

Oracle® Server X6-2 Product Notes

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Oracle Server X6-2 Product Notes

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Using This Documentation

- **Overview** – The *Oracle Server X6-2 Product Notes* includes information about supported hardware, software, and firmware, and important operating guidelines for the Oracle Server X6-2. This document also lists known issues for the server.
- **Audience** – These product notes are intended for system administrators, network administrators, and service technicians.
- **Required knowledge** – Users should have an advanced understanding of server systems.

Product Documentation Library

Documentation and resources for this product and related products are available at <https://www.oracle.com/goto/x6-2/docs>.

Feedback

Provide feedback about this documentation at <https://www.oracle.com/goto/docfeedback>.

Oracle Server X6-2 Product Notes

For the most updated information about supported firmware and operating systems, important operating notes, and known issues, refer to the latest product notes, which are available at <https://www.oracle.com/goto/x6-2/docs>.

These product notes include the following information.

- “Oracle Server X6-2 Documentation” on page 11
- “Supported Hardware” on page 11
- “Server Update Information” on page 12
- “Supported Firmware” on page 12
- “Supported Operating Systems” on page 13
- “Server Management Tools” on page 14
- “Important Operating Notes” on page 15
- “Supported PCIe Cards” on page 33
- “Known Issues” on page 35
- “Getting Firmware and Software Updates” on page 43

Oracle Server X6-2 Documentation

To access the documentation for the Oracle Server X6-2, go to: <https://www.oracle.com/goto/x6-2/docs>.

Supported Hardware

You can find detailed information about supported hardware in these Oracle Server X6-2 documents.

- “Server Features and Components” in *Oracle Server X6-2 Installation Guide*
- “About the Oracle Server X6-2” in *Oracle Server X6-2 Service Manual*

Within those documents, you can find information about supported hardware for these and other components:

- Processors
- Memory
- Storage drives
- Host bus adapters

Related Information

- [“Supported PCIe Cards” on page 33](#)

Server Update Information

Server software updates are available to maintain support, add enhancements, or correct issues. Updates can include new versions of firmware (for BIOS and Oracle ILOM service processor), new releases of tools and drivers software, and updates to other packaged components. When an update is released, the changes are described in the ReadMe file for the update, which is available at the following resources:

- On My Oracle Support, at <https://support.oracle.com>
- With any server software package download available from My Oracle Support

For instructions to download software updates from My Oracle Support, see [“Getting Firmware and Software Updates” on page 43](#).

Supported Firmware

Some product features are enabled only when the latest versions of patches or firmware are installed. You must install the latest system software release for optimal performance, security, and stability. See [“Important – Install Latest OS Updates, Patches, and Firmware” on page 17](#).

You can find detailed information about supported firmware releases here:

- [Latest Firmware Releases for Oracle x86 Servers](#)
- [Firmware Downloads and Release History for Oracle Systems](#)

Information about the latest firmware and Software Release, including tools, drivers, component firmware versions, and bug fixes is available in the ReadMe file for each Software

Release. To learn how to access the ReadMe file, see “[Getting Firmware and Software Updates](#)” on page 43.

Supported Operating Systems

The minimum supported Oracle Solaris version is Oracle Solaris 11.3 SRU 5.

The following table shows other minimum supported operating systems, and provides links to Hardware Compatibility Lists (HCLs) or third-party operating system certification information.

The following Hardware Compatibility Lists (HCLs) identify the latest operating system versions supported on Oracle hardware. To find the latest operating system version supported for the Oracle Server X6-2, go to the following sites and search using your server model number:

- Oracle Linux – <https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967>
- Oracle VM – <https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967>
- Microsoft Windows – <https://www.windowsservercatalog.com/>
- VMware ESXi – <https://www.vmware.com/resources/compatibility/search.php>
- Red Hat Enterprise Linux – <https://access.redhat.com/certifications>

The following table lists the supported operating systems and virtual machine software. Supported operating systems and software are cumulative with each release; that is, later software releases contain all components of earlier software releases.

