

# HP BladeSystem c-Class Enclosure Troubleshooting Guide

## Abstract

This document is for the person who installs, administers, and troubleshoots HP BladeSystem c-Class products. Only persons experienced in server blade technology and configuration should attempt these procedures. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.



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# Getting started

## How to use this guide

This guide provides procedures and solutions for troubleshooting an HP BladeSystem c-Class enclosure, from using the Insight Display to more complex component-level troubleshooting.

Always begin the troubleshooting process by using the Insight Display Health Summary screen to resolve all reported errors. If the procedures provided by the Insight Display do not correct the issue, then use the procedures in this guide to further troubleshoot the issue.

If only a remote connection is available on the enclosure, then the Insight Display can be reached through the HP Onboard Administrator GUI.

If the Insight Display screen is not reachable, then continue by observing the health status from the health sections in the Onboard Administrator SHOW ALL report.

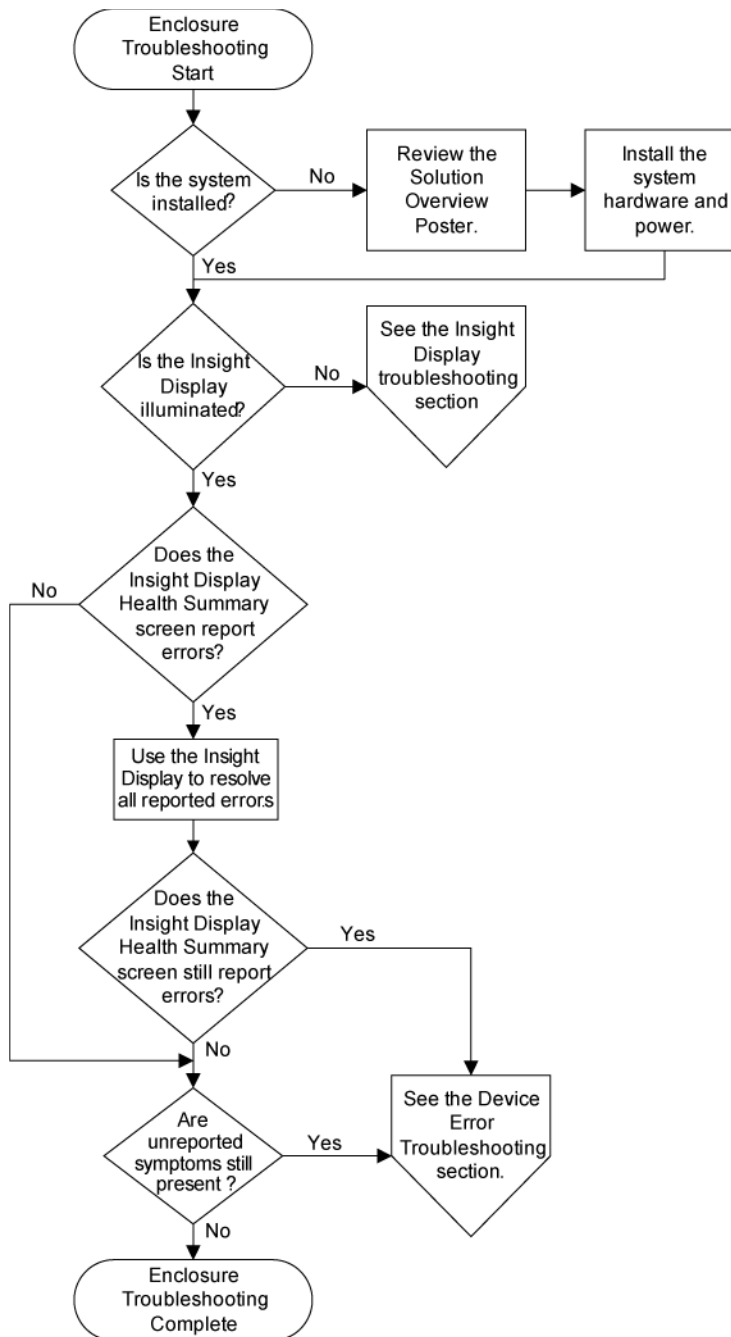


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**CAUTION:** To replace the midplane assembly, contact an HP authorized service provider.

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# Troubleshooting overview



## Diagnosing the enclosure

When troubleshooting an enclosure, be sure that the enclosure and all components are installed properly. For more information, see the *HP BladeSystem c-Class Solution Overview* on the HP website (<http://www.hp.com/go/bladesystem/documentation>).

When the system is powered on and the Insight Display is operating properly, use the Insight Display for diagnosing and troubleshooting. The Insight Display is located on the front of each enclosure, and it uses colors to indicate overall system health and component health.

The Insight Display is powered off when the overall health is good to save the life of the Insight Display.

## Diagnosing the overall system health

Background color	Description
Green	System health is good.
Amber	System health is degraded.
Blue	Enclosure UID is active. Enclosure UID overrides the green and amber background colors. Use the Insight Display main menu to turn the enclosure UID on and off.

The overall system health is also indicated by the health icon on the bottom left corner of every Insight Display screen.

Health icon	Description
Green check mark	System health is good.
Yellow exclamation point	System health is degraded.
Red X	System health is failed.

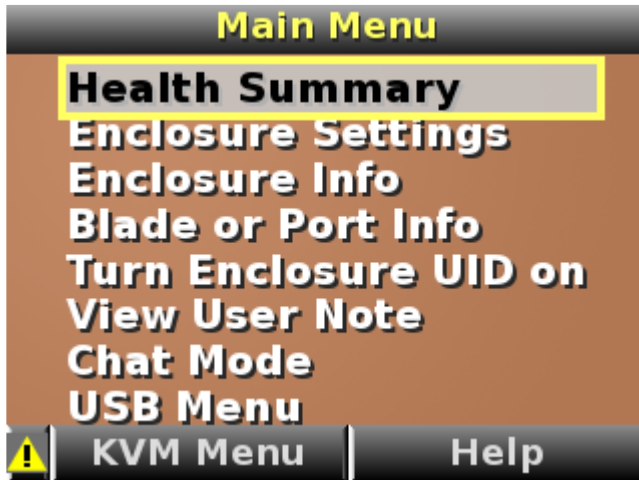
## Diagnosing the component health

Highlight color	Description
Black	Component bay is not populated
Gray	DVD-ROM drive is populated, no disc is inserted
Dark green	Component bay is populated, component is powered off
Bright green	Component bay is populated, component is powered on
Blue	Component bay has additional status information
Yellow	Component bay is populated, component health is degraded
Red	Component bay is populated, component health failed

## Navigating the Insight Display

Navigate through the menus and selections by using the arrow buttons on the Insight Display panel ("[HP BladeSystem Insight Display components](#)" on page 84, "[HP BladeSystem Insight Display components](#)" on page 77). Use the arrow buttons to move the selection box to a menu item, and then press **OK** to go to selected screen.

The Main Menu appears:



The Main Menu of the Insight Display has the following menu options:

- Health Summary
- Enclosure Settings
- Enclosure Info
- Blade or Port Info
- Turn Enclosure UID on/off
- View User Note
- Chat Mode
- USB Menu—This option is available on Onboard Administrator version 2.30 and later.
- KVM Menu—This option is available if the enclosure supports KVM.



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**TIP:** Within any menu option, navigate the cursor to **What is This**, and press the **OK** button to view additional information about each setting, option, or alert.

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The navigation bar contains options to:

- Navigate forward and backward through alert screens
- Return to the main menu
- Accept changes to current settings
- Cancel changes to current settings
- Access the Health Summary screen from any screen by selecting the Health Summary icon on the navigation bar

## Health Summary screen

The Health Summary screen indicates the overall health of the enclosure and identifies specific problems detected by the Onboard Administrator. Always begin the troubleshooting process by using the Insight Display Health Summary screen to resolve all reported errors. If the procedures provided by the Insight Display do not correct the issue, then use the procedures in this guide to further troubleshoot the issue.

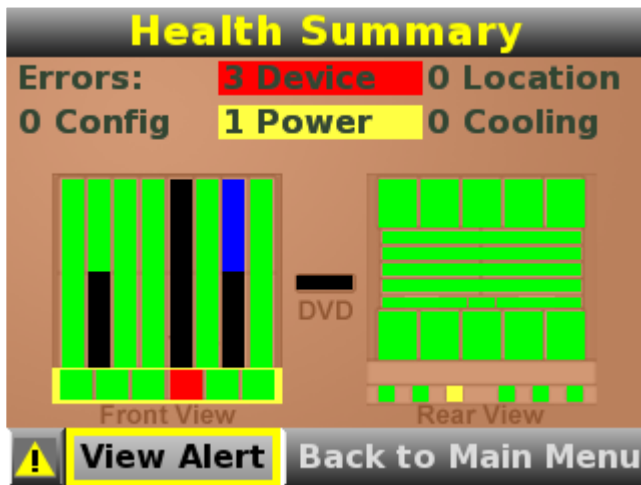
Errors are placed in the following error categories:

- Device errors include device failures, degraded devices, or information messages about a component.
- Location errors include missing components or components installed in the wrong bay.
- Configuration errors include problems with server blades and the corresponding interconnect modules.
- Power errors include insufficient power for a device or the power subsystem redundancy is degraded.
- Cooling errors indicate insufficient cooling for a device or that the cooling subsystem redundancy is degraded.

The severity of the error is indicated by the color of the component on the Health Summary screen:

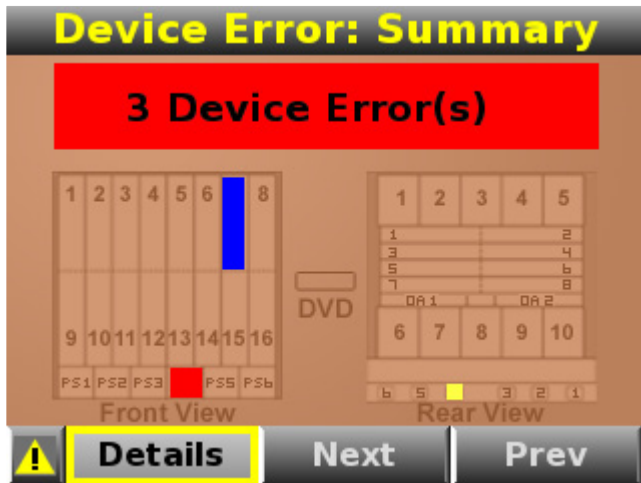
- Red indicates device failure
- Yellow indicates a degraded device
- Blue indicates an information message

To view the first category containing an error, use the arrow keys on the Insight Display to highlight and select **View Alert**. To leave the Health Summary screen and go back to the Main Menu, select **Back to Main Menu**.

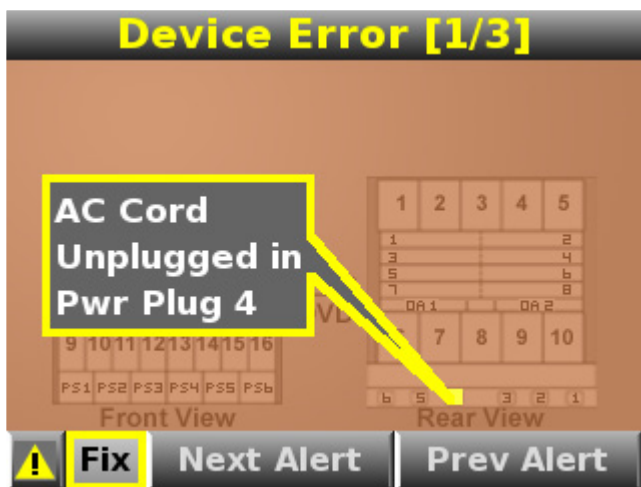


To return to the Health Summary screen, highlight and select the health icon in the left of the menu at the bottom of the screen.

The error category is displayed at the top of the summary screen. To view additional information for each error in the category, use the arrow keys on the Insight Display to select **Details**. To view the details for other errors in this category, select **Next** or **Prev**, and then press the **OK** button to scroll through all errors.



The type and number of errors are displayed at the top of the error screen. To view the details for other categories containing errors, select **Next** or **Prev**, and then press the **OK** button to scroll through all errors. To view the suggested corrective action, use the arrow keys on the Insight Display to highlight and select **Fix**.



## Important safety information

Familiarize yourself with the safety information in the following sections before troubleshooting the server.

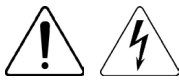


### Important safety information

Before servicing this product, read the *Important Safety Information* document provided with the server.

## Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

**WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

**WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.



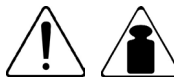
This symbol on an RJ-45 receptacle indicates a network interface connection.

**WARNING:** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

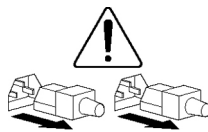
**WARNING:** To reduce the risk of injury from a hot component, allow the surface to cool before touching.



65.8 kg to 217.7  
kg  
145.0 lb to 480.0  
lb

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

**WARNING:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

## Warnings and cautions



**WARNING:** Only authorized technicians trained by HP should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.



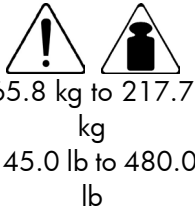
**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.



**WARNING:** To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.



**WARNING:** To reduce the risk of personal injury or damage to the equipment:

- Observe local occupation health and safety requirements and guidelines for manual handling.
- Obtain adequate assistance to lift and stabilize the chassis during installation or removal.
- The server is unstable when not fastened to the rails.
- When mounting the server in a rack, remove the power supplies and any other removable module to reduce the overall weight of the product.



**CAUTION:** To properly ventilate the system, you must provide at least 7.6 cm (3.0 in) of clearance at the front and back of the server.



**CAUTION:** The server is designed to be electrically grounded (earthed). To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

## Electrostatic discharge

### Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

### Grounding methods to prevent electrostatic discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm  $\pm 10$  percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.

- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact an authorized reseller.

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# Common problem resolution

## Troubleshooting with the HP BladeSystem Insight Display

Always begin troubleshooting the enclosure by using the Insight Display as follows:

1. Check the Insight Display screen.
  - If the Insight Display background color is green, then the enclosure is operating normally and has no errors. No further action is required.
  - If the Insight Display background color is blue, then the enclosure UID is active. The enclosure UID color overrides the green or amber colors. When the Insight Display background color is blue, always check the health icon in the corner of the screen for the overall system health status.
  - If the Insight Display is dark, then press any Insight Display button to wake the display. If the Insight Display does not wake within 2 minutes after rebooting, see "Troubleshooting the Insight Display (on page 16)."
  - If the Insight Display background color is amber and the screen is flashing, then an error exists and further action is required. To view the suggested corrective action, select **Fix** on the Device Error screen.
2. Access the Health Summary screen to review and troubleshoot all reported errors. For more information, see "Insight Display error notification (on page 24)."

## Loose connections



**CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

### Action:

- Be sure all power cords are securely connected.
- Be sure all cables are properly aligned and securely connected for all external components.
- Be sure each device is properly seated. Avoid flexing circuit boards when reseating components.
- If a device has latches, be sure they are completely closed and locked.
- Check any interconnect LEDs that might indicate a component is not connected properly.
- If problems continue to occur, remove and reinstall each device, checking the connectors and sockets for bent pins or other damage.

# Service notifications

To view the latest service notifications, refer to the HP website (<http://www.hp.com/go/bizsupport>). Select the appropriate server model, and then click the **Troubleshoot a Problem** link on the product page.

## Firmware updates

Download firmware updates from the following locations:

- HP BladeSystem c-Class Firmware and Upgrades compatibility matrix on the HP website (<http://www.hp.com/go/bladesfw>)
- The HP Smart Components available on the HP ProLiant Firmware Maintenance CD and the HP Support website (<http://www.hp.com/support>)
- The most recent version of a particular server blade or option firmware from the HP Support website (<http://www.hp.com/support>)
- Components for option firmware updates available from the HP Storage Products Software and Drivers website (<http://www.hp.com/support/proliantstorage>)

HP offers a subscription service that can provide notification of firmware updates. For more information, see the HP website (<http://www.hp.com/go/myadvisory>).

When updating the firmware, the Insight Display displays a lock icon with a progress bar. The lock icon indicates that the Insight Display buttons are locked until the firmware update is complete.



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**CAUTION:** Avoid removing an Onboard Administrator during a firmware update. Removing an Onboard Administrator during a firmware update can corrupt the Onboard Administrator firmware.

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# HP BladeSystem Insight Display troubleshooting

## Insight Display overview

The Insight Display enables the rack technician to configure the enclosure initially. It also provides information about the health and operation of the enclosure. See the *HP BladeSystem Onboard Administrator User Guide* for additional information.

The Insight Display background color varies with the condition of the enclosure health:

- **Blue**—The Insight Display background illuminates blue when the enclosure UID is active. The enclosure UID is automatically turned on when the enclosure is powered up for the first time and can be turned on by selecting **Turn Enclosure UID On** from the Main Menu or by pressing the enclosure UID button on the rear of the enclosure.

When the enclosure UID is on, the Insight Display flashes after 2 minutes of inactivity. Pressing any button on the Insight Display stops the flashing and reactivates the screen.

- **Green**—The Insight Display background illuminates green when no error or alert conditions exist and the enclosure is operating normally. After 2 minutes of inactivity, the Insight Display light turns off. Pressing any button on the Insight Display reactivates the screen.
- **Amber**—The Insight Display background illuminates amber when the Onboard Administrator detects an error or alert condition. Depending on the error, the component is displayed in red or yellow on the Health Summary screen.

After 2 minutes of inactivity, the Insight Display background flashes amber, indicating an error or alert condition exists. If the enclosure UID is on and an error or alert condition exists, the Insight Display illuminates blue because the enclosure UID takes priority over the alert. Pressing any button on the Insight Display reactivates the screen.

- **Dark (no power)**—The Insight Display has a 2-minute inactivity period. If no action is taken and no alert condition exists, the enclosure UID is off, or the chat mode has not been activated, the screen light turns off after 2 minutes. Pressing any button on the Insight Display reactivates the screen.

The Enclosure Health icon is located on the bottom left corner of every screen, indicating the enclosure health. To access the Health Summary screen from any Insight Display screen, navigate the cursor to the Enclosure Health icon and press **OK**.

For information on driver and firmware updates, see the HP website (<http://www.hp.com/go/blades/>).

## Troubleshooting the Insight Display

The Insight Display is the diagnostics panel for the enclosure. It is controlled by the Onboard Administrator and must be operating properly to troubleshoot the enclosure. This section provides methods to ensure that the Insight Display is operating properly.

If the Insight Display is dark, press any Insight Display to wake up the display. If the Insight Display remains dark, then complete the procedures in this section.

Observe the following guidelines when performing troubleshooting procedures:


- Always read any Warnings and Cautions before beginning the troubleshooting procedure.
- Always begin with the step indicated by the symptom.
- Perform the operation described in the step, then evaluate the result of that action and perform any additional procedures as directed. If the issue is not resolved, then continue to the next step.


For specific removal and replacement procedures, see the appropriate enclosure maintenance and service guide located on the HP website (<http://www.hp.com/go/bladefsystem/documentation>).

## Symptoms: HP BladeSystem c3000 Enclosure Insight Display

Symptom	Initial step	Required steps
The display screen is off and the Insight Display buttons do not operate properly.	Press any Insight Display button to try to wake up the display. If the Insight Display health is good, then the Insight Display powers up automatically.	Begin with step 1.
The display screen is flashing and the Insight Display buttons do not operate properly.	Press any Insight Display button to stop the flashing. The Insight Display flashes when any of the following are true: <ul style="list-style-type: none"> <li>• If, after inactivity, the health is degraded or failed</li> <li>• If the UID is on</li> <li>• If a chat message has been sent to the enclosure</li> </ul>	Begin with step 1.

## Procedures: HP BladeSystem c3000 Enclosure Insight Display

 **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.

 **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	HP BladeSystem c3000 Enclosure Insight Display action and verification
Step 1	<b>Action</b> Check the status of the Onboard Administrator health LED.
	<b>Verification</b> Do one of the following: <ul style="list-style-type: none"> <li>• If the Onboard Administrator health LED is off, then check the power to the enclosure. Be sure that the power supplies are installed and operate properly. Complete step 1 again.</li> <li>• If the Onboard Administrator health LED is on, then continue to the next step.</li> </ul>
Step 2	<b>Action</b> Check the Insight Display to be sure that no firmware updates are in progress.
	<b>Verification</b> Do one of the following: <ul style="list-style-type: none"> <li>• If the enclosure is performing a firmware update, then wait until the firmware update is complete. When the update is complete, continue to the next step.</li> <li>• If the enclosure is not performing a firmware update, then continue to the next step.</li> </ul>

Step	HP BladeSystem c3000 Enclosure Insight Display action and verification
Step 3	<b>Action</b> Verify the number of OA modules installed in the enclosure.
	<b>Verification</b> If only one OA module is installed in the enclosure, continue to step 6. If two OA modules are installed in the enclosure, continue to the next step.
Step 4	<b>Action</b> Identify the active OA module.
	<b>Verification</b> If the active OA LED is illuminated on the left OA module (OA1), then reseal the left OA module. Continue to the next step. If the active OA LED is illuminated on the right OA module (OA2), then continue to step 6.
Step 5	<b>Action</b> Wait for at least one minute, and then verify the status of the Insight Display.
	<b>Verification</b> If the Insight Display illuminates after one minute, the repair is complete. If the Insight Display does not illuminate after one minute, then continue to the next step.
Step 6	<b>Action</b> Reseat the OA tray: <ol style="list-style-type: none"> <li>1 Remove the OA modules from the OA tray.</li> <li>2 Remove the OA tray.</li> <li>3 Install the original OA modules in the OA tray.</li> <li>4 Install the OA tray.</li> <li>5 Wait for at least one minute, and then verify the status of the Insight Display.</li> </ol>
	<b>Verification</b> If the Insight Display illuminates after one minute, the repair is complete. If the Insight Display does not illuminate after one minute, then continue to the next step.
Step 7	<b>Action</b> Replace the Insight Display. Wait for at least one minute, and then verify the status of the Insight Display.
	<b>Verification</b> If the Insight Display illuminates after one minute, the repair is complete. If the Insight Display does not illuminate after one minute, then continue to the next step.
Step 8	<b>Action</b> Replace the OA tray: <ol style="list-style-type: none"> <li>1 Remove the OA modules from the OA tray.</li> <li>2 Remove the original OA tray.</li> <li>3 Install the original OA modules in the OA tray.</li> <li>4 Install the new OA tray.</li> <li>5 Wait for at least one minute, and then verify the status of the Insight Display.</li> </ol>
	<b>Verification</b> The repair is complete.

## Symptoms: HP BladeSystem c7000 Enclosure Insight Display

Symptoms	Initial step	Required steps
The display screen is off, and the buttons do not operate.	Press any Insight Display button to try to wake up the display. The Insight Display powers on automatically if the health is good.	Begin with step 1.
The display screen flashes, and the Insight Display buttons do not operate.	Press any Insight Display button to stop the flashing. The Insight Display flashes when any of the following are true: <ul style="list-style-type: none"> <li>• After inactivity if the health is degraded or failed</li> <li>• The UID is on</li> <li>• A chat message has been sent to the enclosure</li> </ul>	Begin with step 1.

## Procedures: HP BladeSystem c7000 Enclosure Insight Display

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.

