



Troubleshooting Server Hardware Issues

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Diagnostics Button and LEDs

At the blade start-up, the POST diagnostics test the CPUs, DIMMs, HDDs, and adapter cards. Any failure notifications are sent to Cisco UCS Manager. You can view these notification in the system event log (SEL) or in the output of the show tech-support command. If errors are found, an amber diagnostic LED lights up next to the failed component. During run time, the blade BIOS, component drivers, and OS monitor for hardware faults. The amber diagnostic LED lights up for any component if an uncorrectable error or correctable errors (such as a host ECC error) over the allowed threshold occurs.

The LED states are saved. If you remove the blade from the chassis, the LED values persist for up to 10 minutes. Pressing the LED diagnostics button on the motherboard causes the LEDs that currently show a component fault to light up for up to 30 seconds. The LED fault values are reset when the blade is reinserted into the chassis and booted.

If any DIMM insertion errors are detected, they can cause the blade discovery to fail and errors are reported in the server POST information. You can view these errors in either the Cisco UCS Manager CLI or the Cisco UCS Manager GUI. The blade servers require specific rules to be followed when populating DIMMs in a blade server. The rules depend on the blade server model. Refer to the documentation for a specific blade server for those rules.

The HDD status LEDs are on the front of the HDD. Faults on the CPU, DIMMs, or adapter cards also cause the server health LED to light up as a solid amber for minor error conditions or blinking amber for critical error conditions.

DIMM Memory Issues

Types of DIMM Errors

Cisco UCS Servers can detect and report correctable and uncorrectable DIMM errors.

Correctable DIMM Errors

DIMMs with correctable errors are not disabled and are available for the OS to use. The total memory and effective memory are the same (memory mirroring is taken into account). These correctable errors are reported in as degraded once they exceed pre-determined error thresholds.

Uncorrectable DIMM Errors

Uncorrectable errors generally cannot be fixed, and may make it impossible for the application or operating system to continue execution. The DIMMs with uncorrectable error will be disabled if DIMM blacklisting is enabled or if the DIMM fails upon reboot during BIOS POST and OS will not see that memory. **operState** will be inoperable for this DIMM in this case.

A problem with the DIMM memory can cause a server to fail to boot or cause the server to run below its capabilities. If DIMM issues are suspected, consider the following:

- DIMMs tested, qualified, and sold by Cisco are the only DIMMs supported on your system. Third-party DIMMs are not supported, and if they are present, Cisco technical support will ask you to replace them with Cisco DIMMs before continuing to troubleshoot a problem.
- Check if the malfunctioning DIMM is supported on that model of server. Refer to the server's installation guide and technical specifications to verify whether you are using the correct combination of server, CPU and DIMMs.
- Check if the malfunctioning DIMM seated correctly in the slot. Remove and reseal the DIMMs.
- All Cisco servers have either a required or recommended order for installing DIMMs. Refer to the server's installation guide and technical specifications to verify that you are adding the DIMMs appropriately for a given server type.
- If the replacement DIMMs have a maximum speed lower than those previously installed, all DIMMs in a server run at the slower speed or not work at all. All of the DIMMs in a server should be of the same type. All of the DIMMs in a server should be of the same type for optimal performance.
- The number and size of DIMMs should be the same for all CPUs in a server. Mismatching DIMM configurations can degrade system performance.

Memory Terms and Acronyms

Table 1: Memory Terms and Acronyms

Acronym	Meaning
DIMM	Dual In-line Memory Module
DRAM	Dynamic Random Access Memory
ECC	Error Correction Code

LVDIMM	Low voltage DIMM
MCA	Machine Check Architecture
MEMBIST	Memory Built-In Self Test
MRC	Memory Reference Code
POST	Power On Self Test
SPD	Serial Presence Detect
DDR	Double Data Rate
CAS	Column Address Strobe
RAS	Row Address Strobe