Platform Software Release	Minimum Supported Operating Systems
3.1.0 or later	<ul style="list-style-type: none"> ■ Oracle Linux 8 Update 1 with the Unbreakable Enterprise Kernel Release 6 ■ Oracle Linux 7 Update 8 with the Unbreakable Enterprise Kernel Release 5 Update 3
2.3.0	<ul style="list-style-type: none"> ■ Oracle Linux 7 Update 6 with the Unbreakable Enterprise Kernel Release 5, or Red Hat Compatible Kernel ■ Oracle Solaris 11.4 ■ Oracle VM 3.4.6 with the Unbreakable Enterprise Kernel Release 4
2.2.0	<ul style="list-style-type: none"> ■ Oracle Linux 7 Update 5 with the Unbreakable Enterprise Kernel Release 4 or Release 5, or Red Hat Compatible Kernel ■ Oracle Linux 6 Update 10 with the Unbreakable Enterprise Kernel Release 4 or Red Hat Compatible Kernel ■ Oracle VM 3.4.5 with the Unbreakable Enterprise Kernel Release 4
2.1.2	Oracle Linux 7 Update 4 with the Unbreakable Enterprise Kernel Release 4 or Red Hat Compatible Kernel
2.1.1	No changes to supported operating systems or virtual machine software.

Platform Software Release	Minimum Supported Operating Systems
2.1.0	No changes to supported operating systems or virtual machine software.
2.0	No changes to supported operating systems or virtual machine software.
1.6	<ul style="list-style-type: none"> ■ Oracle Linux 7 Update 4 ■ Oracle VM Server 3.4.4 with the Unbreakable Enterprise Kernel Release 4 ■ VMware ESXi 6.5 Update 1
1.5	<ul style="list-style-type: none"> ■ Oracle Linux 6 Update 9 ■ Oracle VM Server 3.4.3 ■ VMware ESXi 6.0 Update 3 and 5.5 Update 3b
1.4	Windows Server 2016
1.3	<ul style="list-style-type: none"> ■ Oracle Linux 7 Update 3 ■ Oracle VM 3.4.2 with the Unbreakable Enterprise Kernel Release 4
1.2	<ul style="list-style-type: none"> ■ Oracle Linux 6.8 for x86 (64-bit) with the Unbreakable Enterprise Kernel Release 4 for Linux or the Red Hat Compatible Kernel ■ Red Hat Enterprise Linux 6.8 for x86 (64-bit)
1.1	<ul style="list-style-type: none"> ■ VMware ESXi 6.0 Update 2 ■ Oracle Solaris 11.3 SRU 8
1.0.1	No changes to supported operating systems or virtual machine software.
1.0.0	<ul style="list-style-type: none"> ■ Oracle Solaris 11.3 SRU5 ■ Oracle Linux 6 Update 7 for x86 (64-bit) with the Unbreakable Enterprise Kernel Release 4 or the Red Hat Compatible Kernel ■ Oracle Linux 7 Update 2 for x86 (64-bit) with the Unbreakable Enterprise Kernel Release 4 or the Red Hat Compatible Kernel ■ Oracle VM 3.4.1 ■ Red Hat Enterprise Linux 6 Update 7 for x86 (64-bit) ■ Red Hat Enterprise Linux 7 Update 2 for x86 (64-bit) ■ VMware ESXi 6.0 Update 1 ■ Windows Server 2012 R2

Related Information

- [“Update Your System to the Latest Software Release” on page 16](#)

Server Management Tools

The following single system management tools are available for your server:

- **Oracle Integrated Lights Out Management (ILOM).** For information, refer to the product information page at: <https://www.oracle.com/servers/technologies/>

[integrated-lights-out-manager.html](#). For documentation, refer to the Oracle Integrated Lights Out Manager (ILOM) 5.0 Documentation Library at: <https://www.oracle.com/goto/ilom/docs>

You can find descriptions of new Oracle ILOM 5.0 features in the *Oracle ILOM Feature Updates and Release Notes*.

- **Oracle Hardware Management Pack**, available with the Oracle Solaris OS or as a standalone product with other OS. For information, refer to the product information page at: <https://www.oracle.com/servers/technologies/hardware-management-pack.html>. For documentation and OS support matrix, refer to the Oracle Hardware Management Pack 2.4 Documentation Library at: <https://www.oracle.com/goto/ohmp/docs>

Oracle Hardware Management Pack for Oracle Solaris 11.4 Documentation Library at https://docs.oracle.com/cd/E79568_01/index.html

In addition, the following software is available to manage multiple systems in a data center:

Oracle Enterprise Manager Ops Center, available software to manage multiple systems in a data center. For information, refer to the product information page at: <https://www.oracle.com/enterprise-manager/technologies/>. For documentation, refer to the Oracle Enterprise Manager Cloud Control Documentation Library at: <https://docs.oracle.com/en/enterprise-manager/related-products.html>

Important Operating Notes

This section includes important operating information and requirements for the Oracle Server X6-2.

