



# Monitoring Hardware

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## Monitoring Fan Modules

### SUMMARY STEPS

1. UCS-A# **scope chassis** *chassis-num*
2. UCS-A /chassis # **show environment fan**
3. UCS-A /chassis # **scope fan-module** *tray-num module-num*
4. UCS-A /chassis/fan-module # **show** [**detail** | **expand**]

### DETAILED STEPS

	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>

	Command or Action	Purpose
<b>Step 3</b>	UCS-A /chassis # <b>scope fan-module tray-num module-num</b>	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 [detail   expand]</b>	Displays the environment status for the specified fan module.

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

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 enabled.

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

### SUMMARY STEPS

1. Enter monitoring mode.
2. Enable or disable the management interfaces monitoring policy.
3. Specify the number of seconds that the system should wait between data recordings.
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.
5. Specify the monitoring mechanism that you want the system to use.
6. If you selected **mii-status** as your monitoring mechanism, configure the following properties:
7. If you selected **ping-arp-targets** as your monitoring mechanism, configure the following properties:
8. If you selected **ping-gateway** as your monitoring mechanism, configure the following properties:
9. UCS-A /monitoring # **commit-buffer**

### DETAILED STEPS

- 
- 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.

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 chassis. This includes RAID controllers, physical drives and drive groups, virtual drives, and RAID controller batteries (BBU).

Cisco UCS Manager communicates directly with the storage 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.
- Information on 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 CMC 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.

## Support for Local Storage Monitoring

Through Cisco UCS Manager, you can monitor local storage components for the Cisco UCSME-142-M4 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 chassis.
- The chassis must be powered on.
- The chassis must have completed discovery.
- The results of the BIOS POST complete must be TRUE.



**Note** This prerequisite is not applicable to the chassis

## Viewing the Status of a Disk Drive

### SUMMARY STEPS

1. UCS-A# **scope chassis** *chassis-num*
2. UCS-A /chassis # **scope raid-controller** *raid-contr-id* {**sas** | **sata**}
3. UCS-A /chassis/raid-controller # **show local-disk** [*local-disk-id* | **detail** | **expand**]

### DETAILED STEPS

	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 raid-controller</b> <i>raid-contr-id</i> { <b>sas</b>   <b>sata</b> }	Enters RAID controller chassis mode.
<b>Step 3</b>	UCS-A /chassis/raid-controller # <b>show local-disk</b> [ <i>local-disk-id</i>   <b>detail</b>   <b>expand</b> ]	Displays the status of the specified disk drive.

The following example shows the status of a disk drive:

```
UCS-A# scope chassis 1
UCS-A /chassis # scope raid-controller 1 sas
UCS-A /chassis/raid-controller # show local-disk 4
```

```
Local Disk:
ID: 4
Block Size: 512
Blocks: 193357824
Size: 94413
Operability: Operable
Presence: Equipped
Connection Protocol: SATA
```

## Viewing Detailed Information About Virtual Drives

### SUMMARY STEPS

1. UCS-A# **scope chassis** *chassis-num*
2. UCS-A /chassis # **scope raid-controller** *raid-contr-id* {**sas** | **sata**}
3. UCS-A /chassis/raid-controller # **show virtual-drive** [**detail**] [**expand**]
4. (Optional) UCS-A /chassis/raid-controller # **show virtual-drive** *vd-id* [**detail**] [**expand**]

### DETAILED STEPS

	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 raid-controller</b> <i>raid-contr-id</i> { <b>sas</b>   <b>sata</b> }	Enters RAID controller chassis mode.
<b>Step 3</b>	UCS-A /chassis/raid-controller # <b>show virtual-drive</b> [ <b>detail</b> ] [ <b>expand</b> ]	Displays detailed information about the virtual drives controlled by the specified storage controller.
<b>Step 4</b>	UCS-A /chassis/raid-controller # <b>show virtual-drive</b> <i>vd-id</i> [ <b>detail</b> ] [ <b>expand</b> ]	(Optional) Displays detailed information about the specified virtual drive controlled by the specified storage controller.