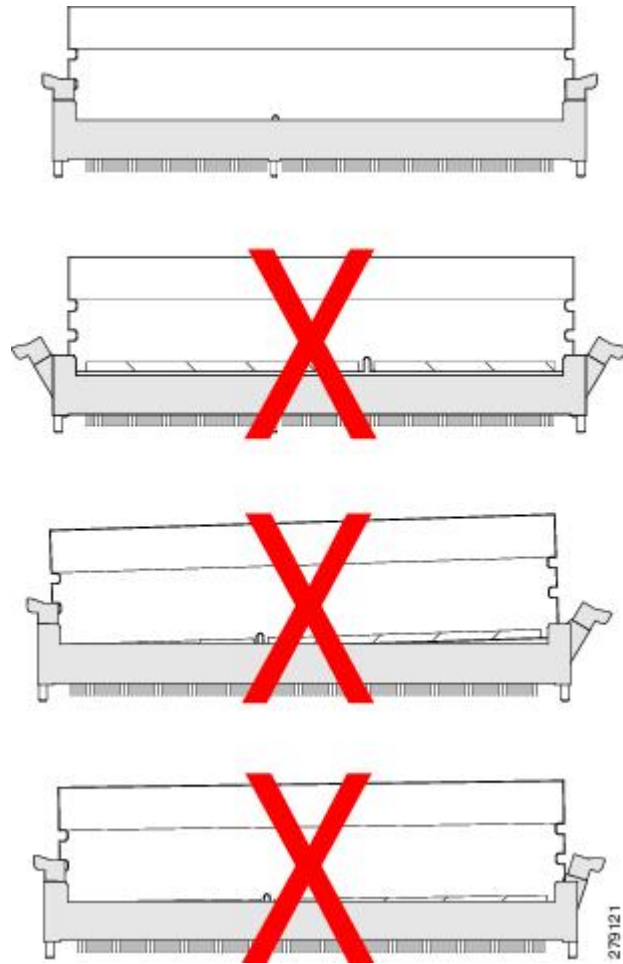
Troubleshooting DIMM Errors

Correct Installation of DIMMs

Verify that the DIMMs are installed correctly.

In the first example in the following figure, a DIMM is correctly inserted and latched. Unless there is a small bit of dust blocking one of the contacts, this DIMM should function correctly. The second example shows a DIMM that is mismatched with the key for its slot. That DIMM cannot be inserted in this orientation and must be rotated to fit into the slot. In the third example, the left side of the DIMM seems to be correctly seated and the latch is fully connected, but the right side is just barely touching the slot and the latch is not seated into the notch on the DIMM. In the fourth example, the left side is again fully inserted and seated, and the right side is partially inserted and incompletely latched.

Figure 1: Installation of DIMMs



Troubleshooting DIMM Errors Using the Cisco UCS Manager CLI

You can check memory information to identify possible DIMM errors in the Cisco UCS Manager CLI.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>x/y</i>	Enters server mode for the specified server.
Step 2	UCS-A /chassis/server # show memory detail	Shows memory information for the server.
Step 3	UCS-A /chassis/server # show memory-array detail	Shows detailed information about the memory arrays.
Step 4	UCS-A /chassis/server # scope memory-array <i>x</i>	Enters memory array mode for the specified array.
Step 5	UCS-A /chassis/server/memory-array # show stats	Shows statistics for memory array.

Example

The following example shows how to check memory information using the Cisco UCS Manager CLI:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # show memory detail
Server 1/5:
  Array 1:
    CPU ID: 1
    Current Capacity (GB): 393216
    Error Correction: Undisc
    Max Capacity (GB): 393216
    Max Devices: 48
    Populated: 48

    DIMMS:

    ID 1:
      Location: DIMM_A0
      Presence: Equipped
      Overall Status: Operable
      Operability: Operable
      Visibility: Yes
      Product Name: 8GB DDR3-1333MHz RDIMM/PC3-10600/dual rank 2Gb DRAM
      PID: N01-M308GB2
      VID: V01
      Vendor: 0xCE00
      Vendor Description: Samsung Electronics, Inc.
      Vendor Part Number: M393B1K70BH1-CH9
      Vendor Serial (SN): 0x46185EC2
      HW Revision: 0
      Form Factor: Dimm
      Type: Other
      Capacity (MB): 8192
      Clock: 1067
      Latency: 0.900000
      Width: 64
    .
    .
    .
UCS-A /chassis/server # show memory-array detail

Memory Array:
  ID: 1
  Current Capacity (GB): 384
  Max Capacity (GB): 384
  Populated: 48
  Max Devices: 48
  Error Correction: Undisc
  Product Name:
  PID:
  VID:
  Vendor:
  Serial (SN):
  HW Revision: 0
  Threshold Status: N/A
  Power State: N/A
  Thermal Status: N/A
  Voltage Status: N/A
```

```

UCS-A /chassis/server # scope memory-array 1
UCS-A /chassis/server/memory-array # show stats

Memory Array Env Stats:
  Time Collected: 2011-09-27T20:15:52.858
  Monitored Object: sys/chassis-1/blade-5/board/memarray-1/array-env-stats
  Suspect: No
  Input Current (A): 62.400002
  Thresholded: 0