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- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

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- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

For the steps in this table, use the following definitions for all variables:

- Standby Onboard Administrator = Suspect OA #Y
- Y = Original bay location for the standby module
- Second module = Suspect OA #X
- X = Original bay location of the active module

Step	HP BladeSystem c7000 Enclosure Insight Display action and verification
Step 1	<b>Action</b> Check the Onboard Administrator health LED.
	<b>Verification</b> If the Onboard Administrator health LED is on, then continue to the next step. If the Onboard Administrator health LED is off, then perform the following substeps: <ol style="list-style-type: none"> <li>1 Check the power to the enclosure.</li> <li>2 Be sure that the power supplies are installed and are operating properly.</li> <li>3 Complete step 1 again.</li> </ol>

Step	HP BladeSystem c7000 Enclosure Insight Display action and verification
Step 2	<p><b>Action</b> Check the Insight Display to be sure that no firmware updates are in progress.</p>
	<p><b>Verification</b> Do one of the following:</p> <ul style="list-style-type: none"> <li>• If the enclosure is performing a firmware update, then wait until the firmware update is complete. When the update is complete, continue to the next step.</li> <li>• If the enclosure is not performing a firmware update, then continue to the next step.</li> </ul>
Step 3	<p><b>Action</b> If one Onboard Administrator is installed in the enclosure, then continue to step 4. If two Onboard Administrators are installed in the enclosure, then perform the following substeps:</p> <ol style="list-style-type: none"> <li>1 Locate the standby Onboard Administrator. The active LED on the standby Onboard Administrator is off.</li> <li>2 Remove the standby Onboard Administrator.</li> </ol>
Step 4	<p><b>Action</b> Reseat the active Onboard Administrator.</p>
	<p><b>Verification</b> Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the issue still exists, continue to the next step.</li> <li>• If the Insight Display illuminates and the Insight Display buttons operate properly, then install the standby Onboard Administrator in the original bay. The repair is complete.</li> </ul>
Step 5	<p><b>Action</b> Test OA bay Y:</p> <ol style="list-style-type: none"> <li>1 Remove the Onboard Administrator (suspect OA #X) from OA bay X.</li> <li>2 Install the Onboard Administrator (suspect OA #X) in OA bay Y.</li> </ol>
	<p><b>Verification</b> Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the issue still exists, continue to the next step.</li> <li>• If the Insight Display illuminates and the Insight Display buttons operate properly, then test the OA tray connection. Continue to step 9.</li> </ul>
Step 6	<p><b>Action</b> Test the Onboard Administrator:</p> <ol style="list-style-type: none"> <li>1 Remove OA #X.</li> <li>2 Install the OA #Y, if present, or an operational Onboard Administrator into OA bay 1.</li> </ol>
	<p><b>Verification</b> Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the issue still exists, then test the OA tray connection. Continue to step 9.</li> <li>• If the Insight Display illuminates and the Insight Display buttons operate properly, then OA #X failed.</li> </ul> <p>If OA #X has failed, do one of the following:</p> <ul style="list-style-type: none"> <li>• If replacing OA #X with a service spare part, then continue to the next step.</li> <li>• If replacing OA #X with OA #Y, then continue to step 8.</li> </ul>
Step 7	<p><b>Action</b> Obtain the OA1 IP settings from the enclosure administrator.</p>

Step	HP BladeSystem c7000 Enclosure Insight Display action and verification
	<p><b>Static OA1 IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to static.</li> <li>2 Enter the following information recorded in the previous step: <ul style="list-style-type: none"> <li>-IP address</li> <li>-Netmask</li> <li>-Gateway</li> </ul> </li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol>
	<p><b>DHCP OA IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to DHCP.</li> <li>2 Record the following information: <ul style="list-style-type: none"> <li>-New OA IP address</li> <li>-DNS name of the old Onboard Administrator from the label</li> <li>-DNS name of the new Onboard Administrator from the label</li> </ul> </li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol>
	<p><b>Verification</b> When the IP address is updated for the new Onboard Administrator, then the hardware repair is complete. Continue with the configuration.</p>
	<p><b>Configuration</b> Complete the configuration:</p> <ol style="list-style-type: none"> <li>1 If the OA1 IP address is 0.0.0.0 and is set for DHCP, then the network administrator modifies the DHCP server configuration to add the new OA MAC address. The OA MAC address is found in the new OA default DNS name.</li> <li>2 Log in to the new Onboard Administrator using the Administrator account and the new password.</li> <li>3 Verify that the Onboard Administrator firmware is the correct version. Update the Onboard Administrator firmware, if necessary.</li> <li>4 Complete the Onboard Administrator setup wizard or restore a previously saved enclosure configuration file.</li> <li>5 If not using LDAP for authentication, then manually update the passwords.</li> </ol>
<b>Step 8</b>	<p><b>Action</b> Replace the failed Onboard Administrator:</p> <ol style="list-style-type: none"> <li>1 Install OA #Y in OA bay Y.</li> <li>2 Install a service spare Onboard Administrator in OA bay X.</li> <li>3 Obtain the original OA #X (original standby OA) IP address settings from the enclosure administrator.</li> <li>4 Use the Insight Display to update the new OA #X IP address settings to match the settings from the original OA #X.</li> </ol>
	<p><b>Verification</b> After replacing the Onboard Administrator, the hardware repair is complete. Continue with the configuration.</p>

Step	HP BladeSystem c7000 Enclosure Insight Display action and verification
	<p><b>Configuration</b> Complete the configuration:</p> <ol style="list-style-type: none"> <li>1 Log in to OA #Y using the Administrator account and the new password.</li> <li>2 Verify that the standby Onboard Administrator (OA #X) firmware is the correct version.</li> <li>3 Update the active Onboard Administrator firmware, if necessary, to synchronize the firmware on both Onboard Administrators. This update also synchronizes the enclosure settings on the standby Onboard Administrator.</li> <li>4 Verify the original IP address settings for the standby Onboard Administrator (OA #X).</li> </ol>
<b>Step 9</b>	<p><b>Action</b> Test the OA tray connection:</p> <ol style="list-style-type: none"> <li>1 Remove the active Onboard Administrator (OA #X).</li> <li>2 Reseat the OA tray.</li> <li>3 Install the active Onboard Administrator (OA #X) in OA bay X.</li> </ol>
	<p><b>Verification</b> Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the Insight Display illuminates and the Insight Display buttons operate, then install the standby Onboard Administrator (OA #Y), if present, in OA bay Y. The repair is complete.</li> <li>• If the issue still exists, then continue to the next step.</li> </ul>
<b>Step 10</b>	<p><b>Action</b> Test the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove the active Onboard Administrator (OA #X).</li> <li>2 Remove the OA tray and install a service spare or operational OA tray.</li> <li>3 Install the active Onboard Administrator (OA #X) in OA bay X.</li> </ol>
	<p><b>Verification</b> Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the Insight Display illuminates and the Insight Display buttons operate, then install the standby Onboard Administrator (OA #Y), if present, in OA bay Y. The repair is complete.</li> <li>• If the issue still exists, then continue to the next step.</li> </ul>
<b>Step 11</b>	<p><b>Action</b> Request authorization to remove all devices from device bays 9 and 10.</p>
<b>Step 12</b>	<p><b>Action</b> Test the Insight Display cable connection:</p> <ol style="list-style-type: none"> <li>1 Power down the devices installed in device bays 9 and 10.</li> <li>2 Remove the devices from device bays 9 and 10.</li> <li>3 Remove the two screws from the metal plate covering the Insight Display cable connector on the left inside wall of the enclosure.</li> <li>4 Carefully reseat the Insight Display cable.</li> </ol>

Step	HP BladeSystem c7000 Enclosure Insight Display action and verification
	<p><b>Verification</b></p> <p>Wait for up to 2 minutes, and then check the Insight Display.</p> <ul style="list-style-type: none"> <li>• If the issue still exists, then continue to the next step.</li> <li>• If the Insight Display illuminates and the Insight Display buttons operate, then complete the repair by replacing the original OA tray.</li> </ul> <p>To replace the OA tray:</p> <ol style="list-style-type: none"> <li>1 Install the metal cover.</li> <li>2 Install the devices in the original device bays.</li> <li>3 Remove OA #X from OA bay X.</li> <li>4 Remove the spare OA tray.</li> <li>5 Install the original OA tray.</li> <li>6 Install OA #X in OA bay X.</li> <li>7 Install OA #Y, if present.</li> </ol>
<b>Step 13</b>	Contact an authorized service provider to complete the midplane assembly replacement (on page <a href="#">66</a> ).

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# Enclosure troubleshooting

## Troubleshooting guidelines

Observe the following guidelines when performing troubleshooting procedures:

- Always read any Warnings and Cautions before beginning the troubleshooting procedure.
- Always begin with the step indicated by the symptom.
- Perform the operation described in the step, then evaluate the result of that action and perform any additional procedures as directed. If the issue is not resolved, then continue to the next step.

For specific removal and replacement procedures, see the appropriate enclosure maintenance and service guide located on the HP website (<http://www.hp.com/go/bladefsystem/documentation>).

## Insight Display error notification

If an error occurs, the Onboard Administrator displays an error message on the Insight Display. In addition, the Onboard Administrator will also display error messages in e-mail alerts and SNMP traps if this feature has been configured. For more information, see the *HP BladeSystem Onboard Administrator User Guide*.

When the enclosure UID LED is off, the Insight Display is illuminated amber when any error condition exists. The navigation bar displays the following selections when an error condition exists:

- Health summary icon—Displays the Health Summary screen.
- Fix THIS—Suggests a corrective action to clear the current error.
- Next Alert—Displays the next alert, or if none exist, displays the Health Summary screen.
- Previous Alert—Displays the previous alert.

## Location errors

Location (installation) errors occur when the component is not installed in the appropriate bay. Location errors can occur on server blades, storage blades, power supplies, and fans.

To correct a location error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. Remove the indicated component, and install it into the correct bay. The Insight Display will indicate the correct bay number.

## Configuration errors

Configuration errors might occur if the interconnect modules are installed in the wrong bays or if mezzanine cards are installed in the wrong connectors in the server blade. Configuration errors might occur on server blades and interconnect modules.



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**CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

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To correct a configuration error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. Depending on the error received, do one of the following:
  - o Remove the indicated interconnect module and install it into the correct bay (the Insight Display indicates the correct bay).
  - o Remove the server blade to correct the mezzanine card installation (the Insight Display indicates the correct bay). For information on installing the mezzanine card, see the server-specific user guide on the Documentation CD.

## Power errors

Power errors can occur because of insufficient power to bring up an enclosure. Power errors can occur on server blades, storage blades, or interconnect modules.

To correct a power error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must either add power supplies to the enclosure or remove the indicated components.

## Cooling errors

Cooling errors occur when too few fans are installed in the enclosure or when the existing fans are not installed in an effective configuration. Cooling errors can occur on server blades, storage blades, or interconnect modules.

To correct a cooling error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must either add fans to the enclosure, correct the fan configuration, or remove the indicated components.

## Device errors



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**CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

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Device errors occur when a component has degraded health, a non-critical device-specific error, or has failed. Device errors might occur on all components, including:

- Server blades
- Storage blades
- Power supplies
- Interconnect modules
- Onboard Administrator modules
- Fans
- AC power inputs

To correct a device error:

1. Use the arrow buttons to navigate to **Fix This**, and press **OK**.
2. Review and complete the corrective action suggested by the Insight Display. In most cases, you must remove the failed component to clear the error.
3. Replace the failed component with a spare, if applicable.  
If the device failure error is an AC power input error, be sure the AC power input is supplied with power to clear the error.
4. If the suggested corrective action does not correct the error, see the device-specific troubleshooting section. Begin troubleshooting by using the symptom table at the beginning of each section.

## Fan troubleshooting

Fans provide proper cooling for the enclosure. This section provides the steps required to ensure that the fans are operating properly and in the correct locations within the enclosure.

For all removal and replacement procedures used in this document, see the appropriate enclosure maintenance and service guide on the HP website (<http://www.hp.com/go/bladessystem/documentation>).

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: Fan failure

Fan LED condition	Initial step	Required steps
A single fan LED is flashing amber. The Insight Display may also be reporting a device identification error for the fan.	—	Begin with step 1 of "Procedures: Fan LED is flashing amber (on page 27)."
A single fan LED is solid amber. The Insight Display may also be reporting a device failed error for the fan.	—	Begin with step 1 of "Procedures: Fan LED is solid amber (on page 29)."
All fan LEDs are flashing amber.	—	Begin with step 5 of "Procedures: Fan LED is flashing amber (on page 27)."
A row of fan LEDs are all dim amber or all off.	—	Begin with step 4 of "Procedures: Fan LED is off (on page 28)."
A single fan LED is off.	—	Begin with step 4 of "Procedures: Fan LED is off (on page 28)."

Fan LED condition	Initial step	Required steps
A fan LED is solid green, and the Insight Display reports a location error	Verify the fan population. A fan is located in the wrong bay according to the fan population rule.	To correct the issue, follow the Insight Display steps. Begin by selecting <b>Fix</b> on the Insight Display.
All fan LEDs are solid green, but fans in this enclosure are running at a higher speed than normal.	Access more information from the Onboard Administrator and iLO 2.	Locate the server blade that has the highest vfan sensor, or has failed to complete BIOS POST.

## Procedures: Fan LED is flashing amber

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Fan LED is flashing amber action and verification
<b>Step 1</b>	<b>Action</b> Wait for ten seconds, and then verify that the fan firmware is not being updated for the suspect fan.
	<b>Verification</b> If the fan LED continues to flash amber for longer than ten seconds, then continue to the next step. If the fan LED changes to solid green, then no further action is needed.
<b>Step 2</b>	<b>Action</b> Remove the suspect fan, and then install it in an operational fan bay.
	<b>Verification</b> If the fan LED is solid green, then continue to step 4. If the fan LED immediately flashes amber, then continue to the next step.
<b>Step 3</b>	<b>Action</b> Remove and replace the suspect fan with a spare fan.
	<b>Verification</b> If the new fan health LED remains green, then the repair is complete. If the new fan health LED is flashing amber, then the fan bay connection is suspect. Continue to the next step.
<b>Step 4</b>	<b>Action</b> Install the suspect fan into the original fan bay.
	<b>Verification</b> If the fan health LED remains green, then the repair is complete. If the fan health LED flashes amber, then the fan bay connection to the OA is suspect. Continue to the next step.

Step	Fan LED is flashing amber action and verification
Step 5	<p><b>Action</b> Complete each step in the "Troubleshooting the Insight Display (on page 16)" section depending on the enclosure. Perform the verification in this step after completing each Insight Display troubleshooting step.</p>
	<p><b>Verification</b> If the fan health LED continues to flash after verifying each of the Insight Display troubleshooting steps, then continue to the next Insight Display troubleshooting step. If the fan health LED continues to flash after completing all of the Insight Display troubleshooting steps, then continue to the next step.</p>
Step 6	<p><b>Action</b> A connection problem between the fan and the Insight Display is indicated. Contact an HP authorized service provider, and then complete the steps in the "Midplane assembly replacement (on page 66)" section.</p>
	<p><b>Verification</b> If the suspect fan health LED is solid green, then the repair is complete. If any new error indications appear, then follow the troubleshooting instructions for those errors.</p>

## Procedures: Fan LED is off

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- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
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- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
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- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.
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Step	Fan LED is off action and verification
Step 1	<p><b>Action</b> Visually inspect the fan for damage or obstruction:</p> <ol style="list-style-type: none"> <li>1 Remove the fan.</li> <li>2 Inspect the fan blades for damage or obstruction.</li> <li>3 Return the fan to the original fan bay.</li> </ol>
	<p><b>Verification</b> If the fan LED is solid green, then the repair is complete. If the fan LED remains off, then continue to the next step.</p>
Step 2	<p><b>Action</b> Remove the suspect fan, and then install it in an operational fan bay.</p>
	<p><b>Verification</b> If the suspect fan LED remains off, then replace the fan to complete the repair. If the fan LED is solid green, then continue to the next step.</p>
Step 3	<p><b>Action</b> Install an operational fan into the suspect fan bay.</p>

Step	Fan LED is off action and verification
	<p><b>Verification</b></p> <p>If the fan LED for the fan in the suspect bay is green, then return all fans to their original fan bays. The repair is complete.</p> <p>If the suspect fan LED remains off, then continue to the next step.</p>
Step 4	<p><b>Action</b></p> <p>Depending on the enclosure, complete each step in the "Troubleshooting the Insight Display (on page 16)" section. Perform the verification in this step after completing each Insight Display troubleshooting step.</p>
	<p><b>Verification</b></p> <p>If the fan health LED continues to flash after verifying each of the Insight Display troubleshooting steps, then continue to the next Insight Display troubleshooting step.</p> <p>If the fan health LED continues to flash after completing all of the Insight Display troubleshooting steps, then continue to the next step.</p>
Step 5	<p><b>Action</b></p> <p>A connection problem between the fan and the Insight Display is indicated. Contact an HP authorized service provider, and then complete the steps in the "Midplane assembly replacement (on page 66)" section.</p>
	<p><b>Verification</b></p> <p>If the suspect fan health LED is solid green, then the repair is complete. If any new error indications appear, then follow the troubleshooting instructions for those errors.</p>

## Procedures: Fan LED is solid amber

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Fan LED is solid amber action and verification
Step 1	<p><b>Action</b></p> <p>Visually inspect the fan for damage or obstruction:</p> <ol style="list-style-type: none"> <li>1 Remove the fan.</li> <li>2 Inspect the fan blades for damage or obstruction.</li> <li>3 Return the fan to the original fan bay.</li> </ol>
	<p><b>Verification</b></p> <p>If the fan LED is solid green, then the repair is complete.</p> <p>If the fan LED changes from green to solid green after a few minutes, then continue to the next step.</p>
Step 2	<p><b>Action</b></p> <p>Remove the suspect fan, and then install it in an operational fan bay.</p>

<b>Step</b>	<b>Fan LED is solid amber action and verification</b>
	<b>Verification</b> If the error still exists, then replace the fan to complete the repair. If the fan LED is solid green, then continue to the next step.
<b>Step 3</b>	<b>Action</b> Install an operational fan into the suspect fan bay.
	<b>Verification</b> If the fan LED is green, then return all fans to their original fan bays. Replace the suspect fan to complete the repair. If an operational fan LED is solid amber, then continue to the next step.
<b>Step 4</b>	<b>Action</b> Complete each step in the "Troubleshooting the Insight Display (on page 16)" section depending on the enclosure. Perform the verification in this step after completing each Insight Display troubleshooting step.
	<b>Verification</b> If the fan health LED continues to flash after verifying each of the Insight Display troubleshooting steps, then continue to the next Insight Display troubleshooting step. If the fan health LED continues to flash after completing all of the Insight Display troubleshooting steps, then continue to the next step.
<b>Step 5</b>	<b>Action</b> A connection problem between the fan and the Insight Display is indicated. Contact an HP authorized service provider and complete the steps in the "Midplane assembly replacement (on page 66)" section.
	<b>Verification</b> If the suspect fan health LED is solid green, then the repair is complete. If any new error indications appear, then follow the troubleshooting instructions for those errors.

## Power supply troubleshooting

Power supplies provide the required power to the common 12V distribution in the enclosure. This section provides the procedures to verify that the power supplies are functioning properly.

For all removal and replacement procedures used in this document, see the appropriate enclosure maintenance and service guide on the HP website (<http://www.hp.com/go/bladesystem/documentation>).

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: Power supply failure

Symptom	Initial step	Required steps
The power LED is off. The fault LED is off. The Insight Display reports AC failure, bad FRU, and power supply failure.	—	Begin with step 1.
A single power supply fault LED is on.	—	Begin with step 4.
All power supplies fault LEDs are on.	—	Begin with step 5.
The power LED is on. The fault LED is off. The Insight Display reports power supply failure.	Use the power supply bay status on the Insight Display Health Summary to verify the success or failure of each step.	Begin with step 4.

## Procedures: Power supply failure

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Power supply failure action and verification
<b>Step 1</b>	<p><b>Action</b> Verify that the AC power cord is connected properly to the AC source and to the power supply reporting the error.</p> <p><b>Verification</b> If the power supply LEDs indicate normal condition, then the repair is complete. If the power supply LEDs indicate other than normal condition, then continue to the next step.</p>
<b>Step 2</b>	<p><b>Action</b> Remove the suspect power supply, and then replace it with a service spare power supply.</p> <p><b>Verification</b> If the power supply LEDs indicate normal condition, then the original power supply had failed and the repair is complete.</p> <ul style="list-style-type: none"> <li>• If the power supply LEDs indicate other than normal condition and you are troubleshooting an HP BladeSystem c7000 Enclosure, then continue to the next step.</li> <li>• If the power supply LEDs indicate other than normal condition and you are troubleshooting an HP BladeSystem c3000 Enclosure, then continue to step 4.</li> </ul>
<b>Caution</b>	Request authorization to power down the enclosure. Do not continue to the next step until you receive proper authorization.
<b>Step 3</b>	<p><b>Action</b> Test the AC power input module:</p> <ol style="list-style-type: none"> <li>1 Remove the AC power input module.</li> <li>2 Install an operational AC power input module or service spare part.</li> <li>3 Reconnect all power cords.</li> </ol> <p><b>Verification</b> If the power supply LEDs indicate normal condition, then the AC input module had failed and the repair is complete. If the power supply LEDs still indicate other than normal condition, then continue to step 14.</p>

Step	Power supply failure action and verification
<b>Step 4</b>	<b>Action</b> To troubleshoot the component connectors, perform the following: <ol style="list-style-type: none"> <li>1 Note the location of each device to be sure that each device is later installed in the original bay.</li> <li>2 Remove all devices and modules installed in the enclosure.</li> <li>3 Attempt to keep cables attached to all rear modules. If this is not possible, then note cable locations to be sure the cables are connected to the module correctly when the module is reinstalled.</li> <li>4 Examine all the connectors for damage.</li> </ol>
	<b>Verification</b> Replace all devices that have damaged connectors, and replace all devices with connectors mating to damaged connectors. For all other devices connected directly to the midplane, always replace the damaged device and the midplane assembly. Continue to the next step. If no visible damage exists, then continue to the next step.
<b>Step 5</b>	<b>Action</b> Reinstall and troubleshoot the power supplies to locate shorted power supplies: <ol style="list-style-type: none"> <li>1 Install all power supplies one at a time into their original bays.</li> <li>2 Be sure that the power cord is connected and that the power is on. If the enclosure is powered using single phase power input module, then shift the power cables around the power input module to verify the connectivity of the AC power.</li> <li>3 Verify the power LED and fault LED for each power supply.</li> </ol>
	<b>Verification</b> If the power supply power LED is on and the fault LED is off, then the power supply is operating normally. The repair is complete. If the power supply fault LED is on or the Power LED is off, continue to the next step.
<b>Step 6</b>	<b>Action</b> Remove the suspect power supply, and then install a service spare power supply.
	<b>Verification</b> If the power supply power LED is on and the fault LED is off, then the suspect power supply has failed. Continue to the next step. If the fault LED is on, then the original power supply did not fail. Remove the service spare power supply and install the original power supply. Continue to step 14.
<b>Step 7</b>	<b>Action</b> Install the OA tray.
	<b>Verification</b> If all power supply power LEDs remain on and all fault LEDs remain off, then continue as indicated: <ul style="list-style-type: none"> <li>• When troubleshooting an HP BladeSystem c7000 Enclosure, continue to the next step.</li> <li>• When troubleshooting an HP BladeSystem c3000 Enclosure, go back to step 5.</li> </ul> If the power LEDs and the fault LEDs indicate a fault, then the test the OA tray: <ol style="list-style-type: none"> <li>1 Remove the OA tray.</li> <li>2 Install an operational OA tray.</li> <li>3 Check the status of the power supply LEDs. If the power supply LEDs indicate a fault, then the OA tray is not causing the error. Continue to step 14.</li> </ol>
<b>Step 8</b>	<b>Action</b> Install the original Onboard Administrator in OA bay 1.

Step	Power supply failure action and verification
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED is green and a second Onboard Administrator was originally installed, then continue to step 10.</p> <p>If the power supply fault LEDs are on, then continue to the next step.</p> <p>For all other LED indications, continue to step 13.</p>
<b>Step 9</b>	<p><b>Action</b></p> <p>Remove the suspect Onboard Administrator from OA bay 1. Install an operational Onboard Administrator in OA bay 1.</p>
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED is green and a second Onboard Administrator was originally installed, then continue with step 10.</p> <p>If the Onboard Administrator is off and there was no Onboard Administrator originally installed in OA bay 2, then continue to step 13.</p> <p>If the power supply fault LEDs are on, then the original Onboard Administrator is not causing the issue. Perform the following substeps:</p> <ol style="list-style-type: none"> <li>1 Remove the current Onboard Administrator.</li> <li>2 Install the original Onboard Administrator in OA bay 1.</li> <li>3 Continue to the next step.</li> </ol>
<b>Step 10</b>	<p><b>Action</b></p> <p>If troubleshooting an HP BladeSystem c7000 Enclosure:</p> <ol style="list-style-type: none"> <li>1 Remove the Onboard Administrator.</li> <li>2 Remove the OA tray.</li> <li>3 Install an operational OA tray.</li> <li>4 Install the Onboard Administrator in OA bay 1.</li> </ol>
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED is green, then the OA tray failed. Continue to the next step.</p> <p>If the power supply fault LEDs are on, then the original OA tray did not fail. Reinstall the original OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove the Onboard Administrator.</li> <li>2 Remove the OA tray.</li> <li>3 Install the original OA tray.</li> <li>4 Install the Onboard Administrator in bay 1.</li> <li>5 Continue to step 14.</li> </ol>
<b>Step 11</b>	<p><b>Action</b></p> <p>Install the second Onboard Administrator in the original location in OA bay 2.</p>
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED is green, then continue to step 13.</p> <p>If the power supply fault LEDs are on, then continue to the next step.</p>
<b>Step 12</b>	<p><b>Action</b></p> <p>Remove the Onboard Administrator from OA bay 2. Install an operational Onboard Administrator in OA bay 2.</p>
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED in OA bay 2 is green, then the Onboard Administrator originally installed in OA bay 2 failed. Continue to the next step.</p> <p>If the power supply fault LEDs are on, then the original Onboard Administrator did not fail. Remove the current Onboard Administrator from OA bay 2 and install the original Onboard Administrator in OA bay 2.</p>
<b>Step 13</b>	<p><b>Action</b></p> <p>Remove all Onboard Administrators and remove the OA tray. Install an operational OA tray, and then install the Onboard Administrators in the original bays.</p>

Step	Power supply failure action and verification
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LEDs are green, then the OA tray failed. Continue to the next step.</p> <p>If the power supply fault LEDs are on, then the original OA tray did not fail. Remove all Onboard Administrators and the current OA tray. Install the original OA tray and the Onboard Administrators in the original locations. Continue to the next.</p>
<b>Step 14</b>	<p><b>Action</b></p> <p>Contact an HP authorized service provider to complete the midplane assembly replacement (on page 66).</p> <p>Handover in this engagement process an Onboard Administrator SHOW ALL report.</p>

## Server blade troubleshooting

Server blades interact with the enclosure power, cooling, and management infrastructure. This section describes how to troubleshoot a server blade failure inside the enclosure. Other server blade troubleshooting applies to problems that do not involve the enclosure.