- “Software and Critical Patch Updates” on page 15
- “Oracle ILOM Important Operating Notes” on page 18
- “Operating Systems Important Operating Notes” on page 22
- “Power Management Important Operating Note” on page 23
- “Hardware Important Operating Notes” on page 24

Related Information

- “Known Issues” on page 35

Software and Critical Patch Updates

- “Update Your System to the Latest Software Release” on page 16

- [“Server Security, Software Releases, and Critical Patch Updates” on page 16](#)

Update Your System to the Latest Software Release

It is highly recommended that you update your system to the latest software release before you use the system. Software releases often include bug fixes, and updating ensures that your server software is compatible with the latest server firmware and other component firmware and software.

You can download the latest software release, which includes firmware and software updates, from My Oracle Support at <https://support.oracle.com>. For information about downloading firmware and software from My Oracle Support, refer to [“Getting Firmware and Software Updates” on page 43](#).

Server Security, Software Releases, and Critical Patch Updates

To ensure continued security of your system, Oracle strongly recommends that you apply the latest Software Releases. Server Software Releases include Oracle ILOM, BIOS, and other firmware updates, often referred to as “patches.” Oracle publishes these patches regularly on the My Oracle Support site. Applying these patches will help ensure optimal system performance, security, and stability. You can identify the latest Software Release for your system at <https://www.oracle.com/servers/technologies/firmware/release-history-jsp.html>.

To download a Software Release, go to My Oracle Support at <https://support.oracle.com>.

Oracle notifies customers about security vulnerability fixes for all its products four times a year through the Critical Patch Update (CPU) program. Customers should review the CPU advisories to ensure that the latest software release updates are applied to their Oracle products. Note that updates for Engineered Systems will be specifically published for a specific Engineered Systems product (that is, you need not look at specific updates for individual software components included in your Engineered System). For more information about the Oracle CPU program, go to <https://www.oracle.com/security-alerts/>.

Oracle also recommends that you update to the latest operating system release when it becomes available. Although a minimum operating system release is supported, updating to the latest OS release will ensure that you have the most up-to-date software and security patches. To confirm that you have the latest OS release, refer to the Oracle Hardware Compatibility Lists. See [“Supported Operating Systems” on page 13](#).

For details about the latest system software update, see [“Getting Firmware and Software Updates” on page 43](#).

▼ Important – Install Latest OS Updates, Patches, and Firmware

Some product features are enabled only when the latest versions of operating system, patches, and firmware are installed. To retain optimal system performance, security, and stability, you must install the latest available operating systems, patches, and firmware.

To verify that the Oracle ILOM firmware version is a minimum 5.0.0.0 or higher:

1. **Use Oracle ILOM to verify the Oracle ILOM firmware version.**
 - **From the web interface, click System Information → Summary, then view the property information for the System Firmware Version in the General Information table.**
 - **From the command-line interface, at the command prompt (->), type:**
`show /System/Firmware`

For more details, refer to information about viewing system information and inventory in your server administration guide, which is available at <https://www.oracle.com/goto/x86admindiag/docs>.
2. **Ensure that the firmware version is at the minimum required version, noted above, or a subsequent release, if available.**
3. **If the required firmware version (or newer) is not installed:**
 - a. **Download the latest software release from My Oracle Support at <https://support.oracle.com>.**

For more information, see “Getting Firmware and Software Updates” on page 43.
 - b. **Install the downloaded firmware.**

Refer to the information about performing firmware updates in the *Oracle ILOM Administrators Guide for Configuration and Maintenance*, which is available at <https://www.oracle.com/goto/ilom/docs>. Ensure that you perform the preparatory steps described in that document before updating the firmware.

Note - Occasionally after installing the firmware, the Oracle ILOM web interface cannot display the power state correctly on the power control page. To correct this problem, clear your browser cache before logging in to the Oracle ILOM web interface.

Oracle ILOM Important Operating Notes

- “Changes to TLSv1.1 Configuration Property as of ILOM 4.0.3.x” on page 18
- “Changes to Top-Level /Storage/raid Oracle ILOM CLI Namespace” on page 18
- “Deprecation Notice for Oracle ILOM IPMI 2.0 Management Service” on page 19
- “Deprecation Notice for Default Self-Signed Certificate” on page 19
- “Enhanced IP Connectivity Settings Available in Oracle ILOM” on page 20
- “Ensuring Successful File Transfers from Oracle ILOM” on page 22

Changes to TLSv1.1 Configuration Property as of ILOM 4.0.3.x

Important Operating Note

Present Behavior: The Oracle ILOM TLSv1.1 configuration property is Enabled by default.