Memory Error Stats:
  Time Collected: 2011-09-27T20:15:43.821
  Monitored Object: sys/chassis-1/blade-5/board/memarray-1/mem-1/error-stats
  Suspect: No
  Address Parity Errors: 0
  Mismatch Errors: 0
  Ecc Multibit Errors: 0
  Ecc Singlebit Errors: 0
  Thresholded: 0

  Time Collected: 2011-09-27T20:15:43.821
  Monitored Object: sys/chassis-1/blade-5/board/memarray-1/mem-2/error-stats
  Suspect: No
  Address Parity Errors: 0
  Mismatch Errors: 0
  Ecc Multibit Errors: 0
  Ecc Singlebit Errors: 0
  Thresholded: 0

  Time Collected: 2011-09-27T20:15:43.821
  Monitored Object: sys/chassis-1/blade-5/board/memarray-1/mem-3/error-stats
  Suspect: No
  Address Parity Errors: 0
  Mismatch Errors: 0
  Ecc Multibit Errors: 0
  Ecc Singlebit Errors: 0
  Thresholded: 0
.
.
.
UCS-A /chassis/server/memory-array #

```

Troubleshooting DIMM Errors Using the Cisco UCS Manager GUI

You can determine the type of DIMM errors being experienced using the Cisco UCS Manager GUI.

Procedure

-
- Step 1** In the navigation pane, expand the correct chassis and select the server.
 - Step 2** On the **Inventory** tab, click the **Memory** tab.
Memory errors on that server are displayed.
 - Step 3** On the **Statistics** tab for the server, click the **Chart** tab.
You can expand the relevant memory array for information about that array.
 - Step 4** Confirm that the amount of memory seen from the OS point-of-view matches that are listed for the server's associated service profile.

For example, does the OS see all the memory or just part of the memory? If possible, run a memory diagnostic tool from the OS.

Troubleshooting Degraded DIMM Errors

DIMMs with correctable errors are not disabled and are available for the OS to use. The total memory and effective memory are the same (memory mirroring is taken into account). These correctable errors are reported in Cisco UCS Manager as degraded.

If you see a correctable error reported that matches the information above, the problem can be corrected by resetting the BMC instead of reseating or resetting the blade server. Use the following Cisco UCS Manager CLI commands:



Note Resetting the BMC does not impact the OS running on the blade.

Procedure

	Command or Action	Purpose
Step 1	UCS1-A# scope server x/y	Enters server configuration mode.
Step 2	UCS1-A /chassis/server # scope bmc	Enters configuration mode for the BMC.
Step 3	UCS1-A /chassis/server/bmc # reset	Resets the BMC server.
Step 4	UCS1-A /chassis/server/bmc* # commit-buffer	Commits the transaction to the system configuration.

Example

The following example shows how to reset the BMC:

```
UCS1-A# scope server x/y
UCS1-A /chassis/server # scope bmc
UCS1-A /chassis/server/bmc # reset
UCS1-A /chassis/server/bmc* # commit-buffer
```

Troubleshooting Inoperable DIMMs Errors

DIMMs with uncorrectable errors are disabled and the OS on the server does not see that memory. If a DIMM or DIMMs fail while the system is up, the OS could crash unexpectedly. shows the DIMMs as inoperable in the case of uncorrectable DIMM errors. These errors are not correctable using the software. You can identify a bad DIMM and remove it to allow the server to boot. For example, the BIOS fails to pass the POST due to one or more bad DIMMs.

Procedure

-
- Step 1** Install a single DIMM (preferably a tested good DIMM) or a DIMM pair in the first usable slot for the first processor (minimum requirement for POST success).
 - Step 2** Re-attempt to boot the system.
 - Step 3** If the BIOS POST is still unsuccessful, repeat steps 1 through 3 using a different DIMM in step 2.
 - Step 4** If the BIOS POST is successful, continue adding memory. Follow the population rules for that server model. If the system can successfully pass the BIOS POST in some memory configurations but not others, use that information to help isolate the source of the problem.
-

Recommended Solutions for DIMM Issues

The following table lists guidelines and recommended solutions for troubleshooting DIMM issues.

Table 2: DIMM Issues

Issue	Recommended Solution
DIMM is not recognized.	Verify that the DIMM is in a slot that supports an active CPU. Verify that the DIMM is sourced from Cisco. Third-party memory is not supported in Cisco UCS.
DIMM does not fit in slot.	Verify that the DIMM is supported on that server model. Verify that the DIMM is oriented correctly in the slot. DIMMs and their slots are keyed and only seat in one of the two possible orientations.
The DIMM is reported as bad in the SEL, POST, or LEDs, or the DIMM is reported as inoperable in Cisco IMC.	Verify that the DIMM is supported on that server model. Verify that the DIMM is populated in its slot according to the population rules for that server model. Verify that the DIMM is seated fully and correctly in its slot. Reseat it to assure a good contact and rerun POST. Verify that the DIMM is the problem by trying it in a slot that is known to be functioning correctly. Verify that the slot for the DIMM is not damaged by trying a DIMM that is known to be functioning correctly in the slot. Reset the BMC.
The DIMM is reported as degraded in the GUI or CLI, or is running slower than expected.	Reset the BMC. Reseat the server in the chassis.

Issue	Recommended Solution
The DIMM is reported as overheating.	<p>Verify that the DIMM is seated fully and correctly in its slot. Reseat it to assure a good contact and rerun POST.</p> <p>Verify that all empty HDD bays, server slots, and power supply bays use blanking covers to assure that the air is flowing as designed.</p> <p>Verify that the server air baffles are installed to assure that the air is flowing as designed.</p> <p>Verify that any needed CPU air blockers are installed to assure that the air is flowing as designed.</p>

CPU Issues

All Cisco UCS servers support 1–2 or 1–4 CPUs. A problem with a CPU can cause a server to fail to boot, run very slowly, or cause serious data loss or corruption. If CPU issues are suspected, consider the following:

- All CPUs in a server should be the same type, running at the same speed and populated with the same number and size of DIMMs.
- If the CPU was recently replaced or upgraded, make sure the new CPU is compatible with the server and that a BIOS supporting the CPU was installed. Refer to the server’s documentation for a list of supported Cisco models and product IDs. Use only those CPUs supplied by Cisco. The BIOS version information can be found in the release notes for a software release.
- When replacing a CPU, make sure to correctly thermally bond the CPU and the heat sink. An overheating CPU produces fault messages visible in Cisco UCS Manager. The CPU can also lower its performance in order to prevent damage to itself.
- If CPU overheating is suspected, check the baffles and air flow for all servers in a chassis. Air flow problems in adjacent servers can also cause improper CPU cooling in a server.
- The CPU speed and memory speed should match. If they do not match, the server runs at the slower of the two speeds.
- In the event of a failed CPU, the remaining active CPU or CPUs do not have access to memory assigned to the failed CPU.

Troubleshooting CPU Issues Using the CLI

You can check CPU information using Cisco UCS Manager CLI.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>x/y</i>	Enters server mode.
Step 2	UCS-A# show cpu	Shows CPU information for the server.

	Command or Action	Purpose
Step 3	UCS-A# show bios	Shows the BIOS information for the server.
Step 4	UCS-A# show cimc	Shows the CIMC information for the server.

Example

The following example shows how to display information about the CPU, BIOS, and CIMC on server 1/5.

```
jane-A# scope server 1/5
UCS-A /chassis/server # show cpu

CPU:
  ID  Presence           Architecture      Socket Cores      Speed (GHz)
  ---  -
      1  Equipped           Xeon              CPU1    6                3.333000
      2  Equipped           Xeon              CPU2    6                3.333000
UCS-A /chassis/server # show bios

Bios Firmware:

Server Model      Vendor              Running-Vers Package-Vers
-----
1/5      N20-B6625-2 Cisco Systems, In S5500.1.3.1c.0.052020102031
UCS-A /chassis/server # show cimc