For all removal and replacement procedures used in this document, see the appropriate server blade maintenance and service guide on the HP website (<http://www.hp.com/go/bladesystem/documentation>).

For specific component LED definitions and component identification, see "Component identification (on page 73)." For server blade LED definitions and component identification, see the server blade user guide or maintenance and service guide on the HP website (<http://www.hp.com/go/bladesystem/documentation>).

### Symptoms: Server blade errors

Error indication	Initial step	Required steps
An Insight Display location error is reported for this device bay.	—	To correct the issue, follow the Insight Display steps.
An Insight Display configuration error is reported for this device bay.	—	To correct the issue, follow the Insight Display steps.
An Insight Display power error is reported for this device bay.	—	To correct the issue, follow the Insight Display steps.
An Insight Display cooling error is reported for this device bay.	—	To correct the issue, follow the Insight Display steps. If the Insight Display reports a server blade thermal warning, then check the iLO 2 IML log for specific thermal zone reporting issues. Check that area of the server blade for obstructions and for proper heatsink installation.
An Insight Display device error is reported for this device bay.	—	Examine the reported server blade power LED and health LED. Follow the steps indicated for the specific symptom in this table.
A server blade does not power up. All server blade LEDs are off.	—	Begin with step 1.

Error indication	Initial step	Required steps
<p>A server blade does not power up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is amber.</li> <li>• The health LED is flashing red.</li> <li>• The Insight Display device bay status is yellow.</li> </ul>	—	To correct the issue, follow the Insight Display steps.
<p>A server blade does not power up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is amber.</li> <li>• The health LED is green.</li> <li>• The Insight Display device bay status is black.</li> </ul>	After each step, check the device bay status on the Insight Display Health Summary screen. When the status changes from black to another color, the Onboard Administrator detects the server blade.	The server blade is not seated properly in the device bay. Reseat the server blade in the device bay. The Insight Display device bay status changes to dark green after the server blade is detected. If the symptom continues, perform the steps beginning with step 2.
<p>A server blade does not power up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is amber.</li> <li>• The health LED is off.</li> <li>• The Insight Display device bay status is dark green.</li> </ul>	—	Press the server blade Power On/Standby button. If the server blade does not power on, then begin with step 4.
<p>A server blade does not power up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is amber.</li> <li>• The health LED is flashing amber.</li> <li>• The Insight Display device bay status is dark green.</li> </ul>	—	<p>Troubleshoot the processor to correct the issue. When possible, connect a VGA monitor to the front SUFI cable to observe possible Memory DIMM and CPU installation issues as those cannot be reported through the iLO remote display. Perform the following steps as instructed in the server blade documentation:</p> <ol style="list-style-type: none"> <li>1 Remove the server blade.</li> <li>2 Review Memory DIMMs position.</li> <li>3 Remove unnecessary DIMMs and optional mezzanine cards/option boards.</li> <li>4 Reseat the processor.</li> <li>5 Remove the processor.</li> <li>6 Install a spare processor.</li> <li>7 Install the server blade in the original device bay.</li> <li>8 If the server blade powers up, then the repair is complete. If the server blade does not power up, then contact HP for support.</li> </ol>

Error indication	Initial step	Required steps
<p>A server blade is powered up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is green.</li> <li>• The health LED is green.</li> <li>• The Insight Display device bay status is blue.</li> </ul>	<p>No iLO 2 IP address results in the following conditions:</p> <ul style="list-style-type: none"> <li>• No iLO 2 web or SSH access</li> <li>• No enclosure DVD-ROM drive support for this server blade</li> <li>• No server blade information provided to the Onboard Administrator</li> <li>• No remote console or remote media support</li> </ul>	<p>The iLO 2 on this server blade has no IP address. To configure the iLO 2 IP address, reboot the server blade and use the iLO 2 ROM setup during POST.</p>
<p>A server blade is powered up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is green.</li> <li>• The health LED is green.</li> <li>• The Insight Display device bay status is red.</li> </ul>	<p>This issue results in the following conditions:</p> <ul style="list-style-type: none"> <li>• The enclosure fan speed is elevated to protect the server blade.</li> <li>• The server blade cannot be powered up if it was manually powered down.</li> <li>• The Onboard Administrator report of server blade thermals and status is not accurate.</li> </ul>	<p>The Onboard Administrator has lost power and cooling communication with iLO 2 for this server blade. To reset iLO 2, perform one of the following actions:</p> <ul style="list-style-type: none"> <li>• Log in to the iLO 2 GUI and reset iLO 2.</li> <li>• Use the OA CLI command for the bay, where N is the device bay number. <code>reset server N</code></li> </ul> <p>Because the previous action requires restarting the server blade, always request permission to power down the server blade before performing this action: For an alternative method for resetting iLO 2, reseal the server blade. Reseating the server blade powers off the server blade and iLO 2.</p>
<p>A server blade is powered up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is green.</li> <li>• The health LED is flashing red.</li> <li>• The Insight Display device bay status is bright green.</li> </ul>	<p>—</p>	<p>The server blade failed to complete POST. To troubleshoot the memory installation, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Remove the server blade.</li> <li>2 Verify that the memory is installed according to the installation guidelines provided in the server blade documentation.</li> <li>3 Install the server blade in the original device bay.</li> <li>4 Review the IML for this server blade from OA GUI/CLI.</li> <li>5 Review the iLO log from this server blade for indicators.</li> </ol>

Error indication	Initial step	Required steps
<p>A server blade is powered up. The following conditions exist:</p> <ul style="list-style-type: none"> <li>• The power LED is green.</li> <li>• The health LED is flashing amber.</li> <li>• The Insight Display device status is bright green.</li> </ul>	—	Inspect the server IML log for the specific error report. The IML can be reached through the OA GUI/CLI and through iLO2 GUI. If not using the HP OS agents, then an error may not be logged and a memory error is indicated. Correct the issue listed in the IML log. If no issue is listed, then contact HP for support.

## Procedures: Server blade errors

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- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
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- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- 
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.
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For the steps in this table, use the following definitions for all variables:

- Standby Onboard Administrator = Suspect OA #Y
- Y = Original bay location for the standby module
- Second module = Suspect OA #X
- X = Original bay location of the active module

Step	Server blade errors action and verification
Step 1	<p><b>Action</b></p> <p>Confirm that the Insight Display is operating properly. Check that the Insight Display Health Summary screen device bay status is dark green.</p>
	<p><b>Verification</b></p> <p>If the Insight Display is not operating, then check that the enclosure is powered up. If the enclosure is powered up and the Onboard Administrator health LED is on, then see "Troubleshooting the Insight Display (on page 16)."</p> <p>If the Insight Display Health Summary screen device bay status is black, then continue to the next step.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alert</b> to obtain the corrective action.</p> <p>If the Insight Display Health Summary screen device bay status is dark green, then continue to step 4.</p>
Step 2	<p><b>Action</b></p> <p>Remove the server blade and examine the signal and power connectors on the server for damage.</p>

Step	Server blade errors action and verification
	<p><b>Verification</b></p> <p>If connector damage is visible, then dispose of the damaged server blade. <b>Never install the damaged server blade in an enclosure. Continue to the next step.</b></p> <p>If the signal and power connectors are not damaged, then continue to the next step.</p>
Step 3	<p><b>Action</b></p> <p>Visually examine the suspect midplane assembly signal and power connectors in the suspect bay.</p>
	<p><b>Verification</b></p> <p>If the midplane assembly connectors for the suspect device bay are not damaged, then continue to the next step.</p> <p>If connector damage is visible, then the midplane failed. Contact an HP authorized service provider to complete the midplane assembly replacement (on page 66).</p> <p><b>Never install a device into the device bay with the damaged connector until the midplane assembly is replaced.</b></p>
Step 4	<p><b>Action</b></p> <p>Reseat the suspect server blade.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the repair is complete.</p> <p>If the server blade does not power up, then continue to the next step.</p>
Step 5	<p><b>Action</b></p> <p>Check the device bay status on the Insight Display Health Summary screen. If the suspect bay status is yellow or red, then perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Select <b>View Alerts</b> and view all reported errors.</li> <li>2 Perform all corrective actions suggested by the Insight Display.</li> </ol> <p>If the Insight Display does not report device bay errors, then check the status of the system power LED on the Power On/Standby button. If the system power LED is green, then the server blade is powered up.</p> <p>If the system power LED is amber, then the server blade is in standby mode. Press the Power On/Standby button to power up the server blade.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the repair is complete.</p> <p>If the system power LED remains amber and the Insight Display Health Summary screen device bay status is dark green, then continue to the next step.</p>
Step 6	<p><b>Action</b></p> <p>Confirm that it is safe to disturb the management network. Be sure that the Insight Display does not indicate that a firmware update is in progress. If a firmware update is in progress, wait until the update is complete before continuing.</p>
	<p><b>Verification</b></p> <p>If the enclosure is not performing a firmware update and if troubleshooting an HP BladeSystem c7000 Enclosure, then continue to step 9.</p> <p>If troubleshooting an HP BladeSystem c3000 Enclosure, then continue to the next step.</p>
Step 7	<p><b>Action</b></p> <p>If troubleshooting an HP BladeSystem c3000 Enclosure, then reseat the OA tray.</p> <p>If troubleshooting an HP BladeSystem c7000 Enclosure, then continue to step 9.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the repair is complete.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alerts</b> to view all reported errors. Perform all corrective actions suggested by the Insight Display.</p> <p>If the server blade system power LED is amber and the Insight Display Health Summary screen device bay status is dark green, then continue to the next step.</p>

Step	Server blade errors action and verification
Step 8	<p><b>Action</b></p> <p>If troubleshooting an HP BladeSystem c3000 Enclosure, then remove the c3000 OA tray and replace it with a service spare part.</p> <p>If troubleshooting an HP BladeSystem c7000 Enclosure, then continue to the next step.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the original BladeSystem c3000 OA tray failed. Continue to step 13.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alerts</b> to view all reported errors. Perform all corrective actions suggested by the Insight Display.</p> <p>If the server blade system power LED is amber and the Insight Display Health Summary screen device bay status is dark green, then continue to step 19.</p>
Step 9	<p><b>Action</b></p> <p>If two Onboard Administrators are installed in the enclosure, then locate the standby Onboard Administrator. The active LED on the standby Onboard Administrator is off. Remove the standby Onboard Administrator.</p> <p>The standby Onboard Administrator is called the suspect OA#Y, where Y is the original bay location for the module. The active module is called the suspect OA#X, where X is the original bay location of the module.</p>
Step 10	<p><b>Action</b></p> <p>Reseat the suspect OA #X (active Onboard Administrator) in the current OA bay.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the repair is complete.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alerts</b> to view all reported errors. Perform all corrective actions suggested by the Insight Display.</p> <p>If the server blade system power LED is amber and the Insight Display Health Summary screen device bay status is dark green, then continue to the next step.</p>
Step 11	<p><b>Action</b></p> <p>Remove the suspect OA #X (active Onboard Administrator) and install the suspect OA #X into OA bay Y.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then the OA tray is suspect. Continue to step 17.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alerts</b> to view all reported errors. Perform all corrective actions suggested by the Insight Display.</p> <p>If the server blade system power LED is amber and the Insight Display Health Summary screen device bay status is dark green, then continue to the next step.</p>
Step 12	<p><b>Action</b></p> <p>Remove OA #X and install OA #Y, if present, or a spare OA #Y into OA bay 1.</p>
	<p><b>Verification</b></p> <p>If the server blade powers up, then OA #X failed. If replacing a single Onboard Administrator with a service spare part, then continue with the next step. If replacing the active Onboard Administrator with OA#Y, then continue with step 15.</p> <p>If the Insight Display Health Summary screen device bay status is yellow or red, then select <b>View Alerts</b> to view all reported errors. Perform all corrective actions suggested by the Insight Display.</p> <p>If the server blade system power LED is amber and the Insight Display Health Summary screen device bay status is dark green, then the OA tray is suspect. Continue to step 17.</p>

Step	Server blade errors action and verification
<b>Step 13</b>	<p><b>Action</b> Obtain the OA1 IP settings from the enclosure administrator.</p> <p><b>Static OA1 IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to static.</li> <li>2 Enter the following information recorded in the previous step: -IP address -Netmask -Gateway</li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol> <p><b>DHCP OA IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to DHCP.</li> <li>2 Record the following information: -New OA1 IP address -DNS name of the old Onboard Administrator from the label -DNS name of the new Onboard Administrator from the label</li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol>
<b>Step 14</b>	<p><b>Configuration</b> When the IP address is updated for the new Onboard Administrator, then the hardware repair is complete. To complete the configuration, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 If the OA1 IP address is 0.0.0.0 and is set for DHCP, then have the network administrator modify the DHCP server configuration to add the new OA MAC address. The OA MAC address is found in the new OA default DNS name.</li> <li>2 Log in to the new Onboard Administrator using the Administrator account and the new password.</li> <li>3 Verify that the Onboard Administrator firmware is the correct version. Update the Onboard Administrator firmware, if necessary.</li> <li>4 Complete the Onboard Administrator setup wizard or restore a previously saved enclosure configuration file.</li> <li>5 If you are not using LDAP for authentication, then manually update the passwords.</li> </ol>
<b>Step 15</b>	<p><b>Action</b> Install OA #Y in OA bay Y. Install a service spare Onboard Administrator in OA bay X to replace the failed Onboard Administrator.</p>
<b>Step 16</b>	<p><b>Action</b> Complete the repair process:</p> <ol style="list-style-type: none"> <li>1 Login to OA #Y using the Administrator account and current password.</li> <li>2 Verify that the standby Onboard Administrator (OA #X) firmware is the correct version.</li> <li>3 To synchronize the firmware on both Onboard Administrators, update the firmware on the active Onboard Administrator to the correct version. This action also synchronizes the enclosure settings on the standby Onboard Administrator.</li> <li>4 Restore the original IP address settings to the standby Onboard Administrator (OA #X).</li> </ol>
<b>Step 17</b>	<p><b>Action</b> Reseat the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove the active Onboard Administrator.</li> <li>2 Reseat the OA tray.</li> <li>3 Install OA #X in OA bay X.</li> </ol>

Step	Server blade errors action and verification
	<p><b>Verification</b></p> <p>Wait for up to 2 minutes, then check the Insight Display. If the Insight Display illuminates and the Insight Display buttons operate properly, then install OA #Y, if present, in OA bay Y to complete the repair. If the issue still exists, continue to the next step.</p>
Step 18	<p><b>Action</b></p> <p>Replace the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove OA #X.</li> <li>2 Remove the OA tray.</li> <li>3 Install a service spare OA tray.</li> <li>4 Install OA #X in bay X.</li> </ol>
	<p><b>Verification</b></p> <p>Wait for up to 2 minutes, and then check the Insight Display. If the Insight Display illuminates and the Insight Display buttons operate properly, then install OA #Y, if present, in bay Y to complete the repair. If the issue still exists, then the OA tray did not fail. Continue to the next step.</p>
Step 19	<p><b>Action</b></p> <p>Contact an authorized service provider to complete the midplane assembly replacement (on page 66).</p>

## Partner blade troubleshooting

Partner blades are installed in a device bay. The partner blades are either connected to a server blade or interconnect module in the same enclosure. Partner blades cannot be powered down individually. This section describes the unique troubleshooting characteristics of those partner blades.

For more information, see the component documentation.

### Symptoms: Partner blade errors

Error indication	Initial step	Required steps
Insight Display reports error on suspect partner blade	—	To correct the issue, follow the Insight Display steps.
Partner blade health LED is off	—	Begin with step 1
Partner blade health LED is amber	For proper installation and support, most partner blades require a partner server blade to be installed and powered off during partner blade installation. If the partner blade is installed while the partner server blade is powered up, then power down the partner server blade before powering up the partner blade. Partner blades for interconnect modules require the interconnect module to be installed for operation.	To correct the issue, follow the Insight Display steps.
Partner blade health LED is green, but another LED on this partner blade is red	—	For LED information, see the partner blade documentation.

## Procedures: Partner blade errors

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Partner blade errors action and verification
Step 1	<b>Action</b> Examine device bay status for the suspect partner blade on the Insight Display Health Summary.
	<b>Verification</b> If the Insight Display device bay status for the partner blade is black, then continue to the next step. If the Insight Display device bay status for the partner blade is blue, yellow, or red, then follow the Insight Display directions to correct the issue.
Step 2	<b>Action</b> Reseat the partner blade.
	<b>Verification</b> If the Insight Display device bay status for the partner blade is black, then continue to the next step. If the Insight Display device bay status for the partner blade is blue, yellow, or red, then follow the Insight Display directions to correct the issue.
Step 3	<b>Action</b> Remove the suspect partner blade and install an operational partner blade.
	<b>Verification</b> If the partner blade health LED is green, then the repair is complete. If the partner blade health LED is off, then the suspect partner blade has not failed. Reinstall the original partner blade: <ol style="list-style-type: none"><li>1 Remove the operational partner blade.</li><li>2 Install the original partner blade.</li><li>3 Continue to the next step.</li></ol>
Step 4	<b>Action</b> If troubleshooting an HP BladeSystem c7000 Enclosure, then perform the following substeps: <ol style="list-style-type: none"><li>1 Remove all Onboard Administrators.</li><li>2 Reseat the OA tray.</li><li>3 Install all Onboard Administrators.</li></ol> If troubleshooting an HP BladeSystem c3000 Enclosure, reseat the Onboard Administrator.

<b>Step</b>	<b>Partner blade errors action and verification</b>
	<p><b>Verification</b></p> <p>If the partner blade health LED is green, then the connection is restored. The repair is complete.</p> <p>If the partner blade health LED is off, then continue to the next step.</p>
<b>Step 5</b>	<p><b>Action</b></p> <p>To troubleshoot the suspect Onboard Administrator, remove the suspect Onboard Administrator and install an operational Onboard Administrator or service spare part.</p>
	<p><b>Verification</b></p> <p>If the partner blade health LED is green, then the suspect Onboard Administrator failed. The repair is complete.</p> <p>If the partner blade health LED is off, then the suspect Onboard Administrator did not fail. Continue as directed:</p> <ul style="list-style-type: none"> <li>• If troubleshooting an HP BladeSystem c3000 Enclosure, then continue to step 7.</li> <li>• If troubleshooting an HP BladeSystem c7000 Enclosure, then continue with the next step.</li> </ul>
<b>Step 6</b>	<p><b>Action</b></p> <p>Troubleshoot the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators.</li> <li>2 Remove the OA tray.</li> <li>3 Install an operational or service spare OA tray.</li> <li>4 Install all Onboard Administrators in their original OA bays.</li> </ol>
	<p><b>Verification</b></p> <p>If the partner blade health LED is green, then the OA tray failed. The repair is complete.</p> <p>If the partner blade health LED is off, then the original OA tray did not fail. Reinstall the original OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove the OA tray.</li> <li>2 Install the original OA tray.</li> <li>3 Continue to the next step.</li> </ol>
<b>Step 7</b>	<p><b>Action</b></p> <p>Contact an HP authorized service provider to complete the midplane assembly replacement (on page 66).</p>

## Onboard Administrator troubleshooting

The Onboard Administrator manages the power, cooling, configuration, and status of the enclosure.

For more information, see the Onboard Administrator documentation on the HP website (<http://www.hp.com/support/oa>).

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: Onboard Administrator errors

Symptom	Initial step	Required steps
The Onboard Administrator health LED is off, and only one Onboard Administrator is installed.	—	Begin with step 1.

Symptom	Initial step	Required steps
The Onboard Administrator health LED is off on one Onboard Administrator, and Onboard Administrator health LED is green on the second Onboard Administrator.	—	Begin with step 2.
The Onboard Administrator health LED is off on both Onboard Administrators.	—	Begin with step 1.
The Onboard Administrator LED is red.	—	Begin with step 2.

## Procedures: Onboard Administrator errors

- 
- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- 
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- 
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.
- 

Step	Onboard Administrator errors action and verification
<b>Step 1</b>	<p><b>Action</b></p> <p>Verify that at least one power supply has the following normal LED status:</p> <ul style="list-style-type: none"> <li>• The power supply power LED is on.</li> <li>• The power supply fault LED is off.</li> </ul>
	<p><b>Verification</b></p> <p>If no power supply LEDs are on, then see "Power supply troubleshooting (on page 30)."</p> <p>If at least one power supply indicates normal LED status, then continue to the next step.</p>
<b>Step 2</b>	<p><b>Action</b></p> <p><b>HP BladeSystem c7000 Enclosure</b></p> <p>If the OA tray has a single Onboard Administrator installed, reseal the OA and the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove the suspect Onboard Administrator.</li> <li>2 Reseat the OA tray.</li> <li>3 Install the suspect Onboard Administrator.</li> </ol> <p>If the OA tray has two Onboard Administrators installed, then continue to the next step.</p> <p><b>HP BladeSystem c3000 Enclosure</b></p> <p>If the OA tray has a single Onboard Administrator installed, reseal the suspect Onboard Administrator.</p> <p>If the OA tray has two Onboard Administrators installed, then continue to step 6.</p>

Step	Onboard Administrator errors action and verification
	<p><b>Verification</b></p> <p>If the Onboard Administrator health LED is green, then the connection is restored. The repair is complete.</p> <p>If the Onboard Administrator health LED is off, then continue as follows:</p> <ul style="list-style-type: none"> <li>• If troubleshooting an HP BladeSystem c7000 Enclosure, then continue to the next step.</li> <li>• If troubleshooting an HP BladeSystem c3000 Enclosure, then continue to step 6.</li> </ul>
<b>Step 3</b>	<p><b>Action</b></p> <p>If troubleshooting the HP BladeSystem c7000 Enclosure, then locate the Onboard Administrator with the Active LED illuminated. Reseat the Onboard Administrator with the Active LED illuminated.</p>
	<p><b>Verification</b></p> <p>Wait until the Insight Display indicates that the second (non-suspect) Onboard Administrator has completed power-on tests.</p> <p>If the second (non-suspect) Onboard Administrator operates properly, then replace the suspect Onboard Administrator with a new or spare Onboard Administrator. The repair is complete.</p> <p>If the second (non-suspect) Onboard Administrator does not operate properly, then continue to the next step.</p>
<b>Step 4</b>	<p><b>Action</b></p> <p>Reseat the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove both Onboard Administrators.</li> <li>2 Reseat the OA tray.</li> <li>3 Install both Onboard Administrators in their original locations in the OA tray.</li> </ol>
	<p><b>Verification</b></p> <p>Wait until the Insight Display indicates that the Onboard Administrators have completed power-on tests.</p> <p>If the active Onboard Administrator operates properly, then the repair is complete.</p> <p>If the symptoms still exist, then continue to the next step.</p>
<b>Step 5</b>	<p><b>Action</b></p> <p>Replace the HP BladeSystem c7000 OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove both Onboard Administrators.</li> <li>2 Remove the OA tray.</li> <li>3 Install a new OA tray.</li> <li>4 Install both Onboard Administrators in the original locations in the OA tray.</li> </ol>
	<p><b>Verification</b></p> <p>Wait until the Onboard Administrators complete all power-on tests.</p> <p>If the symptoms no longer exist, then the repair is complete.</p> <p>If the symptoms still exist, then continue to step 8.</p>
<b>Step 6</b>	<p><b>Action</b></p> <p>If the Active LED is illuminated on the left HP BladeSystem c3000 Onboard Administrator (OA1), then reseat the Onboard Administrator (OA1 module is the suspect Onboard Administrator).</p> <p>If the Active LED is illuminated on the right HP BladeSystem c3000 Onboard Administrator (OA2), then reseat the OA tray (OA2 module is the suspect Onboard Administrator):</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators installed in the OA tray.</li> <li>2 Reseat the OA tray.</li> <li>3 Install all Onboard Administrators in their original locations in the OA tray.</li> </ol>

Step	Onboard Administrator errors action and verification
	<p><b>Verification</b></p> <p>Wait until the Insight Display indicates that the second or non-suspect Onboard Administrator has completed power-on tests.</p> <p>If the second or non-suspect HP BladeSystem c3000 OA operates properly, then replace the suspect Onboard Administrator and continue with step 9.</p> <p>If the second or non-suspect OA has the same issue as the suspect OA, and the suspect OA is OA1, then continue to the next step.</p>
Step 7	<p><b>Action</b></p> <p>Reseat the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators from the OA tray.</li> <li>2 Reseat the OA tray.</li> <li>3 Install all Onboard Administrators in their original locations.</li> </ol>
	<p><b>Verification</b></p> <p>Wait until the Insight Display indicates that the Onboard Administrators have completed power-on tests.</p> <p>If the active Onboard Administrator operates properly, then the repair is complete.</p> <p>If the active Onboard Administrator symptoms still exist, then replace the OA tray and continue to step 9.</p>
Step 8	<p><b>Action</b></p> <p>Contact an HP authorized service provider to complete the midplane assembly replacement (on page 66).</p>
Step 9	<p><b>Action</b></p> <p>Obtain the OA1 IP settings from the enclosure administrator.</p> <p><b>Static OA1 IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to static.</li> <li>2 Enter the following information recorded in the previous step: <ul style="list-style-type: none"> <li>-IP address</li> <li>-Netmask</li> <li>-Gateway</li> </ul> </li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol> <p><b>DHCP OA IP settings:</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display Enclosure Settings information to change the OA1 IP address to DHCP.</li> <li>2 Record the following information: <ul style="list-style-type: none"> <li>-New OA1 IP address</li> <li>-DNS name of the old Onboard Administrator from the label</li> <li>-DNS name of the new Onboard Administrator from the label</li> </ul> </li> <li>3 Record or tear off the replaced Onboard Administrator password from the label on the OA tray.</li> </ol>

Step	Onboard Administrator errors action and verification
	<p><b>Configuration</b></p> <p>When the IP address is updated for the new Onboard Administrator, then the hardware repair is complete.</p> <p>To complete the configuration, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 If the OA1 IP address is 0.0.0.0 and is set for DHCP, then have the network administrator modify the DHCP server configuration to add the new OA MAC address. The OA MAC address is found in the new OA default DNS name.</li> <li>2 Log in to the new Onboard Administrator using the Administrator account and the new password.</li> <li>3 Verify that the Onboard Administrator firmware is the correct version. Update the Onboard Administrator firmware, if necessary.</li> <li>4 Complete the Onboard Administrator setup wizard or restore a previously saved enclosure configuration file.</li> <li>5 If not using LDAP for authentication, then manually update the passwords.</li> </ol>

## Interconnect module troubleshooting

Interconnect modules, including switches, pass-thrus, and aggregation modules, interact with the enclosure for management, power, and cooling. This section describes how to diagnose problems that occur during the interaction between interconnect modules and the enclosure.