Future Behavior: The following changes will occur to the TLSv1.1 configuration property sometime after the Oracle ILOM 4.0.3 firmware release:

- First Change: The TLSv1.1 configuration property will default to Disabled in the next minor release of Oracle ILOM.
- Second Change: The TLSv1.1 configuration property will no longer be supported and will be removed from all Oracle ILOM user interfaces in the next major release of Oracle ILOM.

For future updates regarding TLSv1.1 support in Oracle ILOM, refer to latest release information in the *Oracle ILOM Feature Updates and Release Notes for Firmware 4.0.x* at https://docs.oracle.com/cd/E81115_01/index.html.

Changes to Top-Level /Storage/raid Oracle ILOM CLI Namespace

Important Operating Note

Present Behavior: Similar storage information appears in both the /STORAGE/raid and /System/Storage namespaces.

Future Behavior: In the next major release of Oracle ILOM, the top level /STORAGE namespace in the Oracle ILOM CLI tree will be removed, and all storage information will appear under the /System/Storage namespace.

Enhancement Request: 27810408

Deprecation Notice for Oracle ILOM IPMI 2.0 Management Service

Important Operating Note

Present Behavior: IPMI 2.0 Management Sessions - **Enabled** (default setting).

Future Behavior: The following IPMI Management Service changes will occur in a future Oracle ILOM firmware release after firmware version 4.0.2.

- **First IPMI Service Support Change** – The default configuration property for IPMI 2.0 Sessions will change from Enabled to Disabled. Clients relying on Oracle ILOM IPMI 2.0 session support by default will no longer be able to communicate with Oracle ILOM. To enable IPMI communication with Oracle ILOM, perform one of the following:
 - Use the Oracle IPMI TLS service and interface. For more information, refer to “IPMI TLS Service and Interface” in the *Oracle ILOM Protocol Management Reference SNMP and IPMI Firmware Release 4.0.x*.
 - or
 - Manually enable the configuration property for IPMI 2.0 Session. For details, refer to “IPMI Service Configuration Properties” in the *Oracle ILOM Administrator’s Guide for Configuration and Maintenance Firmware Release 4.0.x*.
- **Second IPMI Service Support Change** – Removal of IPMI 2.0 client support. IPMI 2.0 clients no longer will be able to communicate with Oracle ILOM. Clients relying on IPMI communication will need to use the IPMI TLS service and interface. For more information, refer to “IPMI TLS Service and Interface” in the *Oracle ILOM Protocol Management Reference SNMP and IPMI Firmware Release 4.0.x*.

For future updates about IPMI Management Service support in Oracle ILOM, refer to the latest firmware release information published in the *Oracle ILOM Feature Updates and Release Notes Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

Deprecation Notice for Default Self-Signed Certificate

Present Behavior: An earlier version of the default SSL self-signed certificate is provided by Oracle ILOM.

Future Behavior: A newer version of the default SSL self-signed certificate will be provided in a future Oracle ILOM firmware release.

Impact to Customer Configuration:

After updating to a future firmware release, users connecting to Oracle ILOM through the web interface will need to accept a newer version of the default SSL self-signed certificate that is

provided by Oracle ILOM. Customer provided SSL certificates will not be impacted by this change.

For information about the SSL self-signed certificate that is provided by Oracle ILOM, refer to the latest firmware release information in the *Oracle ILOM Feature Updates and Release Notes for Firmware 3.2.x* or the *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.0.x*. To access these documents, go to <https://www.oracle.com/goto/ilom/docs>.

▼ Enhanced IP Connectivity Settings Available in Oracle ILOM

Oracle ILOM supports the ability to independently enable or disable the property States for IPv4 and IPv6 network connectivity. In addition, a new static IPv6 gateway property is available for configuration.

To access these enhanced network settings in Oracle ILOM, follow these steps:

- 1. Log in to Oracle ILOM as an Administrator.**

For instructions on how to launch Oracle ILOM from the web interface or command-line interface (CLI), refer to the *Oracle Server X6-2 Installation Guide*.

- 2. To modify the SP network settings, perform one of the following:**

- **From the web interface:**

- a. Click ILOM Administration → Connectivity → Network.**

- b. Modify the settings on the Network Settings page as required.**

For further details about how to configure the properties on the Network Setting page, click the *More Details* link.