CIMC:
  PID              Serial (SN)        HW Revision
  ---
  N20-B6625-2      QCI140200D4        0
UCS-A /chassis/server #
```

Troubleshooting CPU Issues Using the GUI

You can determine the type of CPU errors being experienced using the Cisco UCS Manager GUI.

Procedure

-
- Step 1** In the navigation pane, expand the correct chassis and select the server.
 - Step 2** In the Inventory window, select the **CPU** tab.
CPU errors on that server are displayed.
-

Recommended Solutions for DIMM Issues

The following table lists guidelines and recommended solutions for troubleshooting DIMM issues.

Table 3: DIMM Issues

Issue	Recommended Solution
DIMM is not recognized.	<p>Verify that the DIMM is in a slot that supports an active CPU.</p> <p>Verify that the DIMM is sourced from Cisco. Third-party memory is not supported in Cisco UCS.</p>
DIMM does not fit in slot.	<p>Verify that the DIMM is supported on that server model.</p> <p>Verify that the DIMM is oriented correctly in the slot. DIMMs and their slots are keyed and only seat in one of the two possible orientations.</p>
The DIMM is reported as bad in the SEL, POST, or LEDs, or the DIMM is reported as inoperable in Cisco IMC.	<p>Verify that the DIMM is supported on that server model.</p> <p>Verify that the DIMM is populated in its slot according to the population rules for that server model.</p> <p>Verify that the DIMM is seated fully and correctly in its slot. Reseat it to assure a good contact and rerun POST.</p> <p>Verify that the DIMM is the problem by trying it in a slot that is known to be functioning correctly.</p> <p>Verify that the slot for the DIMM is not damaged by trying a DIMM that is known to be functioning correctly in the slot.</p> <p>Reset the BMC.</p>
The DIMM is reported as degraded in the GUI or CLI, or is running slower than expected.	<p>Reset the BMC.</p> <p>Reseat the server in the chassis.</p>
The DIMM is reported as overheating.	<p>Verify that the DIMM is seated fully and correctly in its slot. Reseat it to assure a good contact and rerun POST.</p> <p>Verify that all empty HDD bays, server slots, and power supply bays use blanking covers to assure that the air is flowing as designed.</p> <p>Verify that the server air baffles are installed to assure that the air is flowing as designed.</p> <p>Verify that any needed CPU air blockers are installed to assure that the air is flowing as designed.</p>

CPU CATERR_N Details

The CATERR_N signal indicates that one or more of the processors experienced a catastrophic memory error. It could mean an uncorrectable memory error occurred or represent a link error on QPI. The CATERR_N signal is monitored by the CATERR_N sensor, which will generate events in the system event log (SEL) if the signal is indicating normal operation or if a fault has occurred.

The CATERR_N sensor uses two bits to represent the sensor reading which indicate either normal operation or that a fault has occurred:

- Bit 0 set indicates: Predictive Failure Deasserted (Meaning there is no fault indicated by the sensor)
- Bit 1 set indicates: Predictive Failure Asserted (Meaning a fault has occurred)

When the sensor is initialized by the sensor scanning manager, you will typically see an event in the system event log (SEL) indicating the bit has been set to indicate there is no failure. This is bit 0, and you will see an event that looks like this:

```
| CIMC | Processor CATERR_N #0x8e | Predictive
Failure Deasserted | Asserted
```

This says we asserted the bit which indicates there is no failure, the "Predictive Failure Deasserted" bit (which is Bit 0) has been asserted. This is a positive indication.

When the system encounters a catastrophic error, the sensor manager will transition the CATERR_N sensor from Bit0 set, to Bit1 set. This will deassert the "Predictive Failure Deasserted" bit (Bit 0), and assert the "Predictive Failure Asserted" bit (Bit 1). When this occurs you will see events in the system event log (SEL) that look like this:

```
| CIMC | Processor CATERR_N #0x8e | Predictive
Failure Deasserted | Deasserted
| CIMC | Processor CATERR_N #0x8e | Predictive
Failure Asserted | Asserted
```

Meaning Bit 0 is "off", and Bit 1 is now "On". Some logs filter out the "turned off" (Deasserted) messages so you may only see the second event in the log. When the sensor returns to a normal state, you will see the fault bit (bit 1) deasserted and the no-fault bit (bit 0) asserted:

```
| CIMC | Processor CATERR_N #0x8e | Predictive
Failure Asserted | Deasserted
| CIMC | Processor CATERR_N #0x8e | Predictive
Failure Deasserted | Asserted
```

Again, you may only see the event for the bit that is turning "On" (Predictive Failure Deasserted | Asserted) in the log file, which in this case indicates assertion of the non-fault bit (bit 0).

Disk Drive and RAID Issues

A problem with the disk drive or RAID controller can cause a server to fail to boot, or cause serious data loss or corruption. If drive issues are suspected, consider the following:

- Use OS tools regularly to detect and correct drive problems (for example, bad sectors). Cisco UCS Manager cannot correct drive problems as effectively as the server's OS.
- Each disk drive has an activity LED that indicates an outstanding I/O operation to the drive and a health LED that turns solid amber if a drive fault is detected. Drive faults can be detected in the BIOS POST. SEL messages can contain important information to help you find these problems.
- Disk drives are the only major component that can be removed from the server without removing the blade from the system chassis.

- Disk drives are available in several sizes. If the disk drive performance is slow because the drive is full or there are issues with the drive that the OS cannot solve, you might need to back up the drive contents and install a larger or new hard drive.

RAID Controllers

You can order or configure the B-Series servers with the following RAID controller options:

- The Cisco UCS B200 and B250 servers have an LSI 1064E controller on the motherboard. The controller supports RAID 0 and 1 for up to two SAS or two SATA drives. The controller must be enabled in Cisco UCS Manager before configuring RAID. All RAID options can be configured from Cisco UCS Manager.
- The Cisco UCS B440 servers have the LSI MegaRAID controller (the model varies by server). Depending on the license key installed, these controllers provide RAID 0, 1, 5, 6, and 10 support for up to four SAS or SATA drives.
- The Cisco B200 M3 servers have an LSI SAS 2004 RAID controller on the motherboard. The controller supports RAID 0 and 1 for up to two SAS or two SATA drives.



Note If you ever need to move a RAID cluster from one server to another, both the old and new servers for the cluster must use the same LSI controller. For example, migration from a server with an LSI 1064E to a server with an LSI MegaRAID is not supported.

If there is no record of which option is used in the server, disable the quiet boot feature and read the messages that appear during system boot. Information about the models of installed RAID controllers appears as part of the verbose boot feature. You are prompted to press Ctrl-H to launch configuration utilities for those controllers.

Disabling Quiet Boot

When the quiet boot feature is disabled, the controller information and the prompts for the option ROM-based LSI utilities are displayed during bootup. To disable this feature, follow these steps:

Procedure

- Step 1** Boot the server and watch for the **F2** prompt during the boot process.
- Step 2** To enter the BIOS Setup Utility, press **F2** when prompted.
- Step 3** On the Main page of the **BIOS Setup Utility**, set **Quiet Boot** to disabled.

This allows non-default messages, prompts, and POST messages to display during bootup instead of the Cisco logo screen.

- Step 4** Press **F10** to save the changes and exit the utility.
-

Accessing ROM-Based Controller Utilities

To change the RAID configurations on your hard drives, use the host-based utilities that were installed on top of the host OS. You can also use the LSI option ROM-based utilities that are installed on the server.

Procedure

- Step 1** Boot the server with Quiet mode is disabled. (See the “Disabling Quiet Boot” section on page 6-11) Information about the controller appears along with the prompts for the key combination to launch the LSI option ROM-based utilities for your controller.
- Step 2** During the verbose boot process, enter one of the following control commands when the prompt for the desired controller appears.
- When the prompt appears, enter **Ctrl-H** (for an LSI 1064E controller), or **Ctrl-C** (for an LSI MegaRAID controller), or **Ctrl-M** (for an Intel ICH10R) to enter the controller card utility.
-

Moving a RAID Cluster Between B200 M3 Servers

You can set a server to recognize a RAID cluster created on another server. You can also use this procedure whenever data on a RAID cluster needs to be moved between servers.

Before you begin

Verify that the service profiles for both the source and destination servers have an identical local disk configuration policy and can boot successfully.

Procedure

- Step 1** Shut down the source server's operating system from within that operating system. Before proceeding, verify that the OS has shut down completely and not restarted itself.
- Step 2** Disassociate the service profile currently applied to the B200M3 server.
- Step 3** Physically move the drives in the array to the destination server. If you are changing servers you must keep the drives in the same slot in the new server as they were in the original server.
- Step 4** Reassociate the service profile to the new blade, keeping the same LD Config Policies as were previously used.
- Step 5** Power on the servers by pressing the front power button of each of the servers.
- Step 6** Open a KVM connection to the new server and wait for the Storage Web BIOS Utility.
- Step 7** Follow the Web BIOS Utility prompts to "migrate" the RAID LUN.
-

Replacing a Failed Drive in a RAID Cluster

We recommend following industry standard practice of using drives of the same capacity when creating RAID volumes. If drives of different capacities are used, the useable portion of the smallest drive will be used on all drives that make up the RAID volume.