Insert interconnect blanks when interconnect slots are not used.

For specific interconnect module troubleshooting procedures, see the component documentation.

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: Interconnect module errors

Symptom	Initial step	Required steps
The Insight Display reports error on suspect interconnect module.	—	To correct the issue, follow the Insight Display steps.
An interconnect module does not power up.	Interconnect modules are always powered up. However, if a port is unused or would present a configuration error, the port is disabled by the Onboard Administrator.	Begin with step 1.
An interconnect port not functioning properly.		For troubleshooting information, see the interconnect module documentation.

### Procedures: Interconnect module errors



**CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.

△ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

△ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Interconnect module errors action and verification
<b>Step 1</b>	<p><b>Action</b> Examine the interconnect module status on the Insight Display Health summary screen.</p> <p><b>Verification</b> If the Insight Display Health Summary screen status is yellow or red, then perform all procedures suggested by the Insight Display. If the Insight Display Health Summary screen status is black, then continue to the next step. Review the low-level firmware level installed on the interconnect module as visible using the OA CLI command: <code>show update</code>. Update any version installed lower than the recommended version before performing the actions below.</p>
<b>Step 2</b>	<p><b>Action</b> Review the redundancy and or failover mechanism in place on the server or interconnect module. Reseat the interconnect module.</p> <p><b>Verification</b> If the interconnect module health LED is green, then the repair is complete. If the interconnect module health LED remains off, then continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b> Remove the interconnect module and install an operational interconnect module.</p> <p><b>Verification</b> If the interconnect module health LED is green, then the repair is complete. If the interconnect module health LED remains off, then the original interconnect module is not causing the error. Replace the original interconnect module:</p> <ol style="list-style-type: none"> <li>1 Remove the interconnect module.</li> <li>2 Install the original interconnect module.</li> <li>3 Continue to the next step.</li> </ol>
<b>Step 4</b>	<p><b>Action</b> If troubleshooting an HP BladeSystem c7000 Enclosure, perform the following substeps:</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators.</li> <li>2 Reseat the OA tray.</li> <li>3 Install all Onboard Administrators in their original OA bays.</li> </ol> <p>If troubleshooting an HP BladeSystem c3000 Enclosure, reseal the Onboard Administrator.</p> <p><b>Verification</b> If the interconnect module health LED is green, then the connection is restored. The repair is complete. If the interconnect module health LED is off, then continue to the next step.</p>
<b>Step 5</b>	<p><b>Action</b> Remove the suspect Onboard Administrator and install an operational Onboard Administrator.</p>

<b>Step</b>	<b>Interconnect module errors action and verification</b>
	<p><b>Verification</b></p> <p>If the interconnect module health LED is green, then the Onboard Administrator failed. The repair is complete.</p> <p>If the interconnect module health LED is off, then the suspect Onboard Administrator is not causing the error.</p> <ul style="list-style-type: none"> <li>• If troubleshooting an HP BladeSystem c7000 Enclosure, then continue to the next step.</li> <li>• If troubleshooting an HP BladeSystem c3000 Enclosure, then continue to step 7.</li> </ul>
<b>Step 6</b>	<p><b>Action</b></p> <p>Replace the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators.</li> <li>2 Remove the OA tray.</li> <li>3 Install an operational OA tray.</li> <li>4 Install all Onboard Administrators in their original OA bays.</li> </ol>
	<p><b>Verification</b></p> <p>If the interconnect module health LED is green, then the OA tray failed. The repair is complete.</p> <p>If the interconnect module health LED is off, then continue to the next step.</p>
<b>Step 7</b>	<p><b>Action</b></p> <p>Contact an HP authorized service provider to complete the midplane assembly replacement (on page 66).</p>

## DVD-ROM troubleshooting

For DVD-ROM information, see the DVD-ROM documentation.

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: DVD-ROM errors

The procedures in this section assume that the firmware for Onboard Administrator, iLO 2, and BIOS is updated to the newest versions available. Always verify firmware versions before proceeding with the steps in this section.

To use the internal DVD-ROM drive, be sure that the front USB connector is enabled. Some HP BladeSystem c3000 Enclosures may be configured in one of the following ways:

- The front USB connector on the Onboard Administrator module and the internal DVD-ROM drive are enabled and the rear USB connectors are disabled.
- The rear USB connectors on the KVM module are enabled and the front USB connector and internal DVD-ROM drive are disabled.

Symptom	Initial step	Required steps
Cannot connect the DVD-ROM drive to a server blade in an HP BladeSystem c-Class enclosure.	—	Follow the steps in "Procedures: Enclosure DVD-ROM troubleshooting (on page 50)."
The DVD-ROM drive tray does not open when the eject button is pressed.	—	Follow the steps in "Procedures: DVD-ROM drive troubleshooting (on page 51)."

## Procedures: Enclosure DVD-ROM troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Enclosure DVD-ROM troubleshooting action and verification
<b>Step 1</b>	<b>Action</b> Check the DVD-ROM status on the Insight Display Health Summary screen.
	<b>Verification</b> If the Health Summary DVD-ROM status is black, then continue to step 2. If the DVD-ROM status is gray, then the DVD-ROM drive is empty. Insert a DVD-ROM or CD-ROM into the drive, and then repeat step 1. If the DVD-ROM status is bright green or dark green, then the DVD-ROM drive and DVD-ROM are present. Continue to step 3.
<b>Step 2</b>	<b>Action</b> Identify the enclosure being used.
	<b>Verification</b> If the enclosure is an HP BladeSystem c3000 Enclosure, then continue to step 2 of "Procedures: DVD-ROM drive troubleshooting (on page 51)." If the enclosure is an HP BladeSystem c7000 Enclosure, then continue to step 1 of "Procedures: External DVD-ROM troubleshooting (on page 54)."
<b>Step 3</b>	<b>Action</b> 1 Use the Insight Display to navigate to the Enclosure Settings screen. 2 Select <b>DVD Drive 'Connect...'</b> . 3 Press the <b>OK</b> button.
	<b>Verification</b> If Insight Display reports "DVD Connect Status," then continue to step 4. If the Insight Display does not report "DVD Connect Status", then proceed to step 3 of "Procedures: HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting (on page 52)."
<b>Step 4</b>	<b>Action</b> 1 Use the Insight Display to select <b>Connect a server</b> . 2 Press the <b>OK</b> button.
	<b>Verification</b> If the Insight Display reports "No Support," then the server blade does not support Enclosure DVD. If any of the buttons indicate an iLO firmware upgrade is needed, then upgrade the iLO firmware and repeat step 4. If the Insight Display screen changes to "Connect: Enclosure DVD," then continue to step 5.
<b>Step 5</b>	<b>Action</b> 1 Use the Insight Display up or down keys to highlight either <b>Connect</b> or <b>Connect&amp;Reboot</b> . Select <b>Connect&amp;Reboot</b> to reboot the server blade with the DVD-ROM connected. 2 Press the <b>OK</b> button twice to start the connect command.

Step	Enclosure DVD-ROM troubleshooting action and verification
	<p><b>Verification</b></p> <p>The Insight Display displays a locked symbol for a short time.</p> <ol style="list-style-type: none"> <li>1 When the locked symbol no longer appears, navigate to the DVD Connect Status screen.</li> <li>2 Verify that the DVD-ROM status icon next to the selected button is green, indicating that the server blade is connected to the DVD-ROM drive. The selected button should now read "Disconnect."</li> </ol>

## Procedures: DVD-ROM drive troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	DVD-ROM drive troubleshooting action and verification
<b>Step 1</b>	<p><b>Action</b></p> <p>Check the DVD-ROM drive status on the Insight Display Health Summary screen.</p>
	<p><b>Verification</b></p> <p>If the DVD-ROM drive status is black, then continue to the next step.</p> <p>If the DVD-ROM drive status is gray, then the DVD-ROM drive is empty. Continue to step 3.</p> <p>If the DVD-ROM drive status is dark green, then the DVD-ROM drive and DVD-ROM are present, but not connected to any server blade. Continue to step 3.</p> <p>If the DVD-ROM drive status is bright green, then the DVD-ROM drive is connected to at least one server blade. Continue to step 5.</p>
<b>Step 2</b>	<p><b>Action</b></p> <p>Identify the enclosure being tested.</p>
	<p><b>Verification</b></p> <p>If the enclosure is an HP BladeSystem c3000 Enclosure with an internal DVD-ROM drive, then continue to step 3.</p> <p>If the enclosure is an HP BladeSystem c3000 Enclosure with an external DVD-ROM drive, then continue to step 2 in "Procedures: HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting (on page 52)."</p> <p>If the enclosure is an HP BladeSystem c7000 Enclosure external DVD-ROM drive, then proceed to step 1 of "Procedures: External DVD-ROM troubleshooting (on page 54)."</p>
<b>Step 3</b>	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 Eject the internal DVD-ROM drive. <ul style="list-style-type: none"> <li>• For an HP BladeSystem c3000 Enclosure installed in a rack, press the top corner of DVD-ROM drive.</li> <li>• For an HP BladeSystem c3000 Tower Enclosure, press the right corner of the DVD-ROM drive.</li> </ul> </li> <li>1 Reseat the internal DVD-ROM drive.</li> </ol>
	<p><b>Verification</b></p> <p>If Insight Display DVD-ROM drive status is black, then proceed to step 2 of "Procedures: Enclosure DVD-ROM troubleshooting (on page 50)."</p> <p>If the DVD-ROM status is gray or green, then continue to the next step.</p>

Step	DVD-ROM drive troubleshooting action and verification
	<p><b>Action</b> Press the eject button on the DVD-ROM drive.</p>
	<p><b>Verification</b> If the DVD-ROM drive ejects, then the repair is complete. If the DVD-ROM drive does not eject, then proceed to step 2 of "Procedures: HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting (on page 52)."</p>
<b>Step 5</b>	<p><b>Action</b> Connect to the DVD-ROM drive:</p> <ol style="list-style-type: none"> <li>1 Use the Insight Display to navigate to the Enclosure Settings screen.</li> <li>2 Select <b>DVD Drive 'Connect...'</b></li> <li>3 Press the <b>OK</b> button.</li> </ol>
	<p><b>Verification</b> If Insight Display reports "DVD Connect Status," then continue to step 7. If the Insight Display does not report DVD Connect Status, then continue to the next step.</p>
<b>Step 6</b>	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 On the Change USB/DVD Options screen, use the Insight Display up arrow key to highlight <b>No Change</b>.</li> <li>2 Press the <b>OK</b> button twice.</li> </ol>
	<p><b>Verification</b> Be sure that the Insight Display changes to the DVD Connect Status screen. Continue to the next step.</p>
<b>Step 7</b>	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 On the Insight Display, highlight all bays.</li> <li>2 Select <b>Change</b>.</li> <li>3 Press the <b>OK</b> button.</li> </ol>
	<p><b>Verification</b> Be sure that the Insight Display changes to the Connect: Enclosure DVD screen. Continue to the next step.</p>
<b>Step 8</b>	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 Using the Insight Display up arrow key, select <b>All Blades = Disconnect</b>.</li> <li>2 Press the <b>OK</b> button twice to accept changes.</li> </ol>
	<p><b>Verification</b> Be sure that the Insight Display changes to Confirm: DVD Operation. Continue to the next step.</p>
<b>Step 9</b>	<p><b>Action</b> To confirm disconnecting the DVD-ROM drive, select <b>OK</b> on the Insight Display, and then press the <b>OK</b> button.</p>
	<p><b>Verification</b> The Insight Display displays a locked symbol for a short time while disconnecting all server blades from the DVD-ROM drive. Verify that all DVD-ROM status icons are gray, indicating that the server blade is not connected to the DVD-ROM drive. Return to step 4.</p>

## Procedures: HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting



**CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.



**CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

<b>Step</b>	<b>HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting action and verification</b>
<b>Step 1</b>	<b>Action</b> Check the DVD-ROM drive status on the Insight Display Health Summary screen.
	<b>Verification</b> If the DVD-ROM status is black, then continue to the next step. If the DVD-ROM status is gray, then the DVD-ROM drive is empty. Insert a DVD-ROM or CD-ROM into the drive, and then repeat step 1. If the DVD-ROM status is bright green or dark green, then the DVD-ROM drive and DVD-ROM are present. Continue to the next step.
<b>Step 2</b>	<b>Action</b> Connect to the DVD-ROM drive: <ol style="list-style-type: none"><li>1 Use the Insight Display to navigate to the Enclosure Settings screen.</li><li>2 Select <b>DVD Drive 'Connect...'</b>.</li><li>3 Press the <b>OK</b> button.</li></ol>
	<b>Verification</b> If the Insight Display reports "DVD Connect Status," then proceed to step 4 of "Procedures: Enclosure DVD-ROM troubleshooting (on page 50)."
<b>Step 3</b>	<b>Action</b> Verify the USB status on the Insight Display on the Change USB/DVD Options screen: <ul style="list-style-type: none"><li>• The rear USB is disabled, and the front USB is enabled.</li><li>• The front USB is disabled, and the rear USB is enabled.</li></ul>
	<b>Verification</b> If using either the internal HP BladeSystem c3000 Enclosure DVD-ROM drive or an external DVD-ROM drive connected to the front OA USB connector, and: <ul style="list-style-type: none"><li>• If the Change USB/DVD Options screen indicates that the front USB is disabled, then continue to the next step.</li><li>• If the Change USB/DVD Options screen indicates that the front USB is enabled, then continue to step 5.</li></ul> If using an external DVD connected to the rear KVM module USB, and the Change USB/DVD Options screen indicates one of the following: <ul style="list-style-type: none"><li>• Rear USB is disabled, then continue to the next step.</li><li>• Rear USB is enabled, then continue to step 5.</li></ul>

Step	HP BladeSystem c3000 Enclosure DVD-ROM troubleshooting action and verification
	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 Use the Insight Display up arrow key to select '<b>Enable...</b>'.</li> <li>2 Press the <b>OK</b> button twice to accept the changes. This changes the USB setting to toggle the USB enable from rear to front or front to rear as indicated in the selected action. The Onboard Administrator reboots after changing this setting.</li> </ol>
	<p><b>Verification</b></p> <p>If the Insight Display reports "No Support," then the device does not support Enclosure DVD-ROM.</p> <p>If any of the buttons indicate an iLO firmware upgrade is needed, then upgrade the iLO firmware and repeat step 4.</p> <p>If the Insight Display screen changes to "Connect: Enclosure DVD," then continue to the next step.</p>
Step 5	<p><b>Action</b></p> <p>Connect to the DVD-ROM drive:</p> <ol style="list-style-type: none"> <li>1 Use the Insight Display up or down keys to select either <b>Connect</b> or <b>Connect&amp;Reboot</b>. Select <b>Connect&amp;Reboot</b> to reboot the server blade with the DVD-ROM drive connected.</li> <li>2 Press the <b>OK</b> button twice.</li> </ol>
	<p><b>Verification</b></p> <ol style="list-style-type: none"> <li>1 The Insight Display displays a locked symbol for a short time.</li> <li>2 When the locked symbol no longer appears, navigate to the DVD Connect Status screen.</li> <li>3 Verify that the DVD-ROM status icon next to the highlighted button is green, indicating that the server blade is connected to the DVD-ROM drive. The selected button should now read "Disconnect."</li> </ol>

## Procedures: External DVD-ROM troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	External DVD-ROM troubleshooting action and verification
Step 1	<p><b>Action</b></p> <p>Test the DVD-ROM drive connections:</p> <ol style="list-style-type: none"> <li>1 Verify that the DVD-ROM drive USB cable is plugged into the active OA USB connector.</li> <li>2 Verify that power is connected to the DVD-ROM drive.</li> <li>3 Press the DVD-ROM drive eject button.</li> <li>4 Check the status of the DVD-ROM drive LEDs.</li> <li>5 Verify that the media tray is extended.</li> </ol>

Step	External DVD-ROM troubleshooting action and verification
	<p><b>Verification</b></p> <p>If no indication of power to the DVD-ROM drive exists and the Insight Display does not detect a DVD-ROM drive, then continue to the next step.</p> <p>If the DVD-ROM drive tray opened, and the Insight Display Health Summary DVD-ROM status is gray, continue to step 1 of "Procedures: Enclosure DVD-ROM troubleshooting (on page 50)."</p>
<b>Step 2</b>	<p><b>Action</b></p> <p>Replace the DVD-ROM drive power supply with a known-working power supply, and then retest the DVD-ROM drive connections.</p>
	<p><b>Verification</b></p> <p>If the Insight Display Health Summary screen detects a DVD-ROM drive, then the repair is complete.</p> <p>If the Insight Display Health Summary screen does not detect a DVD-ROM drive, continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b></p> <p>Replace the USB cable with a known-working cable, and then retest the DVD-ROM drive connections.</p>
	<p><b>Verification</b></p> <p>If the Insight Display Health Summary screen detects a DVD-ROM drive, then the repair is complete.</p> <p>If the Insight Display Health Summary screen does not detect a DVD-ROM drive, continue to the next step.</p>
	<p><b>Action</b></p> <p>Replace the DVD-ROM drive with a known-working DVD-ROM drive, and then then retest the DVD-ROM drive connections.</p>
	<p><b>Verification</b></p> <p>If the Insight Display Health Summary screen detects a DVD-ROM drive, then replace the DVD-ROM to complete the repair.</p> <p>If a known-working DVD-ROM drive still does not operate properly, continue to the next step.</p>
<b>Step 5</b>	<p><b>Action</b></p> <p>Check the enclosure for a redundant OA module.</p>
	<p><b>Verification</b></p> <p>If a redundant OA module is installed, continue to the next step.</p> <p>If a redundant OA module is not installed, continue to step 7.</p>
<b>Step 6</b>	<p><b>Action</b></p> <p>Connect the DVD-ROM drive to the standby OA module:</p> <ol style="list-style-type: none"> <li>1 Disconnect the DVD-ROM drive USB cable from the active OA USB connector.</li> <li>2 Connect the DVD-ROM drive USB cable to the standby OA USB connector.</li> <li>3 Remove the active OA module.</li> </ol>
	<p><b>Verification</b></p> <p>Use the Insight Display Health Summary screen to check the DVD-ROM drive status:</p> <ul style="list-style-type: none"> <li>• If the status is gray or green, then the repair is complete.</li> <li>• If the status is black, continue to step 1 of "Onboard Administrator troubleshooting (on page 43)."</li> </ul>

Step	External DVD-ROM troubleshooting action and verification
Step 7	<p><b>Action</b></p> <p>Test the OA module connection:</p> <ol style="list-style-type: none"> <li>1 Reseat the OA module.</li> <li>2 Wait for OA to reboot.</li> <li>3 Navigate to the Insight Display Health Summary screen.</li> <li>4 Verify the DVD-ROM drive status.</li> </ol>
	<p><b>Verification</b></p> <p>If the DVD-ROM drive status is gray or green, then the repair is complete.</p> <p>If the DVD-ROM drive status is black, continue to step 1 of "Onboard Administrator troubleshooting (on page 43)."</p>

## KVM troubleshooting

For KVM module information, see the KVM module documentation.

For specific component LED definitions and component identification, see "Component identification (on page 73)."

### Symptoms: c3000 enclosure KVM errors

The procedures in this section assume that the firmware for Onboard Administrator, iLO 2, and BIOS is updated to the newest versions available. Always verify firmware versions before continuing with the steps in this section.

If the c3000 enclosure KVM module is connected to an external rack KVM switch, where pressing "Print Screen" is indicated, then press **Print Screen** twice to select the Enclosure KVM menu. The first press of **Print Screen** opens the rack KVM Switch Port Selection menu.

On some c3000 enclosures, the user can set only one of the following as active:

- The USB connector on the front of the enclosure and the internal DVD-ROM drive.
- The rear USB connectors on the KVM module.

On these enclosures, in order to use the both the KVM and the internal DVD-ROM drive, always connect the KVM keyboard and mouse to the front USB connector on the OA.

Symptom	Initial step	Required steps
Pressing the KVM keyboard <b>Print Screen</b> key does not bring up the Enclosure KVM Menu.	Be sure that the KVM monitor is powered up and is connected to the KVM module VGA connector. Be sure that the KVM keyboard/mouse are connected to the KVM module USB connectors.	Begin with step 1 of "Procedures: KVM Menu troubleshooting (on page 58)."
The KVM Menu button does not appear on the navigation bar at the bottom of the Insight Display Main Menu.	—	Begin with step 1 of "Procedures: KVM module troubleshooting (on page 60)."
When typing on Linux virtual console through KVM, multiple characters appear.	—	Begin with step 1 of "Procedures: KVM Linux troubleshooting (on page 60)."

Symptom	Initial step	Required steps
When typing in Linux GUI windows (X11), multiple characters appear.	—	Begin with step 2 of "Procedures: KVM Linux troubleshooting (on page 60)."
The mouse cursor does not appear on the Linux GUI.	—	Begin with step 1 of "Procedures: KVM mouse problems (on page 61)."

## Procedures: External KVM switch troubleshooting



**CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.



**CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	External KVM switch troubleshooting action and verification
<b>Step 1</b>	<p><b>Action</b> Press the KVM keyboard <b>Print Screen</b> key and use the external KVM Switch Port Selection menu to select a working port.</p> <p><b>Verification</b> If the KVM monitor powers on and you can manipulate the port with the keyboard and mouse, then continue to step 5. If the KVM monitor remains blank, then continue to the next step to attempt to view the external KVM Switch Port Selection menu.</p>
<b>Step 2</b>	<p><b>Action</b> Press the KVM keyboard <b>up arrow</b> key, and then press the <b>Enter</b> key.</p> <p><b>Verification</b> If the KVM monitor powers on and you can manipulate the port with the keyboard and mouse, then continue to step 5. If the KVM monitor remains blank, then continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b> Press the KVM keyboard <b>down arrow</b> key twice, and then press the <b>Enter</b> key.</p> <p><b>Verification</b> If the KVM monitor powers on and you can manipulate the port with the keyboard and mouse, then continue to step 5. If the KVM monitor remains blank, then continue to the next step.</p>
<b>Step 4</b>	<p><b>Action</b> Cycle the power to the external KVM switch.</p> <p><b>Verification</b> If the KVM monitor displays the external KVM Switch Port Selection menu, then continue to the next step. If the KVM monitor remains blank, then continue to step 1 of "Procedures: External KVM monitor troubleshooting (on page 58)."</p>

Step	External KVM switch troubleshooting action and verification
Step 5	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 Press the KVM keyboard <b>Print Screen</b> key.</li> <li>2 Use the external KVM Switch Port Selection menu to select the port connected to the c3000 KVM module.</li> <li>3 Press the KVM keyboard <b>Print Screen</b> key a second time to dismiss the External KVM Switch menu and to activate the c3000 enclosure KVM Menu.</li> </ol>
	<p><b>Verification</b></p> <p>If the Enclosure KVM Menu appears, then the repair is complete.</p> <p>If the Enclosure KVM Menu does not appear, then continue to step 1 of "Procedures: KVM USB troubleshooting (on page 59)."</p>

## Procedures: KVM menu troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	KVM menu troubleshooting action and verification
Step 1	<p><b>Action</b></p> <p>Use the Insight Display to navigate to the Main Menu.</p>
	<p><b>Verification</b></p> <p>If the KVM Menu button is not present at the bottom of the Main Menu screen, then continue to step 1 of "Procedures: KVM module troubleshooting (on page 60)."</p> <p>If the KVM Menu button is present at the bottom of the Main Menu screen, continue to the next step.</p>
Step 2	<p><b>Action</b></p> <p>Select <b>KVM Menu</b> on the Insight Display Main Menu, and then press the <b>OK</b> button.</p>
	<p><b>Verification</b></p> <p>If the Enclosure KVM Menu appears on the monitor attached to the KVM module and the Insight Display screen becomes blank, then the KVM Menu is operating properly. To diagnose launching the KVM Menu from the KVM keyboard, continue to step 1 of "Procedures: KVM USB troubleshooting (on page 59)."</p> <p>If the Insight Display screen becomes blank, the KVM monitor remains blank, and the c3000 KVM module is connected to an external KVM switch, then continue to step 1 of "Procedures: External KVM switch troubleshooting (on page 57)."</p> <p>If the c3000 KVM is connected directly to a VGA monitor, then continue to step 1 of "Procedures: External KVM monitor troubleshooting (on page 58)."</p>



## Procedures: External KVM monitor troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

The KVM monitor must support a minimum resolution of 1024x768 to operate properly with the c3000 KVM module.