- c. Save the network property changes by clicking Save.**

Note - All user sessions on the SP are terminated upon saving the IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

- **From the CLI:**

- a. To view the assigned IPv4 and IPv6 network settings on the SP, enter the following:**

For IPv4, type: `show /SP/network`

For IPv6, type: `show /SP/network/ipv6`

- b. To view the descriptions of each IPv4 and IPv6 network property, enter the following:**

For IPv4, type: `help /SP/network`

For IPv6, type: `help /SP/network/ipv6`

- c. To modify the IPv4 and IPv6 network properties on the SP, issue the `set` command.**

IPv4 Example:

```
set /SP/network state=enabled|disabled
```

```
pendingipdiscovery=static|dhcp
```

```
pendingipaddress=value
```

```
pendingipgateway=value
```

```
pendingipnetmask=value
```

IPv6 Example:

```
set /SP/network/ipv6 state=enabled|disabled
```

```
pending_static_ipaddress=value/subnet_mask_value
```

```
pending_static_ipgatewayaddress=value
```

Note - A dual-stack network connection is enabled when both the IPv4 and IPv6 State properties are set to enabled. By default, Oracle ILOM arrives configured with network settings enabled for a dual stack (IPv4 and IPv6) network connection. If the IPv4 State property is enabled (`SP/network state=enabled`), and the IPv6 State property is disabled (`SP/network state=disabled`), Oracle ILOM supports an IPv4-only network connection.

- d. To commit the IPv4 and IPv6 pending network changes in Oracle ILOM, issue the following commands:**

For IPv4, type: `set /SP/network commitpending=true`

For IPv6, type: `set /SP/network/ipv6 commitpending=true`

Note - All user sessions on the SP are terminated upon committing the IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

Ensuring Successful File Transfers from Oracle ILOM

Do not use the # ; and ? special characters in the password of a target host. If the target host password includes these special characters, file transfers fail from Oracle ILOM to the target host when using Uniform Resource Identifier (URI) to perform the file transfer. Examples of these file transfers include using host storage redirection, and backing up and restoring BIOS and SP configurations. To ensure successful file transfers between Oracle ILOM and a target host, remove these special characters from the target host password.

Operating Systems Important Operating Notes

- “Downloading an OS or Software Applications” on page 22
- “Segfaults Might Occur on Servers Running 64-bit Linux Operating Systems” on page 22
- “SSL Must be Turned On When Booting a Redirected ISO Image” on page 23
- “Supported Operating System Limitations” on page 23

Downloading an OS or Software Applications

You can download an operating system (OS) or software applications for all licensed Oracle products from Oracle Software Delivery Cloud (formerly called Oracle eDelivery). Software is available in zip and ISO formats, which you can unzip or burn to DVDs, respectively. All of the download links on the Oracle Technology Network (OTN) point to the Software Delivery Cloud, making this site the authoritative source for all Oracle OS and application downloads. To access Oracle Software Delivery Cloud, go to <https://edelivery.oracle.com/osdc/faces/SoftwareDelivery>.

Segfaults Might Occur on Servers Running 64-bit Linux Operating Systems

Servers running 64-bit Linux operating systems with Advanced Vector Extensions (AVX) processor support might experience segmentation faults (segfaults) when loading applications such as the Oracle Database or other Oracle Middleware products.

To avoid these unpredictable segfaults, you should ensure that the `glibc` package on your system is version `glibc-2.12-1.47.0.2.el6_2.12.x86_64`, or later.

You can obtain an updated `glibc` package from the Oracle Public Yum repository.

SSL Must be Turned On When Booting a Redirected ISO Image

When booting a redirected installation ISO image, SSL (Secure Sockets Layer) must be turned on. This is the default setting. If SSL is not turned on, the installation might stall or fail. This affects all supported operating systems.

Supported Operating System Limitations

This section provides information about limitations and recommendations for supported operating systems when the Oracle Server X6-2 is configured with 8-terabyte (8-TB) 7200-RPM 3.5-inch SAS hard disk drives (HDDs).

TABLE 1 Limitations and Recommendations for 8-TB Drive Boot Support

Operating System (Minimum)	Legacy Boot	UEFI Boot
Oracle Solaris 11.3 SRU5	Boot partition in the front 2TB space	Full capacity
Oracle Linux 6 Update 7 and 8, Oracle Linux 7 Update 2 and 3	Boot partition in the front 2TB space	Full capacity
Red Hat Enterprise Linux 6 Update 7 and 8, and Oracle Linux 7 Update 2	Boot partition in the front 2TB space	Full capacity
Windows Server 2012 R2	Boot partition in the front 2TB space	Full capacity
Oracle VM 3.4.1 and 3.4.2	Boot partition in the front 2TB space	Full capacity
VMware ESXi 6.0 Update 1 and 2	Boot partition in the front 2TB space	Full capacity

Power Management Important Operating Note

- [“Reset Takes a Long Time and Causes the Server to Power Cycle” on page 23](#)

Reset Takes a Long Time and Causes the Server to Power Cycle

If you have a pending BIOS upgrade, a routine reset takes longer than expected, and causes the server to power cycle and reboot several times. This is expected behavior, as it is necessary to power cycle the server to upgrade the BIOS firmware. If the upgrade includes an FPGA update, it can take more than 30 minutes to complete.

