Hewlett Packard Enterprise HPE Support Center

HPE ProLiant Gen10 Servers - Troubleshooting Server Preparation

Prerequisites for server troubleshooting

WARNING: To avoid potential issues, ALWAYS read the warnings and cautionary information in the product documentation before removing, replacing, reseating, or modifying system components.

NOTE: This guide provides information for multiple servers. Some information might not apply to the server user are troubleshooting. See the server documentation for information on procedures, hardware options, software tools, and operating systems supported by the server.

Procedure

1. Review the important safety information.
2. Gather and record symptom information.
3. Gather all error information, such as the full POST error message displayed and the IML.
4. If it is necessary to contact Hewlett Packard Enterprise, download the Active Health System log and submit a support case through Active Health System Viewer (AHSV). Click here for more information on AHSV .
5. Prepare the server for diagnosis.
6. Begin the diagnostic process.

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Important safety information

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

Warnings and cautions

WARNING:

- **Only authorized technicians trained by Hewlett Packard Enterprise should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/modulelevel 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.**
- **To reduce the risk of personal injury or damage to the equipment, consult the safety information and user documentation provided with the server before attempting the installation. Some servers contain high energy circuits, high current circuits, moving parts (such as fan blades), or any combination of these hazards, that may be exposed if covers and access panels are removed while the product is connected to a power source. These products are intended to be serviced only by qualified personnel who have been trained to deal with these hazards. Do not remove enclosures or attempt to bypass any interlocks designed to guard against these hazardous conditions.**
- **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.**

- **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.**
- **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, user must provide at least 7.6 cm (3.0 in) of clearance at the front and back of the server.**
- **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

Be aware of the precautions user must follow when setting up the system or handling components. A discharge of static electricity from a finger or other conductor may damage system boards or other staticsensitive devices. This type of damage may reduce the life expectancy of the system or component.

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. 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 ±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 user 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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Collecting symptom information

Before troubleshooting a server issue, collect the following symptom information:

- Does the server power on?
- Does the server complete POST?
  - If not, then what do the server LEDs indicate? Which LEDs are illuminated? Which LEDs are illuminated but not flashing? Which LEDs are flashing and at what rate are they flashing? What color is the LED? Are LEDs flashing in unison?
  - Is video display available?
  - If server completes POST and video is available, are there any POST error messages? Record the text of the POST error message as displayed.
- Does the server successfully boot an operating system or hypervisor? If not, does the server display any of the following symptoms and at what point did the following symptom occur?
  - An uncorrectable machine check exception.

- Stop error or blue screen (Windows)
- Purple diagnostic screen (Linux)
- Linux kernel panic
- A system hang
- A system freeze

- If the issue occurs after an OS is installed:
  - Does the issue occur when a new application is loading?
  - What symptoms did the server display when the server malfunctioned? (For example, did the server reboot? Were there LED codes, health logs, or messages on the screen?)
- Are any indications present that show that the malfunction was reported as a memory error, PCI error, or so forth? The processor now contains the memory controller and PCI Express controller, so faults in other areas might be attributed to a processor malfunction.
- When did the issue occur? Record exactly when the issue happens (include the date and time). If it happens more than once, keep a list of all symptoms for each occurrence.
- What events preceded the failure? After which steps does the issue occur?
- What has been changed since the time the server was working?
- Has hardware or software been recently added or removed? If so, were the appropriate settings in the server setup utility changed, if necessary?
- How long has the server exhibited issue symptoms?
- If the issue occurs randomly, what is the duration or frequency?
- What failed based on the iLO Event Log or the IML?

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Preparing the server for diagnosis

Procedure

1. Be sure the server is in the proper operating environment with adequate power, air conditioning, and humidity control.
2. Record any error messages displayed by the system.
3. Remove all CD-ROMs, DVD-ROMs, USB drive keys, or SD cards that are not bootable devices.
4. Collect all tools and utilities necessary to troubleshoot the issue, such as a Torx screwdriver, loopback adapters, ESD wrist strap, and software utilities.
   - Must have the appropriate support software installed on the server. To verify the server configuration, connect to the System Management Homepage and select Version Control Agent. The VCA provides a list of names and versions of all installed Hewlett Packard Enterprise drivers, Management Agents, and utilities, and whether they are current.
   - Hewlett Packard Enterprise recommends user have access to the Server documentation.
5. Determine if the server will be diagnosed offline or online:
   - If user will diagnose the server online, complete steps 6 and 8.
   - If user will diagnose the server offline, complete steps 7 and 8.
6. To diagnose the server online, review and collect the following information:
   a. Obtain a record of all current ROM settings by running CONREP from Scripting Toolkit for Windows and Linux.
   b. Review the IML.
   c. Review the iLO information on both the Overview and the System Information page.
   d. Review the Diagnostics page.
   e. If the OS is operating and the System Management Homepage is installed, then review the operational status from the System Management Homepage.
   f. Click here to view the Active Health System Viewer documentation .
   g. Record survey data.
7. To diagnose the server offline, power down the server and peripheral devices. If possible, always perform an orderly shutdown:
   a. Exit any applications.
   b. Exit the operating system.
   c. Power down the server.
8. Disconnect any peripheral devices not required for testing (any devices not necessary to power up the server).

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Processor troubleshooting guidelines

CAUTION: When reducing the server to a minimum configuration for troubleshooting, do not remove additional processors. Processor and heatsinks are not designated for customer self repair. The processor and heatsink must be removed and replaced by an authorized service provider.

Before performing any troubleshooting steps that involve processors, review the following guidelines:

- Be sure that only authorized personnel perform the troubleshooting steps that involve installation, removal, or replacement of a processor.
- Always complete all other troubleshooting procedures before an authorized service provider removes or replaces a processor.

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Breaking down the server to the minimum hardware configuration

CAUTION: When reducing the server to a minimum configuration for troubleshooting, do not remove additional processors. Processor and heatsinks are not designated for customer self repair. The processor and heatsink must be removed and replaced by an authorized service provider.

During the troubleshooting process, user may be asked to break the server down to the minimum hardware configuration. A minimum configuration consists of only the components needed to boot the server and successfully pass POST. When requested to break the server down to the minimum configuration, uninstall the following components, if installed:

1. When requested to break down the server to the minimum configuration, uninstall the following components, if installed:
    - All additional cooling fans, if applicable.
    - All additional power supplies, if applicable (leave one installed).
    - All hard drives and solid state drives.
    - All optical drives (DVD-ROM, CD-ROM, and so forth).
    - All optional mezzanine cards.
    - All expansion boards.
2. If the issue cannot be isolated with the minimum configuration, then remove all but the minimum number of associated DIMMs for each processor.

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