The following example shows how to display detailed information about virtual drives controlled by raid-controller 1:

```
UCS-A# scope chassis 1
UCS-A /chassis # scope raid-controller 1 sas
UCS-A /chassis/raid-controller # show virtual-drive detail expand
```

```
Virtual Drive:
  ID: 1000
  Name: lunb-1
  Block Size: 512
  Blocks: 8388608
  Size (MB): 4096
  Operability: Operable
  Presence: Equipped
  Lifecycle: Allocated
  Drive State: Optimal
  Type: RAID 0 Striped
  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: Unknown
  Oper Device ID: 4
  Change Qualifier: No Change
```



```

Config State: Orphaned
Deploy Action: No Action
Service Profile Lun Reference:
Assigned To Server:
Unique Identifier: 678da6e7-15b0-1400-1c1f-30684b3a3bc6

```

```

VD Members:
  Slot: 4
  Role: Normal
  Presence: Equipped
  Span Id (RAID levels 10, 50, 60): Unspecified
  Oper Qualifier Reason: N/A

```

```

ID: 1001
Name: luna-1
Block Size: 512
Blocks: 8388608
Size (MB): 4096
Operability: Operable
Presence: Equipped
Lifecycle: Allocated
Drive State: Optimal
Type: RAID 0 Striped
Strip Size (KB): 64

```

...

The following example shows how to display detailed information about virtual drive 1001 controlled by raid-controller 1:

```
UCS-A /chassis/raid-controller # show virtual-drive 1001 detail expand
```

```

Virtual Drive:
  ID: 1001
  Name: boot-1
  Block Size: 512
  Blocks: 104857600
  Size (MB): 51200
  Operability: Operable
  Presence: Equipped
  Lifecycle: Allocated
  Drive State: Optimal
  Type: RAID 0 Striped
  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: Unknown
  Oper Device ID: 0
  Change Qualifier: No Change
  Config State: Orphaned
  Deploy Action: No Action
  Service Profile Lun Reference:
  Assigned To Server:
  Available Size On Disk Group (MB): 43213
  Unique Identifier: 678da6e7-15b0-1400-1c53-7f47891e884c

VD Members:
  Slot: 4
  Role: Normal
  Presence: Equipped
  Span Id (RAID levels 10, 50, 60): Unspecified
  Oper Qualifier Reason: N/A

```

## Viewing Detailed Information About the Storage Controller

### SUMMARY STEPS

1. UCS-A# **scope chassis** *chassis-num*
2. UCS-A /chassis # **scope raid-controller** *raid-contr-id* {**sas** | **sata**}
3. UCS-A /chassis/raid-controller # **show detail**

### DETAILED STEPS

	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 raid-controller</b> <i>raid-contr-id</i> { <b>sas</b>   <b>sata</b> }	Enters RAID controller chassis mode.
<b>Step 3</b>	UCS-A /chassis/raid-controller # <b>show detail</b>	Displays detailed information about the storage controller.

The following example shows how to display detailed information about storage controller 1:

```
UCS-A# scope chassis 1
UCS-A /chassis # scope raid-controller 1 sas
UCS-A /chassis/raid-controller # show detail

RAID Controller:
  ID: 1
  Type: SAS
  PCI Addr:
  Vendor: Cisco Systems Inc
  Model: Cisco 12G SAS Modular Raid Controller
  Serial: SR416P0075
  HW Rev: C0
  Raid Support: RAID0, RAID1, RAID5, RAID6, RAID10, RAID50, RAID60
  OOB Interface Supported: Yes
  Rebuild Rate: 30
  Controller Status: Optimal
  Config State: Applied
  VID: V01
  Part Number:
  Storage Controller Admin State: Unspecified
  Current Task:
```

## Viewing Storage Controller Operations

### SUMMARY STEPS

1. UCS-A# **scope chassis** *chassis-num*
2. UCS-A /chassis # **show raid-controller operation**

## DETAILED STEPS

	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 raid-controller operation</b>	Displays the long running operations for the storage controller.

The following example shows how to display the storage controller operations for chassis 1:

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

Name: Relearning
Affected Object: sys/chassis-1/storage-SAS-1/raid-battery
State: Completed
Progress (%): N/A
Start Time: 2014-12-13T16:05:25.000
End Time: 2014-12-17T14:30:59.000

Name: Initialization
Affected Object: sys/chassis-1/storage-SAS-1/vd-1000
State: Completed
Progress (%): N/A
Start Time: N/A
End Time: N/A

Name: Initialization
Affected Object: sys/chassis-1/storage-SAS-1/vd-1001
State: Completed
Progress (%): N/A
Start Time: N/A
End Time: N/A

UCS-A /chassis #
```