A pending BIOS upgrade exists when both conditions are true:

- You update the BIOS and service processor firmware using Oracle Integrated Lights Out Manager (ILOM).
- You select the Oracle ILOM option to Delay BIOS Upgrade.
- The host is powered on.

If you then reboot the server expecting a routine server reset and instead initiate a (delayed) BIOS upgrade, wait until the upgrade is finished. Do not interrupt the process, as this can result in corrupted firmware and server down time.



Caution - Data corruption and system downtime. Interrupting the firmware upgrade process can corrupt the firmware and render the server inoperable. Do not interrupt the upgrade. Allow the process to finish.

Note - Oracle ILOM and BIOS updates are designed to work together. When you have a pending BIOS upgrade, it is recommended that you install the upgrade by resetting or power cycling your server as soon as possible.

For details, refer to “Update the BIOS and Service Processor Firmware (Oracle ILOM)” in the *Oracle X6 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86admindiag/docs>.

Hardware Important Operating Notes

- “Diagnosing SAS Data Path Failures on Servers Using MegaRAID Disk Controllers” on page 25
- “Failure of a Single Server Fan Module Might Impact Performance” on page 26
- “Remove and Replace a Fan Module Within 20 Seconds” on page 26
- “Single-Processor to Dual-Processor Upgrade Is Not Supported” on page 27
- “Lockstep Memory (Channel) Mode Is Not Supported” on page 27
- “Configuring Jumbo Frames on the Onboard Network Interface Controller” on page 27
- “MAC Address Mapping to Ethernet Ports” on page 27
- “Update HBA Firmware to Support UEFI BIOS” on page 28
- “JBOD Mode Properties in HBA Option ROMs Are Not Supported” on page 28
- “Processor Replacement Tool Must Be Used to Replace a Processor” on page 29
- “Bracket Required When Shipping a Rackmounted Server” on page 29

Diagnosing SAS Data Path Failures on Servers Using MegaRAID Disk Controllers

Important Operating Note

On Oracle x86 servers using MegaRAID disk controllers, Serial Attached SCSI (SAS) data path errors can occur. To triage and isolate a data path problem on the SAS disk controller, disk backplane (DBP), SAS cable, SAS expander, or hard disk drive (HDD), gather and review the events in the disk controller event log. Classify and analyze all failure events reported by the disk controller based on the server SAS topology.

To classify a MegaRAID disk controller event:

- Gather and parse the MegaRAID disk controller event logs either by running the automated `sundiag` utility or manually using the `or` or `StorCLI` command.
 - For Oracle Exadata Database Machine database or storage cell servers, run the `sundiag` utility.
 - For Oracle Server X6-2, use the `StorCLI` command.

For example, manually gather and parse the controller event log by using the `StorCLI` command. At the root prompt, type:

```
root# ./storcli64/c0 show events file=event.log
Controller=0
Status=Success
```

Note - Use the existing name of the event log as the name for the disk controller event log. This produces a MegaRAID controller event log with the given file name `event.log`.

To show drive and slot errors separately, at the root prompt, type:

```
root# /opt/MegaRAID/storcli/storcli64 /c0 /eall /sall show errorcounters
Controller=0
Status=Success
Description=Show Drive/Cable Error Counters Succeeded.
```

Error Counters:

Drive	Error Counter for Drive Error	Error Counter for Slot
/c0/e8/s0	0	0
/c0/e8/s1	0	0
/c0/e8/s2	0	0
/c0/e8/s3	0	0

Drive	Error Counter for Drive Error	Error Counter for Slot
/c0/e8/s4	0	0
/c0/e8/s5	0	0
/c0/e8/s12	0	0
/c0/e8/s13	0	0

These error counters reflect drive or slot errors separately.

The following SCSI sense key errors found in the event log in SAS data path failures indicate a SAS data path fault:

```
B/4B/05 :SERIOUS: DATA OFFSET ERROR
B/4B/03 :SERIOUS: ACK/NAK TIMEOUT
B/47/01 :SERIOUS: DATA PHASE CRC ERROR DETECTED
B/4B/00 :SERIOUS: DATA PHASE ERROR
```

A communication fault between the disk and the host bus adapter causes these errors. The presence of these errors, even on a single disk, means there is a data path issue. The RAID controller, SAS cables, SAS expander, or disk backplane might be causing the interruption to the communication in the path between the RAID controller and the disks.