Before you begin

Replace a failed HDD or SSD with a drive of the same size, model, and manufacturer. Before changing an HDD in a running system, check the service profile in UCS Manager to make sure that the new hardware configuration is within the parameters allowed by the service profile.

Procedure

- Step 1** In the **Navigation** pane, click **Equipment**.
- Step 2** 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.
- Step 7** Physically replace the failed drive.
- If needed, refer to the service note for your server model. In general, the steps are similar for most models.
- Step 8** Boot the server, using the power switch on the front of the server.
- If necessary, disable the quiet boot feature and boot again. (See [Disabling Quiet Boot](#), on page 13.)
- Step 9** Wait for the LSI Configuration Utility banner.
- Step 10** To enter the LSI Configuration Utility, press **Ctrl-C**.
- Step 11** From the **SAS Adapter List** screen, choose the SAS adapter used in the server.
- To determine which RAID controller is being used, refer to [RAID Controllers](#), on page 13.
- Step 12** Choose **RAID Properties**.
- The **View Array** screen appears.
- Step 13** Choose **Manage Array**.
- The **Manage Array** screen appears.
- Step 14** Choose **Activate Array**.
- When the activation is complete, the RAID status changes to Optimal.
- Step 15** On the **Manage Array** screen, choose **Synchronize Array**.
- Step 16** Wait for the mirror synchronization to complete, and monitor the progress bar that comes up.
- Note** The time to complete the synchronization can vary depending upon the size of the disks in the RAID array.

- Step 17** When the mirror synchronization is complete, press the **ESC** key several times to go back through each of the screens (one at a time) and then exit the LSI Configuration Utility.
- Step 18** Choose the reboot option to implement the changes.

Local Storage Check Consistency Operation Fails

Problem—The Check Consistency operation fails on a Virtual Drive with the error message:

Adapter 0: Check Consistency is not possible on Virtual Drive at this time

Cause—The Check Consistency operation is not supported on RAID 0 volume.

Workaround—Run Check Consistency on a Virtual Disk configured as a RAID 1 volume.

Adapter Issues

A problem with the Ethernet or FCoE adapter can cause a server to fail to connect to the network and make it unreachable from Cisco UCS Manager. All adapters are unique Cisco designs and non-Cisco adapters are not supported. If adapter issues are suspected, consider the following:

- Check if the Cisco adapter is genuine.
- Check if the adapter type is supported in the software release you are using. The Internal Dependencies table in the Cisco UCS Manager Release Notes provides minimum and recommended software versions for all adapters.
- Check if the appropriate firmware for the adapter has been loaded on the server. In Release versions 1.0(1) through 2.0, the Cisco UCS Manager version and the adapter firmware version must match. To update the Cisco UCS software and the firmware, refer to the appropriate [Upgrading Cisco UCS](#) document for your installation.
- If the software version update was incomplete, and the firmware version no longer matches the Cisco UCS Manager version, update the adapter firmware as described in the appropriate [Cisco UCS Manager configuration guide](#) for your installation.
- If you are deploying two Cisco UCS M81KR Virtual Interface Cards on the Cisco UCS B250 Extended Memory Blade Server running ESX 4.0, you must upgrade to the patch 5 (ESX4.0u1p5) or later release of ESX 4.0.
- If you are migrating from one adapter type to another, make sure that the drivers for the new adapter type are available. Update the service profile to match the new adapter type. Configure appropriate services to that adapter type.
- If you are using dual adapters, note that there are certain restrictions on the supported combinations. The following combinations are supported:

Server	Dual card same type	Dual card mixed type
Cisco UCS B250	All	M71KR-Q or -E + M81KR M72KR-Q or -E + M81KR

Server	Dual card same type	Dual card mixed type
Cisco UCS B440	All except 82598KR-CI	M72KR-Q or -E + M81KR

Troubleshooting Adapter Errors Using the GUI

The link LED on the front of the server is off if the adapter cannot establish even one network link. It is green if one or more of the links are active. Any adapter errors are reported in the LEDs on the motherboard. See the “Diagnostics Button and LEDs” section on page 6-1.

Use the following procedure to determine the type of adapter errors being experienced:

Procedure

-
- Step 1** In the navigation pane, expand the chassis and choose the desired server.
 - Step 2** In the Inventory window, choose the **Interface Cards** tab.
Any adapter errors on that server are displayed on the screen.
-

Troubleshooting Adapter Errors Using the CLI

The link LED on the front of the server is off if the adapter cannot establish even one network link. It is green if one or more of the links are active. Any adapter errors are reported in the LEDs on the motherboard.

You can check adapter state information in the CLI by using the following procedure:

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>chassis-id/server-id</i>	
Step 2	UCS-A /chassis/server # show adapter [detail]	

Example

The following example shows how to show adapter details for chassis ID 1, server ID 5:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # show adapter detail

Adapter:
  Id: 2
  Product Name: Cisco UCS 82598KR-CI
  PID: N20-AI0002
  VID: V01
  Vendor: Cisco Systems Inc
  Serial: QCI132300GG
  Revision: 0
```

```

Mfg Date: 2009-06-13T00:00:00.000
Slot: N/A
Overall Status: Operable
Conn Path: A,B
Conn Status: Unknown
Managing Instance: B
Product Description: PCI Express Dual Port 10 Gigabit Ethernet Server Adapter
UCS-A /chassis/server #
    
```