Step	External KVM monitor troubleshooting action and verification
Step 1	<b>Action</b> Connect the KVM monitor directly to a server blade VGA connector.
Step 2	<b>Action</b> Connect the KVM keyboard directly to the server blade USB connector.
Step 3	<b>Action</b> If the server blade is in screen-saver mode, press the <b>Shift</b> key.
	<b>Verification</b> If KVM monitor power LED is illuminated, and the video does not respond, then replace the monitor. If the external KVM monitor is operating properly, connect the monitor and keyboard directly to the c3000 KVM VGA and USB connectors. Continue to step1 of "Procedures: KVM Menu troubleshooting (on page 58)."

## Procedures: KVM USB troubleshooting

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-  **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
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-  **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.
- 

The KVM monitor must support a minimum resolution of 1024x768 to operate properly with the c3000 KVM module.

Step	KVM USB troubleshooting action and verification
Step 1	<b>Action</b> Connect to the DVD-ROM drive: <b>1</b> Use Insight Display to navigate to the Enclosure Settings screen. <b>2</b> Select <b>DVD Connect</b> . <b>3</b> Press the <b>OK</b> button.
	<b>Verification</b> If the Insight Display reports the status of all the server DVD-ROM drive connections, then continue to the next step. If the c3000 must be configured for either front or rear USB connectors, then do one of the following: <ul style="list-style-type: none"> <li>• Connect the KVM USB keyboard and mouse to the USB connectors that the Insight Display indicates are connected.</li> <li>• Use the Insight Display to configure the USB connectors to the front or rear, as needed. Continue to the next step.</li> </ul>
Step 2	<b>Action</b> <b>1</b> Connect the KVM keyboard to the KVM USB connector. <b>2</b> Press the KVM keyboard <b>Print Screen</b> key.
	<b>Verification</b> If the KVM screen displays the Enclosure KVM Menu screen, then the repair is complete. If the KVM screen does not display the Enclosure KVM Menu screen, then the KVM keyboard has failed and must be replaced.

## Procedures: KVM module troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

The Onboard Administrator firmware must be a minimum of version 2.10 to support the c3000 KVM module.

Step	KVM module troubleshooting action and verification
<b>Step 1</b>	<p><b>Action</b> Be sure the KVM module is fully connected by removing and reconnecting the KVM module.</p>
	<p><b>Verification</b> If the KVM Menu appears at the bottom of the Insight Display Main Menu, then the repair is complete. If the KVM Menu does not appear at the bottom of the Insight Display Main Menu, then continue to the next step.</p>
<b>Step 2</b>	<p><b>Action</b> Be sure the Onboard Administrator is connected fully by removing and reinstalling the Onboard Administrator.</p>
	<p><b>Verification</b> If the KVM Menu appears at the bottom of the Insight Display Main Menu, then the repair is complete. If the KVM Menu does not appear at the bottom of the Insight Display Main Menu, then continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b> Remove the KVM module and replace it with a known-working KVM module.</p>
	<p><b>Verification</b> If the KVM Menu appears at the bottom of the Insight Display Main Menu, then the repair is complete. If the KVM Menu does not appear at the bottom of the Insight Display Main Menu, then continue to the next step.</p>
<b>Step 4</b>	<p><b>Action</b> Remove the Onboard Administrator and install a known-working Onboard Administrator.</p>
	<p>If the KVM Menu appears at the bottom of the Insight Display Main Menu, then replace the original Onboard Administrator:</p> <ol style="list-style-type: none"> <li>1 Save the enclosure configuration.</li> <li>2 Remove the original Onboard Administrator.</li> <li>3 Install a known-working Onboard Administrator.</li> <li>4 Update the enclosure configuration with the information saved previously.</li> </ol> <p>The repair is complete.</p> <p>If the KVM Menu does not appear at the bottom of the Insight Display Main Menu, then contact an authorized service provider to complete the midplane assembly replacement (on page 66).</p>

## Procedures: KVM Linux troubleshooting

- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.



**CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

The Onboard Administrator firmware must be version 2.10 or later to support the c3000 KVM module.

Step	KVM Linux troubleshooting action and verification
Step 1	<p><b>Action</b></p> <p>To increase the typematic rate, execute the following command from a Linux shell:  <code>kbdrate -d 1000</code></p> <p>As an alternative, disable typematic by executing the following command:  <code>setterm -repeat off</code></p>
	<p><b>Verification</b></p> <ol style="list-style-type: none"> <li>1 Verify that the following output appears:            Typematic rate set to 11.0 cps (delay = 500 ms)</li> <li>2 Verify that typing on the KVM keyboard does not generate extra characters.</li> <li>3 If this corrects the problem, add the command to the Linux startup script.            The repair is complete.</li> </ol>
Step 2	<p><b>Action</b></p> <p>To increase the typematic rate, execute the following command from a Linux X11 GUI shell:  <code>xset -r rate 1000</code></p> <p>As an alternative, disable X11 GUI typematic by executing the following command:  <code>xset -r</code></p>
	<p><b>Verification</b></p> <p>Verify that typing on the KVM keyboard does not generate extra characters. If no extra characters are present, then add the command to the startup script for X11. The repair is complete.</p>

## Procedures: KVM mouse problems



**CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.



**CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	KVM mouse problems action and verification
Step 1	<p><b>Action</b></p> <p>Access the iLO 2 Remote Console Settings.</p>
Step 2	<p><b>Action</b></p> <p>Set the High Performance Mouse to <b>Disabled</b> or <b>Auto</b>.</p>
	<p><b>Verification</b></p> <p>Verify that the mouse tracks properly.</p>


## Insight Display blue device errors

For specific component LED definitions and component identification, see "Component identification (on page 73)."


## Symptoms: Insight Display reports blue device errors

Symptom	Additional information	Required steps
<p>The Insight Display Health Summary screen reports a device bay with a "blue" color.</p> <p>After rebooting the Onboard Administrator, it can take up to 5 minutes for all start-up processes to complete. During this time, various devices and fans may display a blue status.</p>	<p>A long-lasting "blue" device color indicates that the Onboard Administrator does not communicate properly with the device in the specific enclosure bay. Several possible causes exist for this condition:</p> <ul style="list-style-type: none"> <li>• The Onboard Administrator or OA tray may not be installed properly in the enclosure.</li> <li>• The device has not completed the start-up process, which can take several minutes per device.</li> <li>• The iLO on the server blade does not have an IP address.</li> <li>• When the Virtual Connect modules are being used, the server blade does not have a VC profile.</li> <li>• The Onboard Administrator power-on delay function has not had time to complete the power-on sequence.</li> </ul>	<p>Begin with step 1.</p>
<p>The Insight Display Health Summary screen shows a fan bay with a blue color.</p>	<p>Fans may not be located properly in the appropriate bays.</p>	<p>Follow the instructions on the Insight Display for proper fan locations. Install fans in the correct bay locations.</p>


## Procedures: Insight Display reports blue device errors

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-  **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.

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  -  **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

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  -  **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.

Step	Insight Display reports blue device errors action and verification
<b>Step 1</b>	<p><b>Action</b></p> <p>Reseat the Onboard Administrators and the OA tray:</p> <ol style="list-style-type: none"> <li>1 Remove all Onboard Administrators installed in the enclosure.</li> <li>2 Remove the OA tray.</li> <li>3 Install the OA tray in the original bay.</li> <li>4 Install the Onboard Administrators in the original bays.</li> </ol> <p>The active Onboard Administrator automatically reboots.</p>
	<p><b>Verification</b></p> <p>If the Insight Display no longer reports any blue devices, then the repair is complete. If the Insight Display reports any blue devices, then continue to the next step.</p>
<b>Step 2</b>	<p><b>Action</b></p> <p>Access the Onboard Administrator web-based interface. Determine if an IP address has been obtained by iLO for the server blade in the device bay. The Insight Display can report the device bay as blue for many reasons:</p> <ul style="list-style-type: none"> <li>• iLO cannot obtain an IP address because of a problem with the DHCP service.</li> <li>• The DHCP gateway is not configured properly or is not available.</li> <li>• The EBIPA function of the OA is requesting an existing or duplicate IP address.</li> <li>• The iLO firmware version is incompatible with the ROM or Onboard Administrator version.</li> </ul> <p>The Onboard Administrator log provides more information for troubleshooting.</p>
	<p><b>Verification</b></p> <p>If iLO has not obtained an IP address, then verify that the Onboard Administrator and iLO are configured properly. See the Onboard Administrator user guide and the iLO documentation on the HP website (<a href="http://www.hp.com/support">http://www.hp.com/support</a>). If an IP address was obtained for the server blade, continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b></p> <p>Verify that compatible versions of iLO, Onboard Administrator, and server blade ROMs are installed on the device. For more information, see the firmware and upgrades compatibility matrix on the HP website (<a href="http://www.hp.com/go/bladesystemupdates">http://www.hp.com/go/bladesystemupdates</a>). HP provides two tools for proper firmware updates and maintenance:</p> <ul style="list-style-type: none"> <li>• HP Smart Update Manager (on page 95)</li> <li>• HP BladeSystem Firmware Maintenance Tool (<a href="http://www.hp.com/go/bladesystemupdates">http://www.hp.com/go/bladesystemupdates</a>)</li> </ul>
	<p><b>Verification</b></p> <p>After updating the firmware for the device, reboot the Onboard Administrator.</p> <ul style="list-style-type: none"> <li>• If the Insight Display no longer reports any blue devices, then the repair is complete.</li> <li>• If the Insight Display reports any blue devices, then continue to the next step.</li> </ul>
<b>Step 4</b>	<p><b>Action</b></p> <p>If Virtual Connect modules are installed in the enclosure, verify that the device has a VC profile. For more information on configuring VC profiles, see the latest version of the <i>HP Virtual Connect for c-Class BladeSystem User Guide</i> on the HP website (<a href="http://www.hp.com/go/vc">http://www.hp.com/go/vc</a>).</p>
<b>Step 5</b>	<p><b>Action</b></p> <p>Determine that the server blade is powered on using one of the following methods:</p> <ul style="list-style-type: none"> <li>• Use the Onboard Administrator web-based interface.</li> <li>• Use the server blade LEDs.</li> </ul> <p>A server blade that is powered off appears as a dark green device on the Insight Display. If the Onboard Administrator Power Delay/Sequencing function is enabled, a device that is delayed during power-up sequencing is blue on the Insight Display.</p>

Step	Insight Display reports blue device errors action and verification
	<p><b>Verification</b></p> <p>Wait for the Onboard Administrator power-on to complete.</p> <p>When powered-on, if the device appears green on the Insight Display Health Summary screen, then the repair is complete.</p> <p>If the device appears blue after completion of the power-on delay sequencing, continue to the next step.</p>
<b>Step 6</b>	<p><b>Action</b></p> <p>Remove the device in the blue bay, and then install it into an operational bay.</p>
	<p><b>Verification</b></p> <p>If the Insight Display reports the device as blue in the operational bay, then the device may be defective. Install an operational device in the original bay. The repair is complete.</p> <p>If the Insight Display reports the device as green when installed in the operational bay, continue to the next step.</p>
<b>Step 7</b>	<p><b>Action</b></p> <p>Remove the original device from the blue bay, and then install an operational device.</p>
	<p><b>Verification</b></p> <p>If the Insight Display reports the newly installed device as blue, then the device bay might be defective. Contact an authorized service provider to complete the midplane assembly replacement (on page 66).</p>

## Remote troubleshooting

1. Gather the OA SHOW ALL report. The HP Onboard Administrator provides a detailed SHOW ALL report on the full enclosure configuration, status, and inventory available. This report can be generated in two ways:
  - o **OA GUI>Enclosure settings>Enclosure configuration scripts**
  - o **OA CLI>Execute the following CLI command: SHOW ALL**
2. Review as first item the section: SHOW ENCLOSURE LCD in the SHOW ALL report. The blinking Insight Display indicates a warning. Review the data or remotely review messages on the Insight Display through the OA GUI.
3. Review the following sections of the SHOW ALL report for a status overview of the enclosure by searching for the following command output:
  - o SHOW ENCLOSURE STATUS
  - o SHOW SERVER STATUS ALL
  - o SHOW INTERCONNECT STATUS ALL

If any status is degraded, then observe the subcomponents one by one to find out the degraded component. Subcomponents that are faulty can be marked as such. For example, health: faulty or Internal Data Failed.
4. Review the OA SHOW ALL syslog section at SHOW SYSLOG OA (1 or 2, depending on which one is active) especially from when the incident happened. The OA syslog can assist you at which section you might expect a failure. If needed, fill in syslog lines from the syslog on the HP website (<http://www.hp.com/bizsupport>).
5. For any low level (transport layer) SAN or network connectivity errors in an interconnect device, review the low level FRU firmware update at the section of SHOW ALL report called: SHOW UPDATE. Any newer version available in the New Version column must be updated using the update device

command. This causes an interruption in the I/O connectivity, so update per module and not all together.

6. To review any connectivity issues with 1 or 10GB PatchPanel, install the latest Patch Panel Interconnect Firmware.
7. Capture any entry in the OA syslog file referring to Saving supportdump by using the OA CLI command `upload supportdump`, and then send it to HP Support for analysis where needed.

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# Midplane assembly replacement

## Midplane assembly troubleshooting

Historic service data collected on the c-Class Enclosures suggests that midplane hardware failures are very rare. Therefore, midplane replacements must only be made as a last resort.

Midplane connections are 100% copper to copper connections for the data-ports. These connections hardly brake during a normal day to day operation.

Before requesting midplane assembly replacement, always complete the enclosure troubleshooting (on page 24) procedures in this guide. The procedures in this section should be completed by an HP authorized service provider.

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△ **CAUTION:** To replace the midplane assembly, contact an HP authorized service provider.

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△ **CAUTION:** Before continuing with this procedure, be sure to record or save all data stored on all enclosure components. Failure to save the information, could result in data loss.

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### Midplane assembly troubleshooting guidelines:

1. Remove and reinsert the blades or use the OA CLI command: `reset server x` (where `x` represents the server bay slot) to simulate a removal and reinsertion of a blade server.
2. If a server is not booting up at all, then review the EBIPA settings for this blade to make sure that the iLO IP is only used once and not a duplicate.
3. If there are two devices on the network with the same iLO IP for a single blade, then a blade server does not boot up.
4. If a blade server is not booting up, then review the SHOW ENCLOSURE POWER summary section at OA SHOW ALL to see if enough power is available to boot up all server blades.
5. Review if all optional mezzanine cards are installed properly and are aligned with the right interconnect bay.
6. Remove and reinsert the OA tray firmly.
7. If a blade server does not gain network or SAN connectivity on a single port (no Virtual Connect installed), review the OA SHOW ALL section for the SHOW SERVER PORT MAP {bay}.

To see how and if the network or SAN port is connected properly from a OA perspective:

- Observe the port statistics from the interconnect device to verify that specific port is not working.
  - Observe the server OS to verify that the network or SAN port is enabled properly.
  - Reboot or factory reset this interconnect device first, where needed.
8. If a blade server does not gain network or SAN connectivity on a single port (Virtual connect installed):
    - Backup the VC domain configuration by using VCSU or VC GUI.
    - Remove the VC server profile from that specific bay and retry to power on that blade.


- Failover the VC domain to the other VC module by using the `reset vcm -failover` command and retesting the blade.
  - Back up the VC domain configuration by using VCSU or VC GUI.
  - Delete the VC domain and restore the VC domain and retry (the domain could be corrupted causing a server not to assign a profile correctly).
9. If an entire row (bottom or top) of fans is not working, then replace the midplane.
  10. If further help is needed, contact HP Support and provide the OA SHOW ALL output.

## Midplane assembly


Before replacing the midplane, locate and record the enclosure serial number and part number, using one of the following methods:

- Locate the enclosure tag on the front, side, or rear of the enclosure.
- Access the Onboard Administrator.
- Log in to the Onboard Administrator CLI and run the command `Show Enclosure Info`. See the *HP BladeSystem Onboard Administrator Command Line Interface User Guide* for information on accessing the CLI.


---

 **WARNING:** To reduce the risk of damage to the midplane and component connectors, always remove or disengage and extend all blades and power supplies approximately 8 cm (3 in) before removing or installing the rear cage.

---

 **CAUTION:** The firmware included in Onboard Administrator version 3.20 and later automatically restores the enclosure identity, including the serial number, PID, and PDU type, if a midplane assembly replacement is detected. This firmware feature requires that the original Onboard Administrator modules and all original fans be reinstalled along with all power supplies before installing any other blade or interconnect module. All power supply modules can be replaced while the enclosure is powered off without affecting the ability of the Onboard Administrator to automatically restore enclosure identity. VC, Virtual Connect Enterprise Manager, and Insight Control use the enclosure serial number as a critical key. If you replace the midplane assembly without ensuring that the serial number is restored prior to installing the VC modules and server blades, then the VC domain is deleted and all server network and SAN connections are disabled .

---

 **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.

---

### Removing the midplane assembly

1. Power down the blades (such as servers, workstation, storage, and so on).
2. Power down the enclosure.

---

**NOTE:** Be sure to note the location of each removed component so it can be returned to its original location after the midplane assembly is replaced.

---

3. Disconnect all cables from the enclosure.

4. Disengage and extend the following components approximately 8 cm (3 in):
  - Half-height and full-height blades
  - Power supplies
    - The power supply in bay 3 or 4 must be completely removed, and then the Insight Display must be moved in front of that power supply bay to enable the other power supplies to be removed or extended.
5. Remove the enclosure fans.
6. Remove the interconnect switches and Pass-Thru modules.
7. Remove the Onboard Administrator modules.
8. Remove the Onboard Administrator tray.

---

△ **CAUTION:** When removing the rear cage and midplane assembly, the connectors on the midplane assembly are susceptible to damage. Use caution to avoid damage to the pins and connectors.

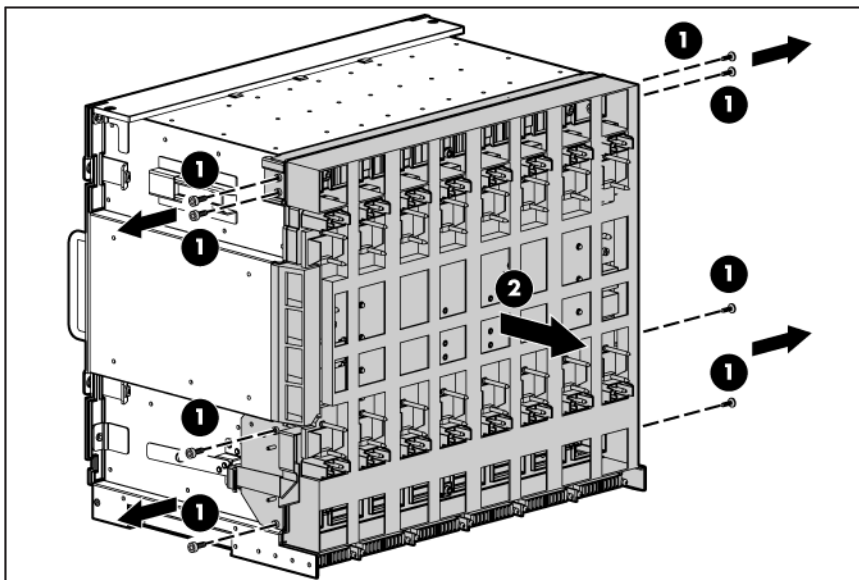
---

9. Remove the rear cage.

⚠ **WARNING:** To reduce the risk of personal injury or equipment damage, at least two people are needed to safely move the rear cage.

---

10. Remove the Insight Display signal pass-thru board.
11. Remove the eight slotted T-15 Torx screws that secure the midplane assembly, and then remove the midplane assembly from the rear cage.



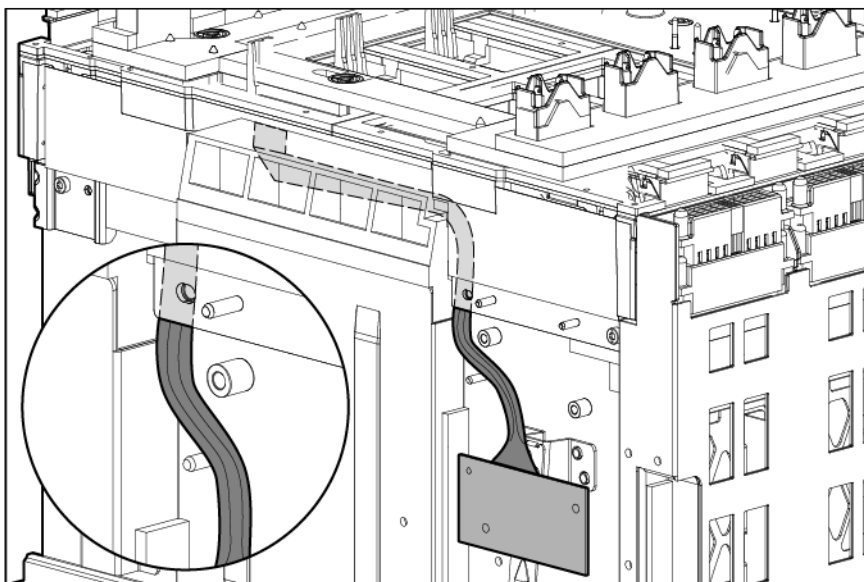
To replace the midplane assembly, reverse the removal procedure. Place the new insulation bands around the midplane assembly as available in the new midplane spare parts box.

△ **CAUTION:** The LCD cable must be correctly routed for proper operation.

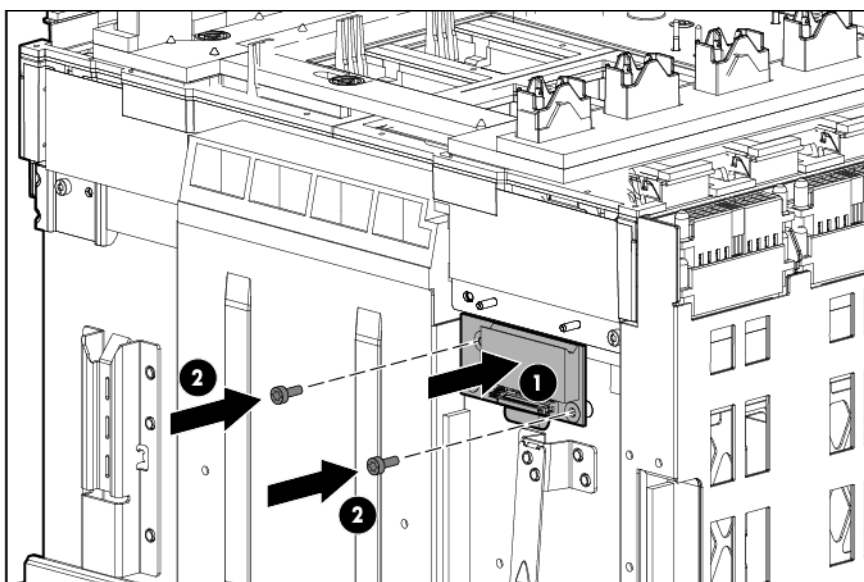
---

### Routing the LCD cable

1. When installing the midplane assembly onto the rear cage assembly, ensure the LCD cable is routed behind the interconnect module rubber boot and through the sheet-metal gaps. Route the cable as shown in the following figure.




2. Route the cable between the Insight Display signal pass-thru board pin guide and the screw mounts. Be careful not to pinch the cable between the Insight Display signal pass-thru board and the screw mount as shown in the following figure.



3. Place the Insight Display signal pass-thru board properly over the guide pin and the screw mount and screw the Insight Display signal pass-thru board to the rear cage assembly.