Oracle Service personnel can find more information about the diagnosis and triage of hard disk and SAS data path failures on x86 servers at the My Oracle Support web site: <https://support.oracle.com>. Refer to the Knowledge Article Doc ID 2161195.1. If there are multiple, simultaneous disk problems on an Exadata server, Oracle Service personnel can refer to Knowledge Article Doc ID 1370640.1.

Failure of a Single Server Fan Module Might Impact Performance

If a single server fan module fails and the server's operating temperature rises above 30 degrees C (86 degrees F), the performance of the server's processors might be reduced.

Remove and Replace a Fan Module Within 20 Seconds

When removing and replacing a server fan module, you must complete the entire removal and replacement procedure within 20 seconds in order to maintain adequate cooling within the system. In anticipation of this time limit, prior to starting the replacement procedure, obtain the replacement fan module and verify that the new fan module is ready for installation. Remove and replace only one fan module at a time.

Fan modules are hot-swappable components, with N+1 fan redundancy. Each fan module contains two complete counter-rotating fans with two fan motors per fan. The four fan motors provide separate tachometer signals so that the fan module reports four tach signals to Oracle ILOM. Even if only one fan is faulted within the fan module, the Oracle ILOM service processor detects that four fans have failed to spin while the fan module is being removed for replacement. If replacing the fan module is not replaced within 20 seconds of removal, Oracle ILOM will take protective action to shut down the system to prevent thermal damage to the system. This is expected behavior.

Single-Processor to Dual-Processor Upgrade Is Not Supported

Oracle does not support a single-processor to dual-processor upgrade on the Oracle Server X6-2. Oracle does not provide a single-processor to dual-processor upgrade kit for the server.

Lockstep Memory (Channel) Mode Is Not Supported

Your Oracle Server X6-2 does not support lockstep memory mode, which is also known as double device data correction, or Extended ECC.

Configuring Jumbo Frames on the Onboard Network Interface Controller

Your Oracle Server X6-2 includes an internal Intel X540 Ethernet controller, similar to the Sun Dual Port 10GBase-T Adapter. It can be configured to support jumbo frame sizes up to 15.5 KB. The default frame size is 1.5 KB.

For more information, refer to:

Documentation	Links
Sun Dual Port 10GBase-T Adapter Documentation	https://docs.oracle.com/cd/E25543_
Intel X540 Ethernet controller datasheet	https://www.intel.com/content/www/

MAC Address Mapping to Ethernet Ports

A system serial label that displays the MAC ID (and the associated barcode) for the server is attached to the top, front-left side of the Oracle Server X6-2 server disk cage bezel.

This MAC ID (and barcode) corresponds to a hexadecimal (base 16) MAC address for a sequence of six consecutive MAC addresses. These six MAC addresses correspond to the server's network ports as shown in the following table.

Base MAC Address	Corresponding Ethernet Port
"base" + 0	NET 0
"base" + 1	NET 1
"base" + 2	NET 2
"base" + 3	NET 3
"base" + 4	SP (NET MGT)
"base" + 5	Used only when Network Controller-Sideband Interface (NC-SI) sideband management is configured.

Update HBA Firmware to Support UEFI BIOS

If you are using a host bus adapter (HBA) card that was *not* shipped with your system, you might need to update the firmware on your HBA card to support the Unified Extensible Firmware Interface (UEFI) BIOS. The following HBA cards might need updating:

- Sun Storage Dual 16 Gb Fibre Channel PCIe Universal HBA, QLogic (7101674)
- Sun Storage Dual 16 Gb Fibre Channel PCIe Universal HBA, Emulex (7101684)

Therefore, you might need to update your HBA firmware if any of the following statements are true:

- You receive a replacement card for a faulty HBA card.
- You order an HBA card separately from your system.
- You want to use an HBA card that you already own.

You can use Oracle Hardware Management Pack to update your HBA firmware. For information on updating HBA firmware using Oracle Hardware Management Pack, see instructions for updating firmware in the *Oracle X6 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86adminddiag/docs>.

JBOD Mode Properties in HBA Option ROMs Are Not Supported

The option ROMs for the Oracle Storage 12 Gb/s SAS PCIe RAID HBA (host bus adapter), Internal include properties for enabling JBOD mode. In JBOD mode, each physical drive on

the server is identified as one logical partition. This configuration is an alternative to redundant array of independent disk (RAID) implementations. However, the HBA does not support JBOD mode.