Recommended Solutions for Adapter Issues

The following table lists guidelines and recommended solutions that can help you in troubleshooting adapter issues.

Table 4: Adapter Issues

Issue	Recommended Solution
The adapter is reported as bad in the SEL, POST or LEDs or is reported as inoperable in Cisco UCS Manager.	Verify that the adapter is supported on that server model. Verify that the adapter has the required firmware version to work with your version of Cisco UCS Manager. Verify that the adapter is seated fully and correctly in the slot on the motherboard and in the midplane connections. Reseat it to ensure a good contact, reinsert the server, and rerun POST. Verify that the adapter is the problem by trying it in a server that is known to be functioning correctly and that uses the same adapter type.
The adapter is reported as degraded in the GUI or CLI.	Reseat the blade server in the chassis.
The adapter is reported as overheating.	Verify that the adapter is seated fully and correctly in the slot. Reseat it to assure a good contact and rerun POST. Verify that all empty HDD bays, server slots, and power supply bays use blanking covers to ensure that the air is flowing as designed. Verify that the server air baffles are installed to ensure that the air is flowing as designed.

Power Issues

A problem with a server’s onboard power system can cause a server to shut down without warning, fail to power on, or fail the discovery process.

Troubleshooting a FET Failure in a Cisco UCS B440 Server

The failure of a field effect transistor (FET) in a Cisco UCS B440 server’s power section can cause the server to shut down, fail to power on, or fail the discovery process. When the server has detected the failure, you are unable to power on the server, even using the front panel power button.

To determine whether a FET failure has occurred, perform the following steps:

Procedure

Step 1 Using the procedure in the “Faults” section on page 1-2, check the reported faults for Fault Code F0806, “Compute Board Power Fail.” This fault will cause the server’s overall status to be Inoperable.

Step 2 Check the system event log (SEL) for a power system fault of the type in this example:

```
58f | 06/28/2011 22:00:19 | BMC | Power supply POWER_SYS_FLT #0xdb | Predictive Failure
deasserted | Asserted
```

Step 3 From the CLI of the fabric interconnect, access the CIMC of the failed server and display the fault sensors by entering **connect cimc chassis/server**.

Example:

The following example shows how to connect to the CIMC on chassis 1, server 5:

```
Fabric Interconnect-A# connect cimc 1/5
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '^'.
CIMC Debug Firmware Utility Shell
[ help ]# sensors fault
HDD0_INFO | 0x0 | discrete | 0x2181| na | na | na | na | na | na
HDD1_INFO | 0x0 | discrete | 0x2181| na | na | na | na | na | na
.
.[lines removed for readability]
.
LED_RTC_BATT_FLT | 0x0 | discrete | 0x2180| na | na | na | na | na | na
POWER_SYS_FLT | 0x0 | discrete | 0x0280| na | na | na | na | na | na
[ sensors fault]#
```

For the POWER_SYS_FLT sensor, a reading of 0x0280 confirms the FET failure. In normal operation, this sensor will have reading of 0x0180.

Step 4 If you determine that a FET failure has occurred, perform the following steps:

a) In the Cisco UCS Manager CLI, collect the output of the following commands:

- **show tech-support ucsmd detail**
- **show tech-support chassis chassis-id all detail**

b) Contact the Cisco Technical Assistance Center (TAC) to confirm the failure.

c) Install a replacement server using the Recover Server action in Cisco UCS Manager.

Information Needed Before Calling Cisco TAC

If you cannot isolate the issue to a particular component, consider the following questions. They can be helpful when contacting the Cisco Technical Assistance Center (TAC).

- Was the blade working before the problem occurred? Did the problem occur while the blade was running with a service profile associated?
- Was this a newly inserted blade?
- Was this blade assembled on-site or did it arrive assembled from Cisco?
- Has the memory been re-seated?
- Was the blade powered down or moved from one slot to another slot?
- Have there been any recent upgrades of Cisco UCS Manager. If so, was the BIOS also upgraded?

When contacting Cisco TAC for any Cisco UCS issues, it is important to capture the tech-support output from Cisco UCS Manager and the chassis in question. For more information, see [Technical Support Files](#).