#### Verifying the enclosure serial number

 **CAUTION:** Failure to complete the following procedure might cause inaccurate or incomplete information to appear in HP SIM and Onboard Administrator.

1. Use the Insight Display to navigate to the **Enclosure Info** screen.

2. Verify that the enclosure serial number matches the enclosure serial number on the label on the enclosure mounting bracket.
  - If the enclosure serial number matches the label, continue to step 7.
  - If the enclosure serial number does not appear or does not match the label, continue to step 3 to manually update the enclosure identity using the Onboard Administrator CLI.
3. Use the Onboard Administrator service port address found on the Insight Display Enclosure Info screen to log in to the Onboard Administrator CLI with the `Administrator` local account password using one of the following options:
  - A serial cable attached to the Onboard Administrator serial port
  - An Ethernet CAT5 cable attached to the enclosure service port that is the enclosure link uplink port
4. Enter the `SET ENCLOSURE PART_NUMBER X` command, where `X` represents the 10-digit enclosure PID number found on the enclosure front label.
5. Enter the `SET ENCLOSURE SERIAL_NUMBER Y` command, where `Y` represents the 10-digit serial number found on the enclosure front label.
6. Enter the `SET ENCLOSURE PDU_NUMBER Z` command, where `Z` represents the number of the appropriate power configuration:
  - 1—Single phase power, US
  - 2—Three-phase power, US
  - 3—Three-phase power, International
  - 4—DC power
7. Install all VC Ethernet modules, VC-FC modules, and all other interconnect modules in the same bay they were removed from.
8. Reconnect all cables to those modules to the same ports they were removed from.
9. Wait two minutes.
10. Install all the server blades into the same bays they were removed from.

## Procedures: Midplane assembly replacement

- 
- △ **CAUTION:** Some troubleshooting procedures require powering down an entire enclosure. To avoid possible data loss, always secure permission before powering down an enclosure.
- 
- △ **CAUTION:** If you are using a Virtual Connect environment, some of these procedures might cause the loss of Virtual Connect credentials and the loss of communication between the Onboard Administrator and the Virtual Connect Interconnect module. Ensure the Virtual Connect configuration is backed up before proceeding with any of the following procedures. Virtual Connect configuration can be backed up by using Virtual Connect GUI or Virtual Connect Support Utility.
- 
- △ **CAUTION:** To avoid data loss, do not remove an Onboard Administrator when the Insight Display shows a firmware update in progress. During this activity, the Insight Display displays the Firmware Update screen with the Lock icon and the firmware update progress bar.
-

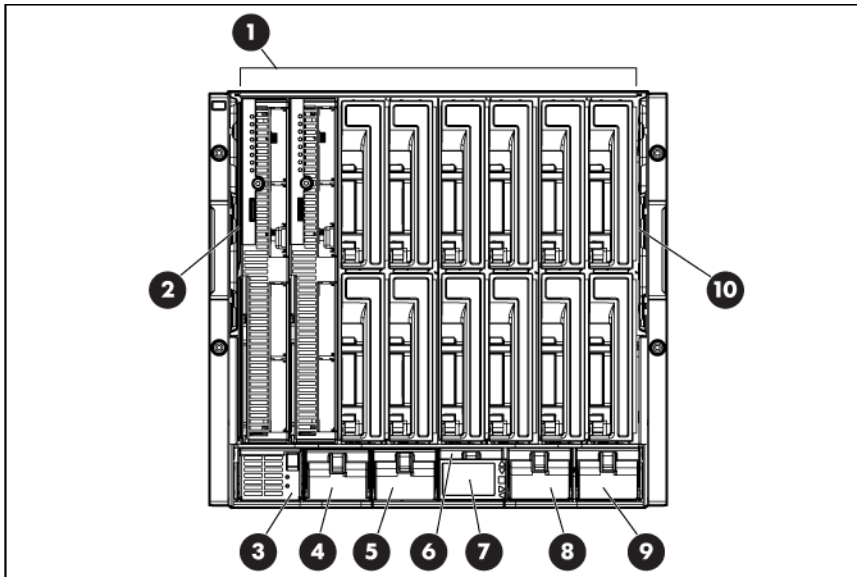
Step	Midplane assembly replacement action and verification
<b>Caution</b>	Request authorization to power down the enclosure. Do not continue to the next step until you receive proper authorization.
	<p><b>Guidelines</b></p> <ul style="list-style-type: none"> <li>• To be sure that each device is reinstalled in the original location, note the location of each device. Installing devices in different locations can create cooling errors (fans) or location errors.</li> <li>• Keep cables attached to all rear modules. If you cannot keep the cables attached, then note cable locations to be sure the module is cabled correctly when the module is reinstalled.</li> </ul>
<b>Step 1</b>	<p><b>Action</b></p> <p>Contact an authorized service provider to perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Power down all server blades.</li> <li>2 Disconnect power from the enclosure.</li> <li>3 Remove all devices from all device bays. Be sure to note the location for each device.</li> <li>4 Remove all interconnect modules.</li> <li>5 Remove all fans.</li> <li>6 Remove all Onboard Administrators from the enclosure.</li> <li>7 Remove the OA tray.</li> <li>8 Remove the rear cage.</li> <li>9 Remove the midplane assembly.</li> <li>10 Install a service spare midplane assembly.</li> <li>11 Install the rear cage.</li> </ol>
<b>Step 2</b>	<p><b>Action</b></p> <ol style="list-style-type: none"> <li>1 Install following components in their original locations in the enclosure: <ul style="list-style-type: none"> <li>-Power supplies</li> <li>-Fans</li> <li>-Onboard Administrator</li> <li>-OA tray</li> </ul> </li> <li>2 Power up the enclosure.</li> </ol>
	<p><b>Verification</b></p> <p>When the Insight Display indicates that the Onboard Administrator has completed all power-on tests, continue to the next step.</p>
<b>Step 3</b>	<p><b>Action</b></p> <p>Update the PID and serial numbers (unnecessary if OA firmware is 3.20 or above):</p> <ol style="list-style-type: none"> <li>1 Locate the enclosure label on the front left mounting tab.</li> <li>2 Record the enclosure PID and serial number.</li> <li>3 Log in to OA CLI using the Administrator account.</li> <li>4 Update the enclosure part number using the following OA CLI command. In place of X, enter the PID number. <pre style="margin-left: 40px;">set enclosure part_number X</pre> </li> <li>5 Update the enclosure serial number using the following OA CLI command. In place of X, enter the serial number. <pre style="margin-left: 40px;">set enclosure serial_number X</pre> </li> </ol>
	<p><b>Verification</b></p> <p>If troubleshooting the HP BladeSystem c3000 Enclosure, then continue to step 5. If troubleshooting the HP BladeSystem c7000 Enclosure, then continue to the next step.</p>

Step	Midplane assembly replacement action and verification
Step 4	<p><b>Action</b></p> <p>Perform PDU part number update using the following OA CLI command:</p> <pre style="margin-left: 40px;">set enclosure PDU_type X</pre> <p>Where X represents 1, 2, 3, or 4 according to the power setup:</p> <ul style="list-style-type: none"> <li>• 1 for single-phase power</li> <li>• 2 for three-phase power, North America</li> <li>• 3 for three-phase power, international</li> <li>• 4 for DC power</li> </ul>
Step 5	<p><b>Action</b></p> <p>Install all server blades and interconnect modules in the original locations.</p>

# Component identification

## HP BladeSystem c7000 Enclosure components

### Enclosure front components



Item	Description
1	Device bays*
2	Air intake slot (Do not block.)
3	Power supply bay 1
4	Power supply bay 2
5	Power supply bay 3
6	Power supply bay 4
7	Insight Display
8	Power supply bay 5
9	Power supply bay 6
10	Air intake slot (Do not block.)

\*For more information, see "Device bay numbering."

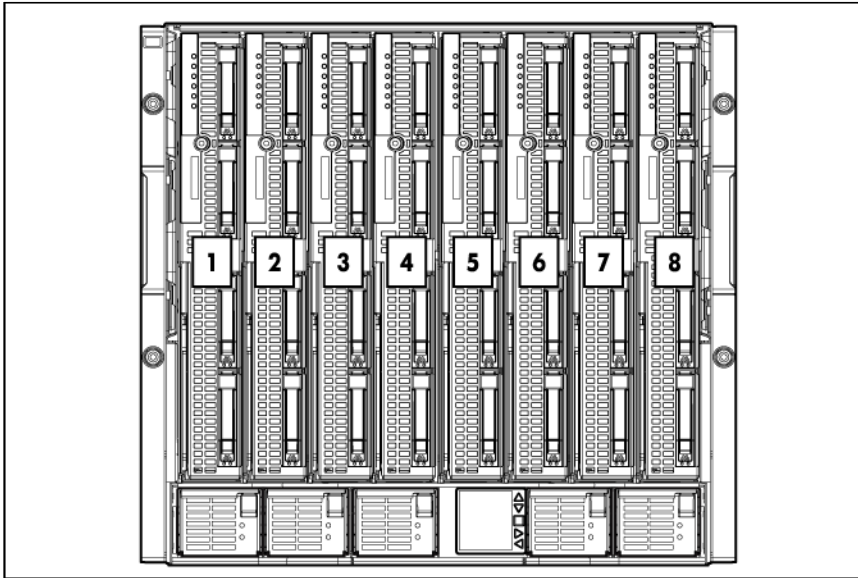
## Device bay numbering

Each enclosure requires interconnects to provide network access for data transfer. Interconnects reside in bays located on the rear of the enclosure. Be sure to review device bay numbering to determine which external network connections on the interconnects are active.

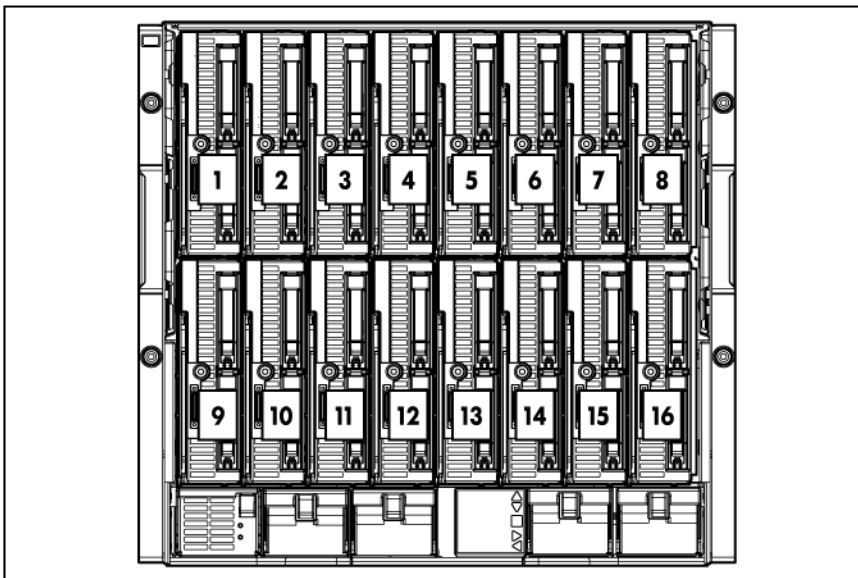


**IMPORTANT:** When looking at the rear of the enclosure, front device bay numbering is reversed.

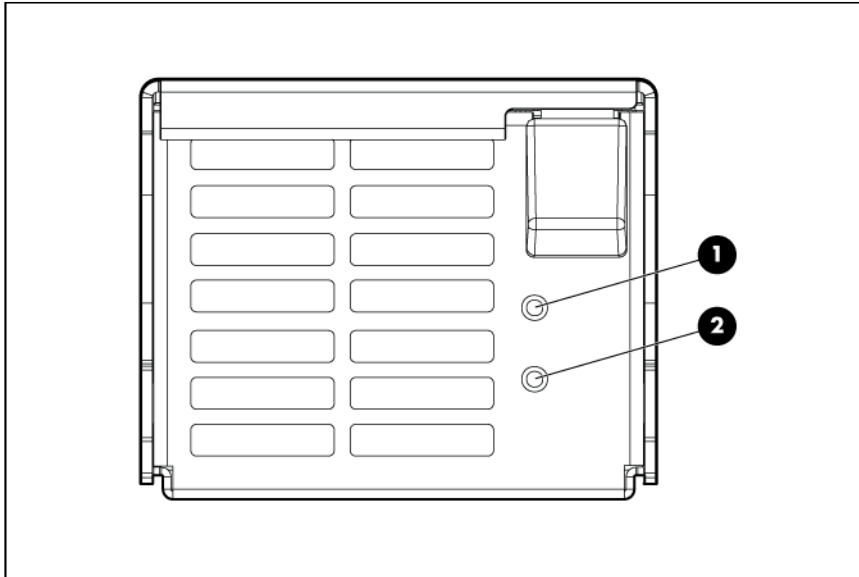
### Full-height device bay numbering



### Half-height device bay numbering



## Power supply LEDs



Power LED 1 (green)	Fault LED 2 (amber)	Condition
Off	Off	No AC power to the power supply
On	Off	Normal
Off	On	Power supply failure

## Power supply bay numbering



# HP BladeSystem Insight Display

## Insight Display overview

The Insight Display enables the rack technician to configure the enclosure initially. It also provides information about the health and operation of the enclosure. See the *HP BladeSystem Onboard Administrator User Guide* for additional information.

The Insight Display background color varies with the condition of the enclosure health:

- **Blue**—The Insight Display background illuminates blue when the enclosure UID is active. The enclosure UID is automatically turned on when the enclosure is powered up for the first time and can be turned on by selecting **Turn Enclosure UID On** from the Main Menu or by pressing the enclosure UID button on the rear of the enclosure.

When the enclosure UID is on, the Insight Display flashes after 2 minutes of inactivity. Pressing any button on the Insight Display stops the flashing and reactivates the screen.

- **Green**—The Insight Display background illuminates green when no error or alert conditions exist and the enclosure is operating normally. After 2 minutes of inactivity, the Insight Display light turns off. Pressing any button on the Insight Display reactivates the screen.
- **Amber**—The Insight Display background illuminates amber when the Onboard Administrator detects an error or alert condition. Depending on the error, the component is displayed in red or yellow on the Health Summary screen.

After 2 minutes of inactivity, the Insight Display background flashes amber, indicating an error or alert condition exists. If the enclosure UID is on and an error or alert condition exists, the Insight Display illuminates blue because the enclosure UID takes priority over the alert. Pressing any button on the Insight Display reactivates the screen.

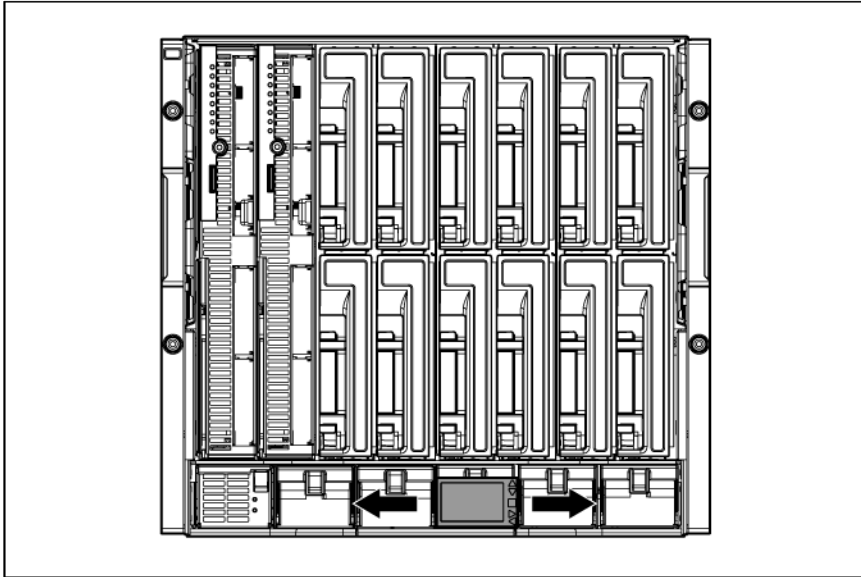
- **Dark (no power)**—The Insight Display has a 2-minute inactivity period. If no action is taken and no alert condition exists, the enclosure UID is off, or the chat mode has not been activated, the screen light turns off after 2 minutes. Pressing any button on the Insight Display reactivates the screen.

The Enclosure Health icon is located on the bottom left corner of every screen, indicating the enclosure health. To access the Health Summary screen from any Insight Display screen, navigate the cursor to the Enclosure Health icon and press **OK**.

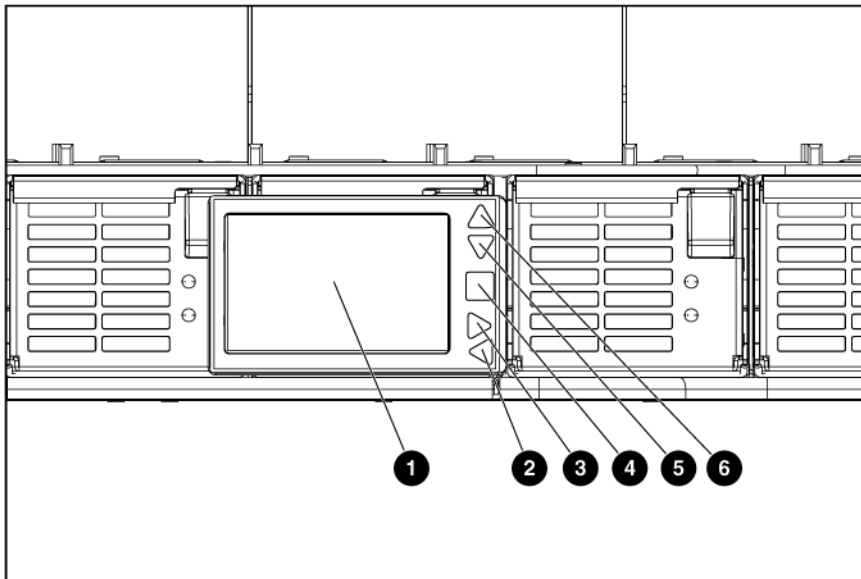
For information on driver and firmware updates, see the HP website (<http://www.hp.com/go/blades/>).

## Accessing the Insight Display on the HP BladeSystem c7000 Enclosure

The Insight Display is located on the front of the HP BladeSystem c7000 Enclosure. The Insight Display slides from side to side to allow access to enclosure components.

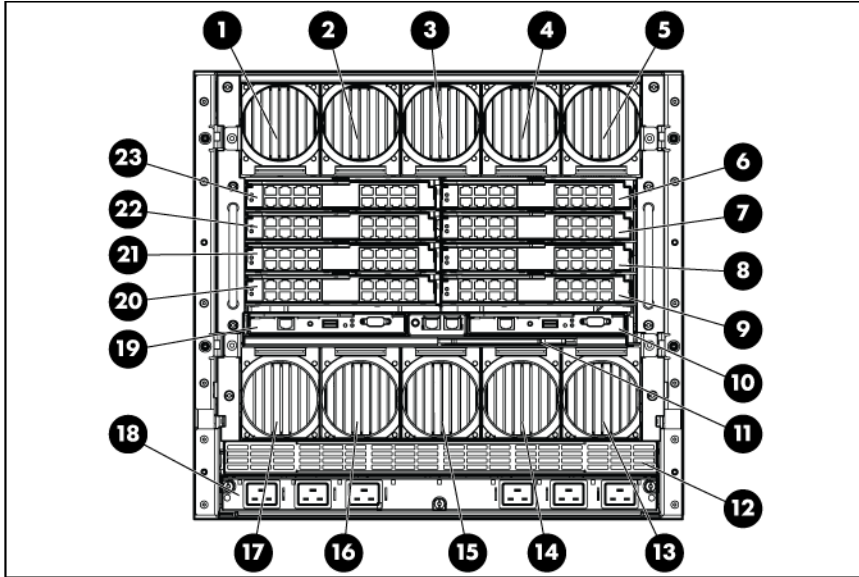


## HP BladeSystem Insight Display components



Item	Description	Function
1	Insight Display screen	Displays Main Menu error messages and instructions
2	Left arrow button	Moves the menu or navigation bar selection left one position
3	Right arrow button	Moves the menu or navigation bar selection right one position
4	OK button	Accepts the highlighted selection and navigates to the selected menu
5	Down arrow button	Moves the menu selection down one position
6	Up arrow button	Moves the menu selection up one position

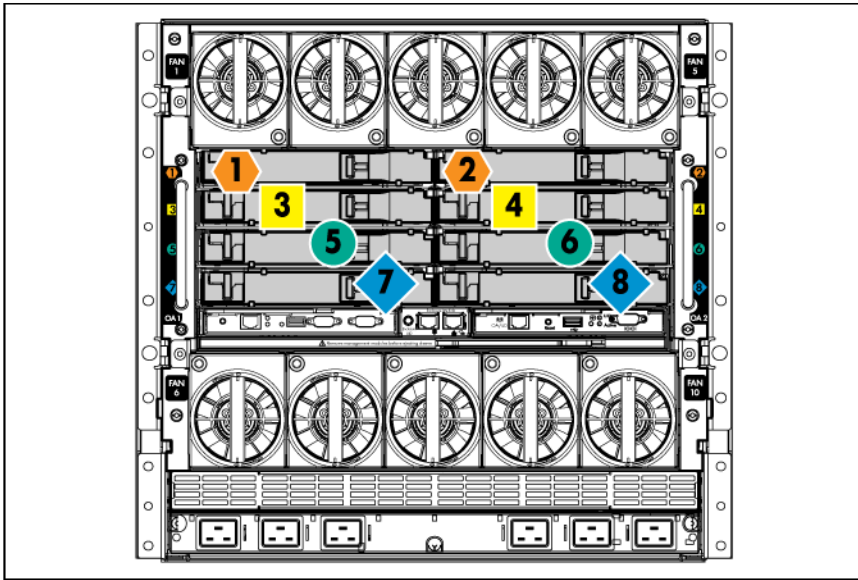
# Enclosure rear components



Item	Description
1	Fan bay 1
2	Fan bay 2
3	Fan bay 3
4	Fan bay 4
5	Fan bay 5
6	Interconnect bay 2
7	Interconnect bay 4
8	Interconnect bay 6
9	Interconnect bay 8
10	Onboard Administrator bay 2
11	OA tray
12	Power supply exhaust vent (do not block)
13	Fan bay 10
14	Fan bay 9
15	Fan bay 8
16	Fan bay 7
17	Fan bay 6
18	AC power connectors
19	Onboard Administrator bay 1
20	Interconnect bay 7
21	Interconnect bay 5
22	Interconnect bay 3
23	Interconnect bay 1

## Interconnect bay numbering

To support network connections for specific signals, install the interconnect module into the appropriate bay.

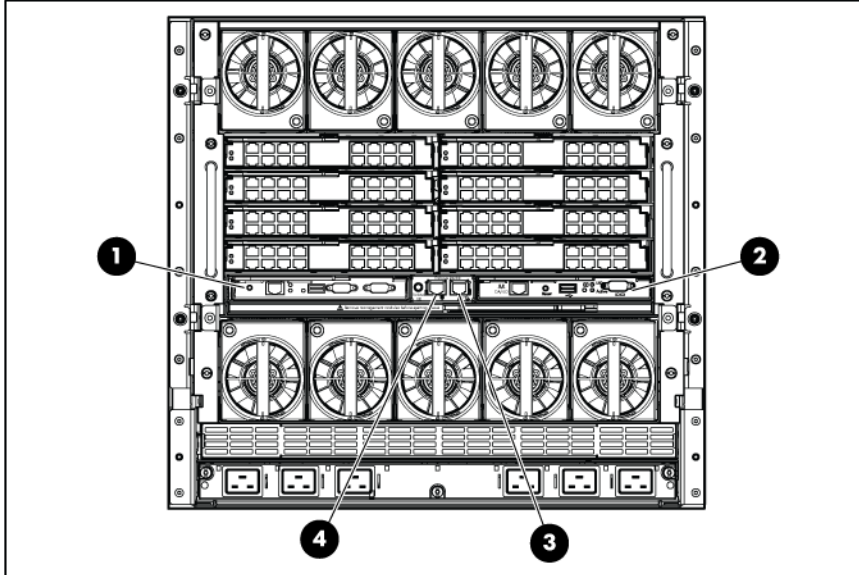


Server blade signal	Interconnect bay number	Interconnect bay label
NICs 1, 2, 3, and 4 (embedded)	1, 2	Orange hexagon
Mezzanine 1	3, 4	Yellow square
Mezzanine 2	5, 6 and then 7, 8	Green circle and Blue diamond
Mezzanine 3	7, 8 and then 5, 6	Blue diamond and Green circle

For information on the location of LEDs and ports on individual interconnect modules, see the documentation that ships with the interconnect module.

