 1 and 3.

Step 7 If you chose **Ping Arp Targets** for the monitoring mechanism, complete the fields on the appropriate tab in the **ARP Target Monitoring** area.

If you are using IPv4 addresses, complete the following fields in the IPv4 subtab:

Name	Description
Target IP 1 field	The first IPv4 address Cisco UCS pings.
Target IP 2 field	The second IPv4 address Cisco UCS pings.
Target IP 3 field	The third IPv4 address Cisco UCS pings.
Number of ARP Requests field	The number of ARP requests Cisco UCS sends to the target IP addresses. Enter an integer between 1 and 5.

Name	Description
Max Deadline Timeout field	The number of seconds Cisco UCS waits for responses from the ARP targets until the system assumes they are unavailable. Enter an integer between 5 and 15.
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If you are using IPv6 addresses, complete the following fields in the IPv6 subtab:

Name	Description
Target IP 1 field	The first IPv6 address Cisco UCS pings.
Target IP 2 field	The second IPv6 address Cisco UCS pings.
Target IP 3 field	The third IPv6 address Cisco UCS pings.
Number of ARP Requests field	The number of ARP requests Cisco UCS sends to the target IP addresses. Enter an integer between 1 and 5.
Max Deadline Timeout field	The number of seconds Cisco UCS waits for responses from the ARP targets until the system assumes they are unavailable. Enter an integer between 5 and 15.

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.

Step 8 If you chose **Ping Gateway** for the monitoring mechanism, complete the following fields in the **Gateway Ping Monitoring** area:

Name	Description
Number of Ping Requests field	The number of times Cisco UCS should ping the gateway. Enter an integer between 1 and 5.
Max Deadline Timeout field	The number of seconds Cisco UCS waits for a response from the gateway until Cisco UCS assumes the address is unavailable. Enter an integer between 5 and 15.

Step 9 Click Save Changes.

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 (BBU), Transportable Flash Modules (TFM) and super-capacitors, FlexFlash controllers, and SD cards.

Cisco UCS Manager communicates directly with the LSI MegaRAID controllers and FlexFlash controllers using an out-of-band (OOB) 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 super-capacitor 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.



Note

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

· Detailed fault information for all local storage components.



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 B200 M3 blade server
- Cisco UCS C220 M3 rack server
- Cisco UCS C240 M3 rack server



Not all servers support all local storage components. For Cisco UCS rack servers, the onboard SATA RAID 0/1 controller integrated on motherboard is not supported.

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.

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



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 the Status of Local Storage Components

Procedure

Step 1	In the Navigation pane, click the Equipment tab.	
Step 2	On the Equipment tab, expand Equipment > Chassis > Chassis Number > Servers.	
Step 3	Click the server for which you want to view the status of your local storage components.	
Step 4	In the Work pane, click the Inventory tab.	
Step 5	Click the Storage subtab to view the status of your RAID controllers and any FlexFlash controllers.	
Step 6	Click the down arrows to expand the Local Disk Configuration Policy, Actual Disk Configurations, Disks, and Firmware bars and view additional status information.	
	Note The Local Disk Configuration Policy and Actual Disk Configurations areas only display data for	
	the Cisco UCS B460 blade server master node. No fields are displayed for the slave node.	

Graphics Cards Monitoring

Monitoring Graphics Cards

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 C240 M3 Rack Server
- Cisco UCS C460 M4 Rack Server

Viewing Graphics Card Properties

Procedure

Step 1	In the Navigation pane, click the Equipment tab.
Step 2	On the Equipment tab, expand Equipment > Rack Mounts > Servers.
Step 3	Choose the server for which you want to view the Graphics Card settings.
Step 4	On the Work pane, click the Inventory tab.
Step 5	Click the GPU subtab.

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 C220 M3 rack server
- Cisco UCS C240 M3 rack server

Monitoring RAID Battery Status

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

Procedure

- **Step 1** In the Navigation pane, click the Equipment tab.
- **Step 2** In the **Equipment** pane, expand **Chassis** > **Chassis** Number > **Server** Number.
- **Step 3** In the Work pane, click the **Inventory** tab.
- **Step 4** Click the **Storage** subtab to view the **RAID Battery (BBU)** area.

Viewing a RAID Battery Fault

Note

This applies only to Cisco UCS servers that support RAID configuration and TFM.

Procedure

- **Step 1** In the Navigation pane, click the Equipment tab.
- **Step 2** In the **Equipment** pane, expand **Chassis** > **Chassis** Number > **Server** Number.
- Step 3 In the Work pane, click the Faults tab.
- **Step 4** Select the battery to see more information on its condition.

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.

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Viewing TPM Properties

Step 1	In the Navigation pane, click the Equipment tab.
Step 2	On the Equipment tab, expand Equipment > Chassis > Chassis Number > Servers.
Step 3	Choose the server for which you want to view the TPM settings.
Step 4	On the Work pane, click the Inventory tab.
Step 5	Click the Motherboard subtab.