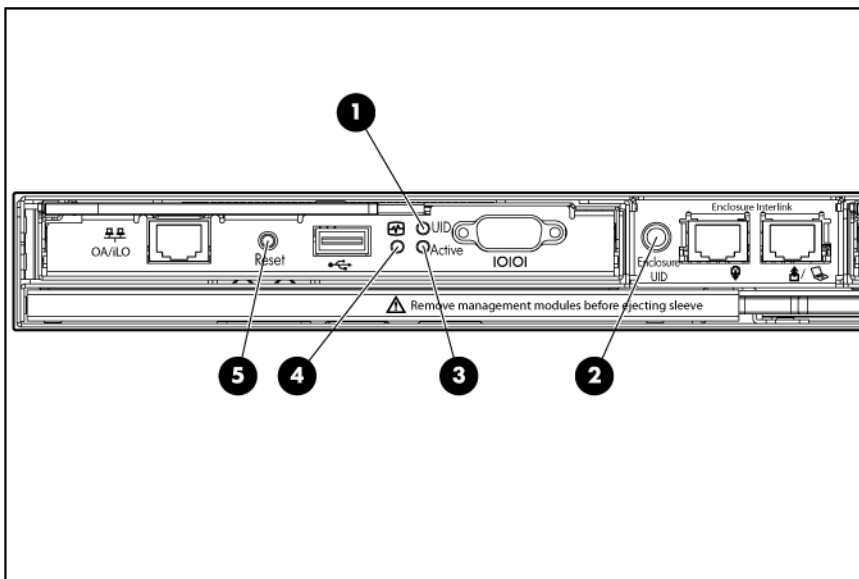
For more information, see the enclosure documentation on the HP website (<http://www.hp.com/support>).

## Onboard Administrator components



Item	Description
1	Onboard Administrator bay 1
2	Onboard Administrator bay 2 (redundant, if used)
3	Enclosure link-up port
4	Enclosure link-down port

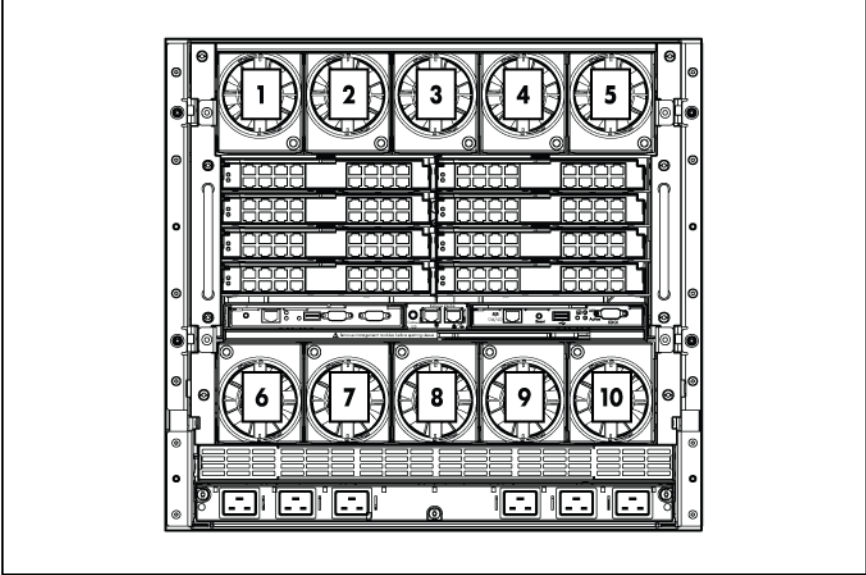
## Onboard Administrator LEDs and buttons



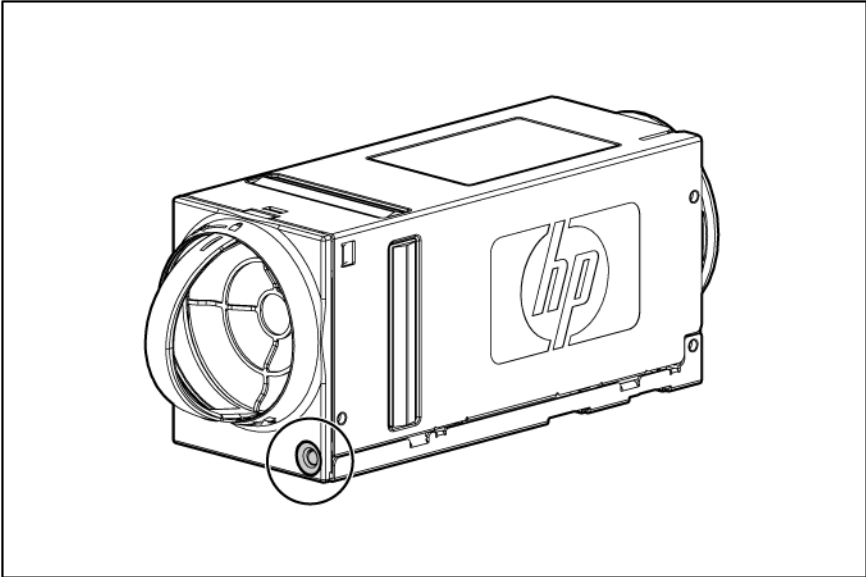
Item	Description
1	Onboard Administrator UID LED
2	Enclosure UID LED and UID button
3	Onboard Administrator active LED

Item	Description
4	Onboard Administrator health LED
5	Onboard Administrator reset button

Fan bay numbering



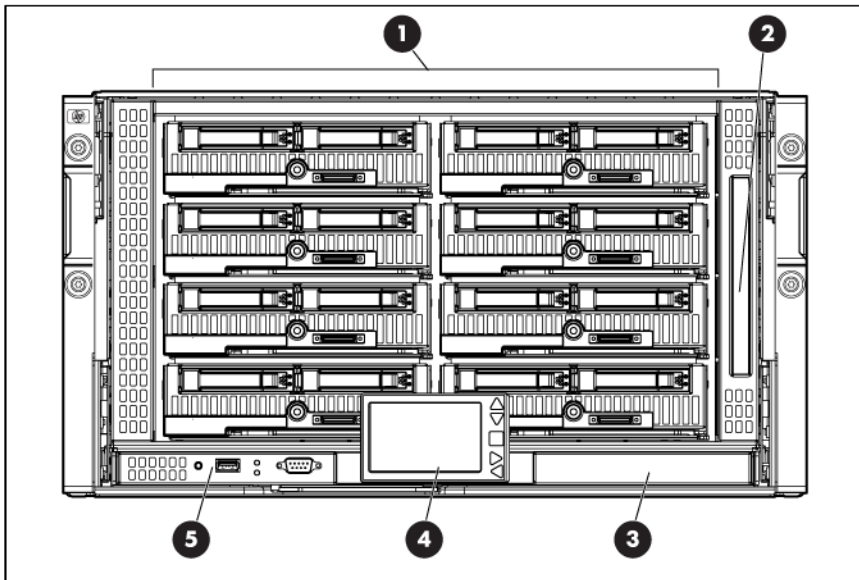
Fan LED



LED color	Fan status
Solid green	The fan is working.
Solid amber	The fan has failed.
Flashing amber	See the Insight Display screen.

# HP BladeSystem c3000 Enclosure components

## Enclosure front components



Item	Description
1	Device bays
2	CD/DVD-ROM drive blank or CD/DVD-ROM drive (optional)
3	Onboard Administrator tray (reserved for future use)
4	Insight Display
5	Onboard Administrator tray containing Onboard Administrator 1.

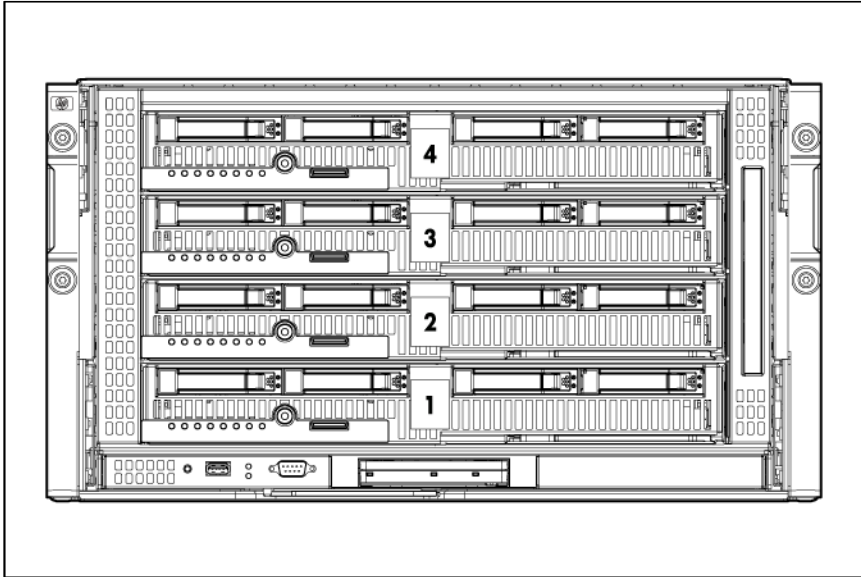
## Device bay numbering

Each enclosure requires interconnects to provide network access for data transfer. Interconnects reside in bays located on the rear of the enclosure. Be sure to review device bay numbering to determine which external network connections on the interconnects are active.

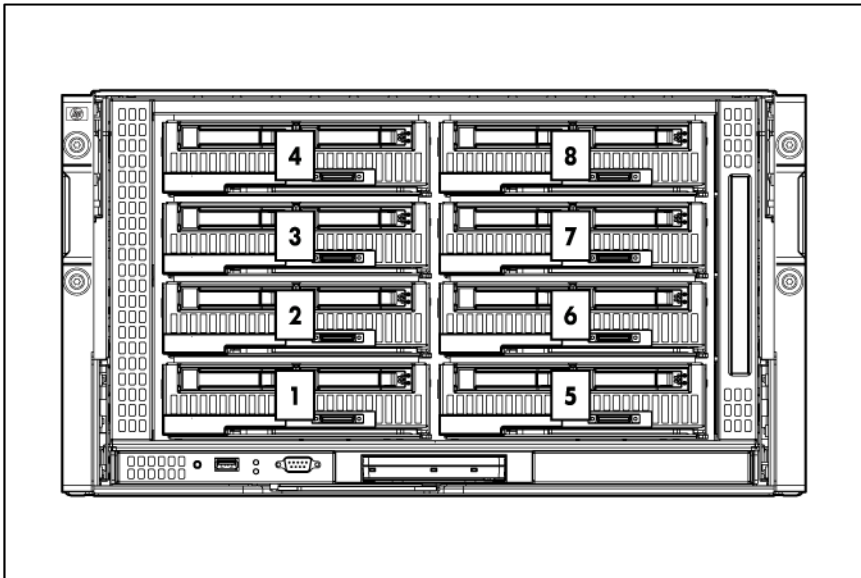


**IMPORTANT:** When looking at the rear of the enclosure, front device bay numbering is reversed.

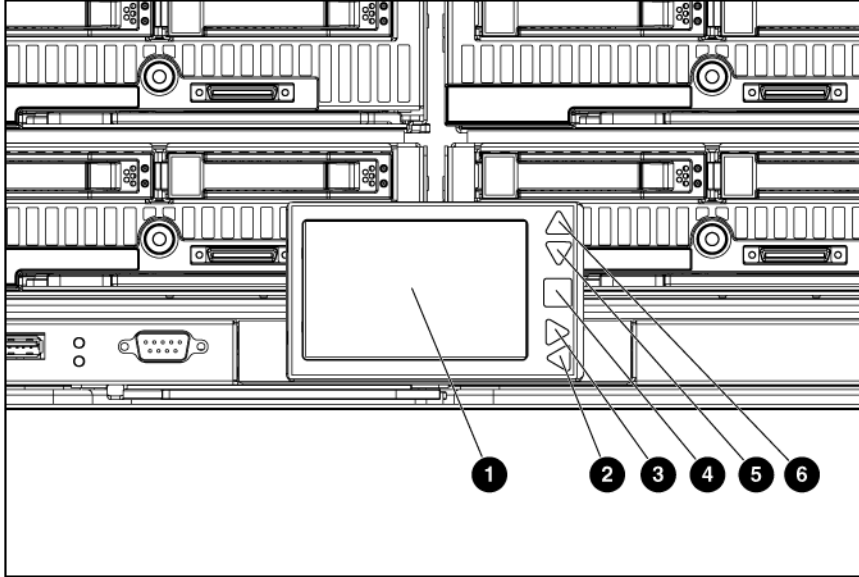
## Full-height device bay numbering



## Half-height device bay numbering

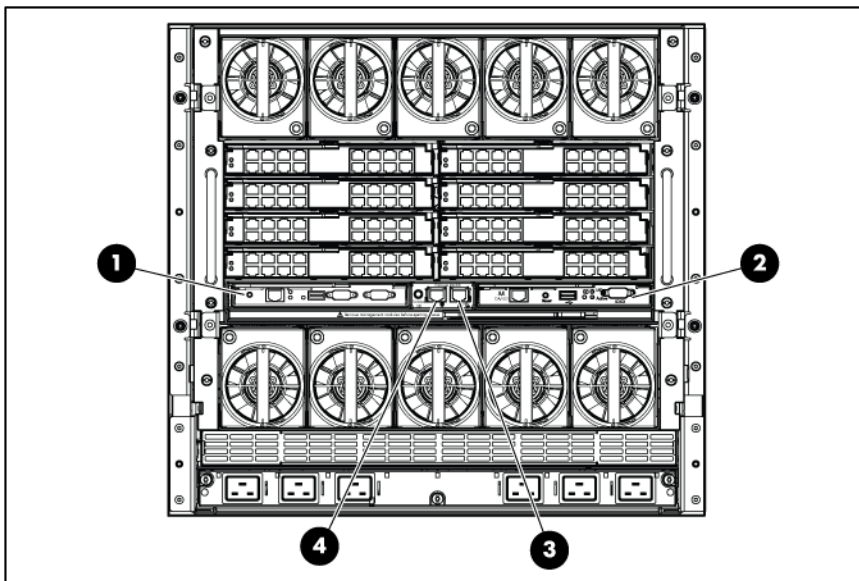


## HP BladeSystem Insight Display components



Item	Description	Function
1	Insight Display screen	Displays Main Menu error messages and instructions
2	Left arrow button	Moves the menu or navigation bar selection left one position
3	Right arrow button	Moves the menu or navigation bar selection right one position
4	OK button	Accepts the highlighted selection and navigates to the selected menu
5	Down arrow button	Moves the menu selection down one position
6	Up arrow button	Moves the menu selection up one position

## Onboard Administrator components

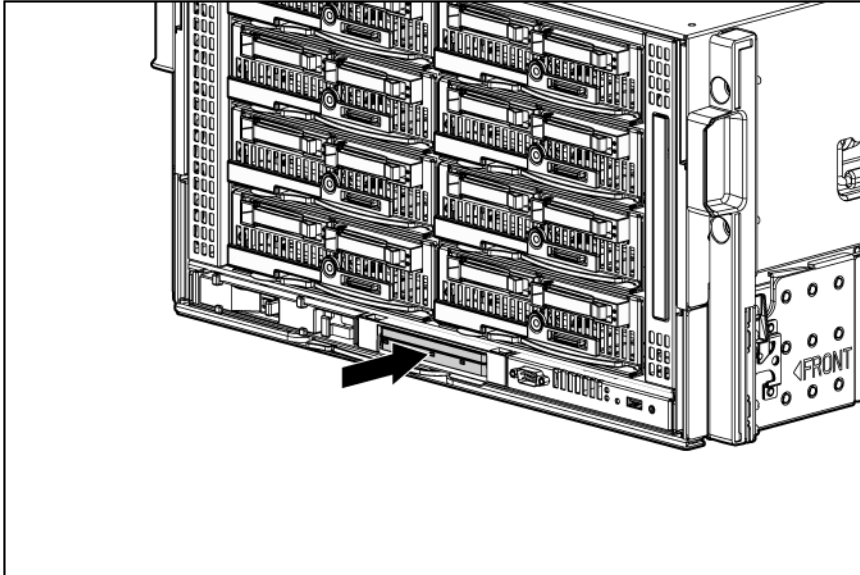


Item	Description
1	Onboard Administrator bay 1

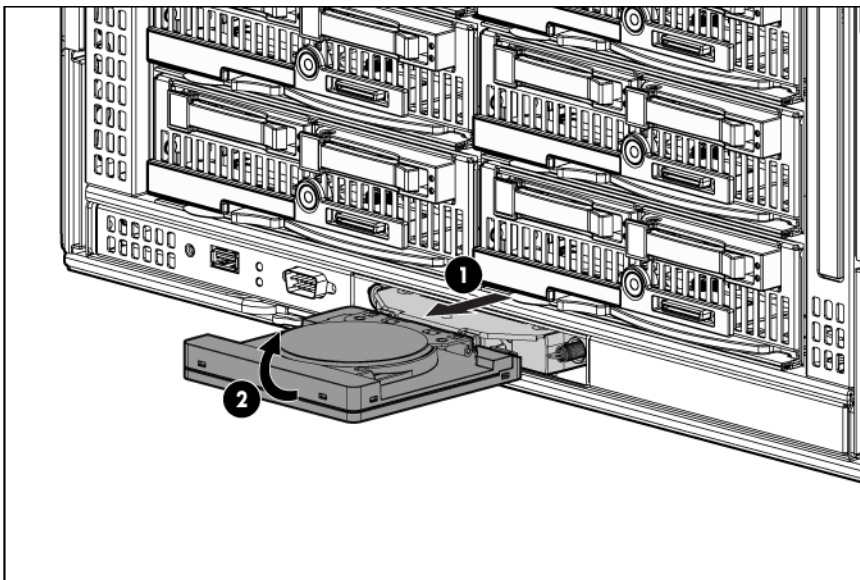
Item	Description
2	Onboard Administrator bay 2 (redundant, if used)
3	Enclosure link-up port
4	Enclosure link-down port

## Accessing the Insight Display on the HP BladeSystem c3000 Enclosure

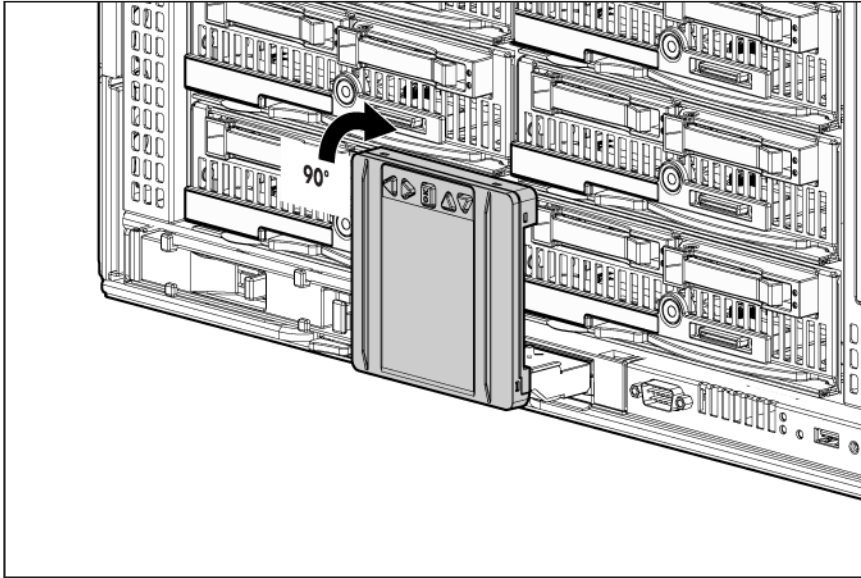
1. To access the Insight Display, push on the exposed end.



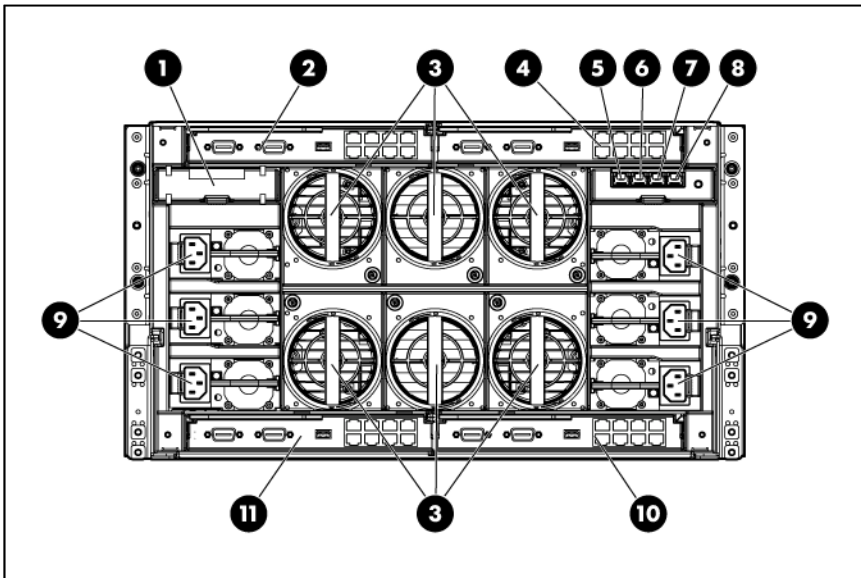
2. Pull the Insight Display out of the chassis to lock it into place, and then tilt it up.



3. Rotate the Insight Display 90 degrees to view the display.



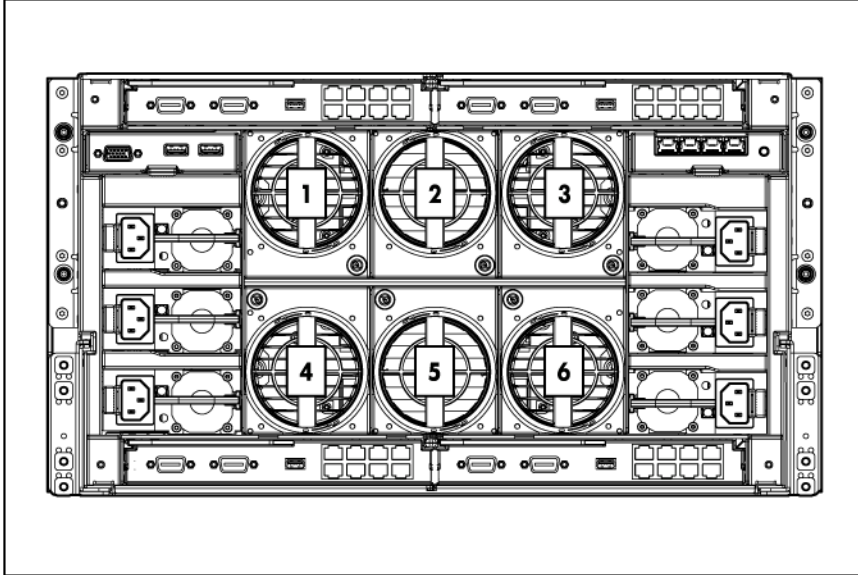
## Enclosure rear components



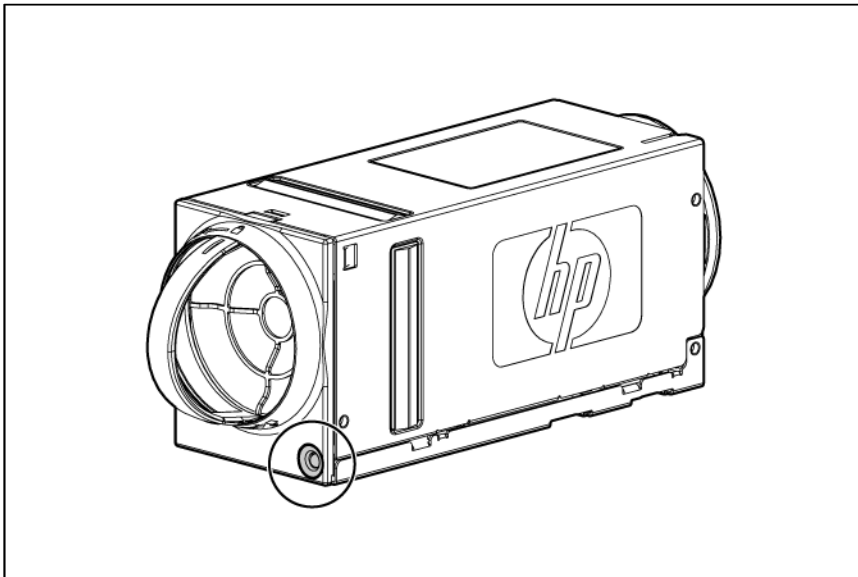
Item	Description
1	KVM module bay
2	Interconnect bay 1
3	Fan bays (" <a href="#">Fan bay numbering</a> " on page 87)
4	Interconnect bay 2
5	Enclosure link-down port
6	Enclosure link-up port
7	Onboard Administrator 1/iLO port
8	Onboard Administrator 2/iLO port (reserved for future use)

Item	Description
9	Power supply bays ("Power supply bay numbering" on page 88)
10	Interconnect bay 4
11	Interconnect bay 3

## Fan bay numbering

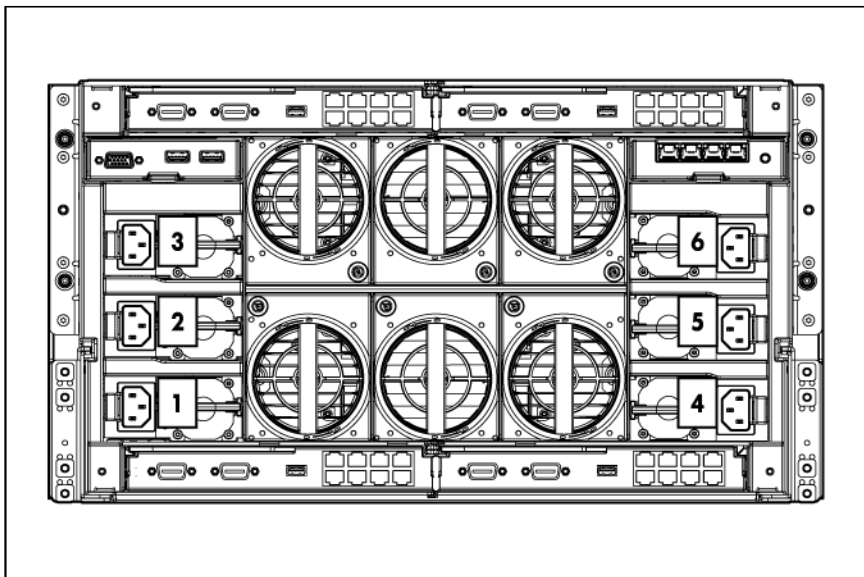


## Fan LEDs

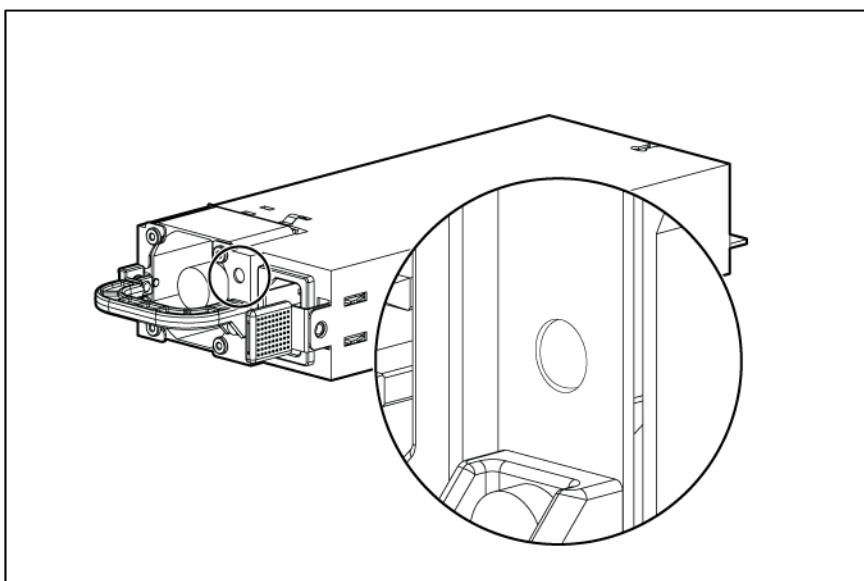


LED color	Fan status
Solid green	The fan is working.
Solid amber	The fan has failed.
Flashing amber	See the Insight Display screen.

## Power supply bay numbering



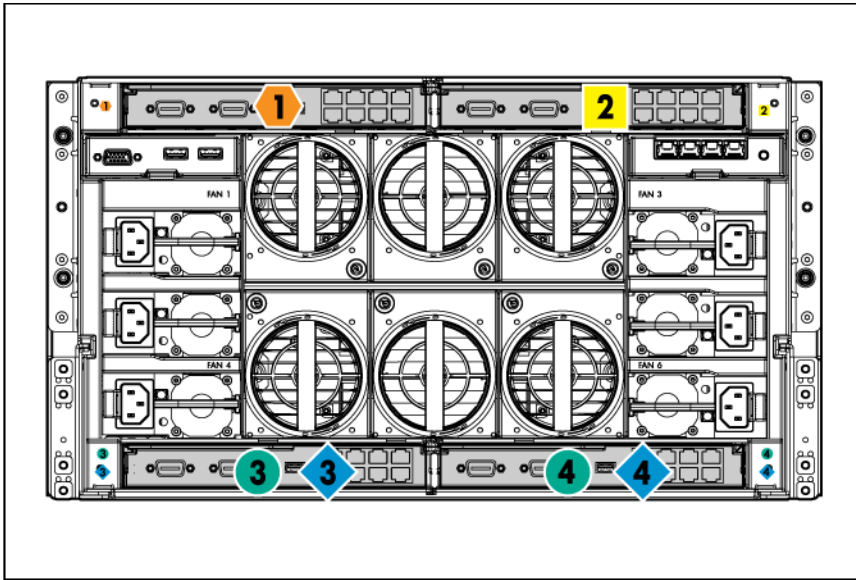
## Power supply LED



Power LED	Status
Off	No AC power to power supply units
Green	AC is present. Standby output is on, output is disabled.
Green	AC is present. Standby output is on, power supply DC output is on and OK.
Off	Power supply failure (includes overvoltage and overtemperature)

## Interconnect bay numbering

To support network connections for specific signals, install the interconnect module in the appropriate bay.



Server blade signal	Interconnect bay number	Interconnect bay label	Notes
NICs 1, 2, 3, and 4 (embedded)	1	⬡	—
Mezzanine 1	2	■	Four port cards connect to bay 2
Mezzanine 2	3,4	● ◆	<ul style="list-style-type: none"> <li>• Four port cards</li> <li>• Ports 1 and 3 connect to bay 3</li> <li>• Ports 2 and 4 connect to bay 4</li> </ul>
Mezzanine 3	3,4	● ◆	<ul style="list-style-type: none"> <li>• Four port cards</li> <li>• Ports 1 and 3 connect to bay 3</li> <li>• Ports 2 and 4 connect to bay 4</li> </ul>

**NOTE:** For information on the location of LEDs and ports on individual interconnect modules, see the documentation that ships with the interconnect module.

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# Software tools and solutions

## Server blade diagnostic tools

### HP Insight Diagnostics

HP Insight Diagnostics is a proactive server blade management tool, available in both offline and online versions, that provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server blade installations, troubleshoot problems, and perform repair validation.

HP Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, launch the SmartStart CD.

HP Insight Diagnostics Online Edition is a web-based application that captures system configuration and other related data needed for effective server blade management. Available in Microsoft® Windows® and Linux versions, the utility helps to ensure proper system operation.

For more information or to download the utility, refer to the HP website (<http://www.hp.com/servers/diags>).

### HP Insight Diagnostics survey functionality

HP Insight Diagnostics (on page 90) provides survey functionality that gathers critical hardware and software information on ProLiant server blades.

This functionality supports operating systems that may not be supported by the server blade. For operating systems supported by the server blade, see the HP website (<http://www.hp.com/go/supportos>).

If a significant change occurs between data-gathering intervals, the survey function marks the previous information and overwrites the survey data files to reflect the latest changes in the configuration.

Survey functionality is installed with every SmartStart-assisted HP Insight Diagnostics installation, or it can be installed through the HP PSP ("ProLiant Support Packs" on page 94).

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**NOTE:** The current version of SmartStart provides the memory spare part numbers for the server blade. To download the latest version, see the HP website (<http://www.hp.com/support>).

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### Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HP SIM ("HP Systems Insight Manager" on page 92)
- From within operating system-specific IML viewers:
  - For Windows®: IML Viewer
  - For Linux: IML Viewer Application

- From within the iLO 2 user interface
- From within HP Insight Diagnostics (on page 90)
- From within the Onboard Administrator GUI  
For more information, see the *HP BladeSystem Onboard Administrator User Guide* on the HP website (<http://www.hp.com/go/bladesystem/documentation>).
- From the Onboard Administrator CLI  
See the *HP BladeSystem Onboard Administrator Command Line Interface User Guide* for information on accessing the CLI.

For more information, see the Management CD in the HP ProLiant Essentials Foundation Pack.

## Array Diagnostic Utility

The HP Array Diagnostics Utility is a web-based application that creates a report of all HP storage controllers and disk drives. This report provides vital information to assist in identifying faults or conditions that may require attention. ADU can be accessed from the SmartStart CD or downloaded from the HP website (<http://www.hp.com>).

## HP Insight Remote Support software

HP strongly recommends that you install HP Insight Remote Support software to complete the installation or upgrade of your product and to enable enhanced delivery of your HP Warranty, HP Care Pack Service, or HP contractual support agreement. HP Insight Remote Support supplements your monitoring 24 x 7 to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to HP, which will initiate a fast and accurate resolution, based on your product's service level. Notifications may be sent to your authorized HP Channel Partner for on-site service, if configured and available in your country. The software is available in two variants:

- **HP Insight Remote Support Standard:** This software supports server and storage devices and is optimized for environments with 1–50 servers. Ideal for customers who can benefit from proactive notification but do not need proactive service delivery and integration with a management platform.
- **HP Insight Remote Support Advanced:** This software provides comprehensive remote monitoring and proactive service support for nearly all HP servers, storage, network, and SAN environments, plus selected non-HP servers that have a support obligation with HP. It is integrated with HP Systems Insight Manager. A dedicated server is recommended to host both HP Systems Insight Manager and HP Insight Remote Support Advanced.

Details for both versions are available on the HP website (<http://www.hp.com/go/insightremotesupport>).

To download the software, go to Software Depot (<http://www.software.hp.com>).

Select **Insight Remote Support** from the menu on the right.

# Management tools

## HP Systems Insight Manager

HP SIM is a web-based application that allows system administrators to accomplish normal administrative tasks from any remote location, using a web browser. HP SIM provides device management capabilities that consolidate and integrate management data from HP and third-party devices.



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**IMPORTANT:** You must install and use HP SIM to benefit from the Pre-Failure Warranty for processors, SAS and SATA hard drives, and memory modules.

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For additional information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack or the HP SIM website (<http://www.hp.com/go/hpsim>).

## System Management homepage

To access the System Management homepage of a server, go to <https://localhost:2381> (<https://localhost:2381>).

## Firmware maintenance

HP has developed technologies to help ensure that the HP BladeSystem provides maximum uptime with minimal maintenance. Many of these technologies also reduce management efforts, enabling administrators to work on issues and resolve problems without taking the HP BladeSystem offline.

For more information about HP BladeSystem Firmware Maintenance, links to downloads, and compatibility matrices, see the HP website (<http://www.hp.com/go/bladesystemupdates>).

## HP BladeSystem compatibility matrices

- HP BladeSystem firmware and upgrades compatibility matrix (<http://www.hp.com/go/bladesystemupdates>)
- Virtual Connect compatibility matrix (<http://h18004.www1.hp.com/products/blades/components/vc-compmatrix.html>)
- BladeSystem Matrix - Compatibility (<http://www.hp.com/go/matrixcompatibility>)

## Firmware updates overview

1. Verify the BladeSystem firmware version using the Onboard Administrator. For more information, see "Verifying firmware versions (on page 93)."
2. Check the compatibility matrices to verify that the current firmware set is compatible with those listed on the Compatibility tab on the HP website (<http://www.hp.com/go/bladesystemupdates>).  
For BladeSystem Matrix, be sure to use the latest firmware and firmware set downloads provided on the BladeSystem Matrix Compatibility on the HP website (<http://www.hp.com/go/matrixcompatibility>).
3. If the server blade or enclosure firmware is not a version listed in one of the two columns of the compatibility matrix, then select a firmware update tool (online or offline) from the HP website (<http://www.hp.com/go/bladesystemupdates>).

4. Use the firmware update tool to perform the firmware update. For more information on how to use the tool, see the documentation provided with the tool.

## Verifying firmware versions

### Operating systems

- Verify the HP BladeSystem firmware by using the Onboard Administrator.
  - HP BladeSystem c7000 Enclosure and HP BladeSystem c3000 Enclosure Onboard Administrator firmware:  
Using the OA:: The *Rack Overview/Rack Firmware Summary* provides firmware version information for blades, iLOs, interconnects, and Onboard Administrators.  
Using CLI: The `show FRU` or `show OA info all` commands provide firmware version information.
  - HP BladeSystem c7000 Enclosure and HP BladeSystem c3000 Enclosure Insight Display firmware:  
Using the OA: The *Enclosure Information/Enclosure Settings/Device Summary* provides firmware version information.  
Using CLI: The `show FRU` or `show enclosure (LCD)` commands provide firmware version information.
  - Server Blades/Storage Blades/PCI Expansion Blade  
Enclosure Information/Device Bays/device entry/Information Tab
  - Interconnect bays
  - Power subsystem
  - Thermal subsystem
  - iLO 2
  - iLO 2: Management Processor - Integrated Lights-Out 2
  - Verify output from OA CLI: `show update` (low level FRU firmware)
- Verify the HP BladeSystem firmware using the Systems Management Homepage ("[System Management homepage](#)" on page 92).
  - Server blade firmware
  - Storage controllers
  - Hard drives
  - NICs
- Verify the HP BladeSystem firmware by using the HP Systems Insight Manager (on page 92).
- Verify the System Management Homepage on the Server Blade at the Software Information section
- Verify the HP BladeSystem firmware by using the iLO 2 System Status Tab.
  - Server blade firmware
  - iLO 2 firmware

# System maintenance tools

## Drivers



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**IMPORTANT:** Always perform a backup before installing or updating device drivers.

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The server blade includes new hardware that may not have driver support on all OS installation media.

If you are installing a SmartStart-supported OS, use the SmartStart software and its Assisted Path feature to install the OS and latest driver support.

If you are installing drivers from the SmartStart CD, be sure that you are using the latest SmartStart version that your server blade supports. To verify that your server blade is using the latest supported version, see the HP website (<http://www.hp.com/support>). For more information, see the documentation provided with the SmartStart CD.

If you do not use the SmartStart CD to install an OS, drivers for some of the new hardware are required. These drivers, as well as other option drivers, ROM images, and value-add software can be downloaded from the HP website (<http://www.hp.com/support>).

To directly locate the OS drivers for a particular server blade, enter the following web address into the browser:

<http://www.hp.com/support/<servername>>

In place of `<servername>`, enter the server name.

For example:

<http://www.hp.com/support/dl360g6> (<http://www.hp.com/support/dl360g6>)

## ProLiant Support Packs

PSPs represent operating system-specific bundles of ProLiant optimized drivers, utilities, and management agents. Refer to the PSP website (<http://h18000.www1.hp.com/products/servers/management/psp.html>).

## Version control

The VCRM and VCA are Web-enabled Insight Management Agents. HP Systems Insight Manager uses these Insight Management Agents to facilitate software update tasks.

- The **VCRM** provides a graphical view of the Windows® and Linux PSPs that are stored in a repository and can be configured to automatically update the repository with the latest software from HP.
- The **VCA** can be configured to point to a repository being managed by the VCRM, enabling easy version comparison and software updates.

For more information about version control tools, refer to the *HP Systems Insight Manager Help Guide* and the *Version Control User Guide* on the HP Systems Insight Manager website (<http://www.hp.com/go/hpsim>).

## Operating system version support

Refer to the operating system support matrix (<http://www.hp.com/go/supportos>).

## HP Smart Update Manager

The HP Smart Update Manager enables system administrators to upgrade ROM images efficiently across a wide range of servers and options. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows® and Linux operating systems
- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

For more information, see the *HP Smart Update Manager User Guide*. The guide and the HP Smart Update Manager utility are available from the ProLiant Firmware Maintenance CD. This CD and others can be downloaded free of charge from the SmartStart download page on the HP website (<http://www.hp.com/go/support>).

## System Online ROM flash component utility

The Online ROM Flash Component Utility enables system administrators to efficiently upgrade system or controller ROM images across a wide range of servers and array controllers. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows NT®, Windows® 2000, Windows Server® 2003, Novell Netware, and Linux operating systems



---

**IMPORTANT:** This utility supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (<http://www.hp.com/support>).

---

- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

To download the tool and for more information, see the HP website (<http://www.hp.com/support>).

## ROMPaq utility diskette or USB drive key

The bootable ROMPaq diskette or USB drive key contains all the necessary system files, option ROM image files, and the configuration files required to upgrade the ROM firmware.

This procedure is most effective when flashing the ROM on a small number of servers located in close proximity.

To flash the ROM using ROMPaq:

1. Download the system ROMPaq utility diskette or USB drive key for each target server blade. ROMPaq downloads are available on the HP website (<http://www.hp.com/support>).

2. Shut down each target server blade, and then reboot using the correct ROMPaq diskette or USB drive key for that server blade.
3. Follow the interactive session in the ROMPaq utility, and then select the devices to be flashed.
4. After the ROMPaq utility flashes the ROM for the selected devices, cycle power manually to reboot the system back into the operating system.

Option ROMPaqs have been retired as an upgrade delivery method for storage options. Firmware upgrades for storage options are now delivered using Smart Components and Smart Component deployment utilities.

For additional information about the ROMPaq utility, see the server blade documentation or the HP website (<http://www.hp.com/support>).

## ROM Update Utility

The ROM update utility is being replaced by the HP Smart Update Manager (on page 95).

The ROM Update Utility is offline ROM flash technology.

To access the ROM Update Utility:

1. Boot the server from one of the following:
  - o HP SmartStart CD 6.x
  - o HP Firmware Maintenance CD 7.0 or later
  - o HP Smart Update Firmware DVD
2. Select the **Maintenance** tab.

## Subscriber's choice

HP's Subscriber's Choice is a customizable subscription sign-up service that customers use to receive personalized email product tips, feature articles, driver and support alerts, or other notifications.

To create a profile and select notifications, refer to the HP website (<http://www.hp.com/go/subscriberschoice>).

## Change control and proactive notification

HP offers Change Control and Proactive Notification to notify customers 30 to 60 days in advance of upcoming hardware and software changes on HP commercial products.

For more information, refer to the HP website (<http://www.hp.com/go/pcn>).

## Care Pack

HP Care Pack Services offer upgraded service levels to extend and expand bundled services with easy-to-buy, easy-to-use support packages that help you make the most of your server investments. For more information, see the HP website (<http://www.hp.com/services/carepack>).

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# Contacting HP

## Contacting HP technical support or an authorized reseller

Before contacting HP, always attempt to resolve problems by completing the procedures in this guide.



**IMPORTANT:** Collect the appropriate server information ("[Server information you need](#)" on page 97) and operating system information ("[Operating system information you need](#)" on page 98) before contacting HP for support.

For the name of the nearest HP authorized reseller:

- See the Contact HP worldwide (in English) webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage ([http://welcome.hp.com/country/us/en/contact\\_us.html](http://welcome.hp.com/country/us/en/contact_us.html)). To contact HP by phone:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (<http://www.hp.com/hps>).
- In other locations, see the Contact HP worldwide (in English) webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>).

## Customer self repair

What is customer self repair?

HP's customer self-repair program offers you the fastest service under either warranty or contract. It enables HP to ship replacement parts directly to you so that you can replace them. Using this program, you can replace parts at your own convenience.

A convenient, easy-to-use program:

- An HP support specialist will diagnose and assess whether a replacement part is required to address a system problem. The specialist will also determine whether you can replace the part.
- For specific information about customer replaceable parts, refer to the maintenance and service guide on the HP website (<http://www.hp.com/support>).

## Server information you need

Before contacting HP technical support, collect the following information:

- Explanation of the issue, the first occurrence, and frequency
- Any changes in hardware or software configuration before the issue surfaced
- Third-party hardware information:
  - Product name, model, and version
  - Company name
- Specific hardware configuration:
  - Product name, model, and serial number
  - Number of processors and speed
  - Number of DIMMs and their size and speed
  - List of controllers and NICs
  - List of connected peripheral devices
  - List of any other optional HP or Compaq hardware
  - Network configuration
- Specific software information:
  - Operating system information ("[Operating system information you need](#)" on page 98)
  - List of third-party, HP, and Compaq software installed
  - PCAnywhere information, if installed
  - Verification of latest drivers installed
  - Verification of latest ROM/BIOS
  - Verification of latest firmware on array controllers and drives
- Results from attempts to clear NVRAM
- Onboard Administrator SHOW ALL report
  - OA CLI: execute command: SHOW ALL
  - OA GUI: Enclosure information>enclosure settings>configuration scripts>SHOW ALL

## Operating system information you need

Depending on the problem, you may be asked for certain pieces of information. Be prepared to access the information listed in the following sections, based on operating system used.

### Microsoft® operating systems

Collect the following information:

- Whether the operating system was factory installed
- Operating system version number
- A current copy of the following files:
  - WinMSD (Msinfo32.exe on Microsoft® Windows® 2000 systems)
  - Boot.ini
  - Memory.dmp

- Event logs
- Dr. Watson log (drwtsn32.log) if a user mode application, such as the Insight Agents, is having a problem
- IRQ and I/O address information in text format
- An updated Emergency Repair Diskette
- If HP drivers are installed:
  - Version of the PSP used
  - List of drivers from the PSP
- The drive subsystem and file system information:
  - Number and size of partitions and logical drives
  - File system on each logical drive
- Current level of Microsoft® Windows® Service Packs and Hotfixes installed
- A list of each third-party hardware component installed, with the firmware revision
- A list of each third-party software component installed, with the version
- A detailed description of the problem and any associated error messages

Some of the previously listed logs might be available in the HPSreports (<http://update.external.hp.com/HPS/HPSreports>) that HP supports used to collect Windows® operating system logs.

## Linux operating systems

Collect the following information:

- Operating system distribution and version  
Look for a file named `/etc/distribution-release` (for example, `/etc/redhat-release`)
- Kernel version in use
- Output from the following commands (performed by root):
  - `lspci -v`
  - `uname -a`
  - `cat /proc/meminfo`
  - `cat /proc/cpuinfo`
  - `rpm -ga`
  - `dmesg`
  - `lsmod`
  - `ps -ef`
  - `ifconfig -a`
  - `chkconfig -list`
  - `mount`
- Contents of the following files:
  - `/var/log/messages`

- /etc/modules.conf or etc/conf.modules
- /etc/lilo.conf or /etc/grub.conf
- /etc/fstab
- If HP drivers are installed:
  - Version of the PSP used
  - List of drivers from the PSP (/var/log/hppldu.log)
- A list of each third-party hardware component installed, with the firmware revisions
- A list of each third-party software component installed, with the versions
- A detailed description of the problem and any associated error messages

Some of the previously listed tooling might be available in the tool called CFG2HTML as used by HP Support (<ftp://iss:tools4Al@ftp.usa.hp.com>).

## Novell NetWare operating systems

Collect the following information:

- Whether the operating system was factory installed
- Operating system version number
- Printouts or electronic copies (to e-mail to a support technician) of AUTOEXEC.NCF, STARTUP.NCF, and the system directory
- A list of the modules. Use CONLOG.NLM to identify the modules and to check whether errors occur when the modules attempt to load.
- A list of any SET parameters that are different from the NetWare default settings
- A list of the drivers and NLM files used on the server, including the names, versions, dates, and sizes (can be taken directly from the CONFIG.TXT or SURVEY.TXT files)
- If HP drivers are installed:
  - Version of the PSP used
  - List of drivers from the PSP
- Printouts or electronic copies (to e-mail to a support technician) of:
  - SYS:SYSTEM\SYS\$LOG.ERR
  - SYS:SYSTEM\ABEND.LOG
  - SYS:ETC\CPQLOG.LOG
  - SYS:SYSTEM\CONFIG.TXT
  - SYS:SYSTEM\SURVEY.TXT
- Current patch level
- A list of each third-party hardware component installed, with the firmware revisions
- A list of each third-party software component installed, with the versions
- A detailed description of the problem and any associated error messages

# Sun Solaris operating systems

Collect the following information:

- Operating system version number
- Type of installation selected: Interactive, WebStart, or Customer JumpStart
- Which software group selected for installation: End User Support, Entire Distribution, Developer System Support, or Core System Support
- If HP drivers are installed with a DU:
  - DU number
  - List of drivers in the DU diskette
- The drive subsystem and file system information:
  - Number and size of partitions and logical drives
  - File system on each logical drive
- A list of all third-party hardware and software installed, with versions
- A detailed description of the problem and any associated error messages
- Printouts or electronic copies (to e-mail to a support technician) of:
  - `/usr/sbin/crash` (accesses the crash dump image at `/var/crash/$hostname`)
  - `/var/adm/messages`
  - `/etc/vfstab`
  - `/usr/sbin/prtconf`

---

# Acronyms and abbreviations

## ADU

Array Diagnostics Utility

## CLI

Command Line Interface

## DHCP

Dynamic Host Configuration Protocol

## DNS

domain name system

## DU

driver update

## EBIPA

Enclosure Bay IP Addressing

## FRU

field replaceable unit

## HP SIM

HP Systems Insight Manager

## I/O

input/output

## iLO

Integrated Lights-Out

## iLO 2

Integrated Lights-Out 2

## IML

Integrated Management Log

## IP

Internet Protocol

## IRQ

interrupt request

## LDAP

Lightweight Directory Access Protocol

## MAC

Media Access Control

## NIC

network interface card

## NVRAM

non-volatile memory

## OA

Onboard Administrator

## PDU

power distribution unit

## PID

product ID

## POST

Power-On Self Test

## PSP

ProLiant Support Pack

## SNMP

Simple Network Management Protocol

## SSH

Secure Shell

## UID

unit identification

USB

universal serial bus

VCSU

Virtual Connect Support Utility

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