Enabling JBOD mode on the HBA might result in improper functioning of the system. Therefore, disregard the JBOD mode options in the following utilities:

- LSI Human Interface Infrastructure (HII) Configuration Utility (UEFI Boot Mode)
- LSI MegaRAID BIOS Configuration Utility (Legacy BIOS Boot Mode)

For more information about these interfaces, refer to “Configuring Storage Drives for Operating System Installation” in *Oracle Server X6-2 Installation Guide*.

Processor Replacement Tool Must Be Used to Replace a Processor



Caution - For the Oracle Server X6-2, use only the following color-coded Processor Replacement Tool that is designed for the processor used in the system. The part number is recorded on the tool.

- Green - part number G29477-002 or later

Do not use a tool that is designed for earlier generations of Intel processors (CPUs). If you use an earlier generation tool, the processor will only be partially held by the tool and it could fall from the tool, which could damage the processor socket.

Bracket Required When Shipping a Rackmounted Server

If you plan to ship the Oracle Server X6-2 in a Sun Rack II with a space of one or more rack units below the server, you must install the Shipping Bracket With Cable Trough to prevent damage to the server. The bracket is required for each server in the rack that meets this requirement. The installation instructions for the Shipping Bracket With Cable Trough are included with the bracket, and in the English and localized versions of your server Installation Guide.

The Shipping Bracket With Cable Trough is available as a separately orderable option. Contact your Oracle Service representative for more information.

Oracle Server X6-2 Product Accessibility

Oracle strives to make its products, services, and supporting documentation usable and accessible to the disabled community. To that end, products, services, and documentation include features that make the product accessible to users of assistive technology.

For more information about Oracle's commitment to accessibility, go to <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Oracle Server X6-2 Hardware Accessibility

Oracle Server X6-2 hardware has color-coded labels, component touch points, and status indicators (LEDs) that provide information about the system. These labels, touch points, and indicators can be inaccessible features for sight-impaired users. The product's HTML documentation provides context and descriptive text available to assistive technologies to aid in interpreting status and understanding the system. For information about system-level descriptions, see the Oracle Server X6-2 Service Manual at <https://www.oracle.com/goto/x6-2/docs>.

You can also use the built-in Oracle Integrated Lights Out Manager (ILOM) to obtain information about the system. Oracle ILOM provides a browser-based interface (BUI) and a command-line interface (CLI) that support assistive technologies for real-time viewing of system status, indicator interpretation, and system configuration. For details, see “[Oracle ILOM Accessibility](#)” on page 30.

Oracle ILOM Accessibility

You can use the Oracle ILOM BUI to monitor and manage the server hardware. The Oracle ILOM BUI does not require a special accessibility mode; rather, its accessibility features are always available. The BUI was developed using standard HTML and JavaScript and its features conform to accessibility guidelines.

To navigate a BUI page and select items or enter commands, use standard keyboard inputs, such as the Tab key to go to a selection, or the up and down arrow keys to scroll through the page. You can use standard keyboard combinations to make menu selections.

For example, using the Oracle ILOM Open Problems BUI page, you can identify faulted memory modules (DIMMs) or processors (CPUs) that would otherwise be identified by a lighted LED indicator on the motherboard. Likewise, you can use the Oracle ILOM BUI to monitor the hardware power states that are also indicated by flashing LED indicators on the hardware.

The Oracle ILOM CLI is an alternative and equivalent way to access the Oracle ILOM BUI features and functionality. Because the operating systems that run on the Oracle server hardware support assistive technologies to read the content of the screen, you can use the CLI as an equivalent means to access the color-based, mouse-based, and other visual-based utilities that are part of the BUI. For example, you can use a keyboard to enter CLI commands to identify faulted hardware components, check system status, and monitor system health.

You can use the Oracle ILOM Remote Console Plus to access both a text-based serial console and a graphics-based video console that enable you to remotely redirect host server system keyboard, video, mouse, and storage devices. Note, however, that the Oracle ILOM Java Remote Console Plus does not support scaling of the video frame within the Java application. You need to use assistive technology to enlarge or reduce the content in the Java Remote Console Plus display.

As an alternative method to using the BIOS Setup Utility to configure BIOS settings, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. Using Oracle ILOM, you can do the following:

- Back up a copy of the BIOS configuration parameters to an XML file using the Oracle ILOM BUI.
- Edit the XML file using a standard XML editor. The BIOS XML tags correlate directly to the BIOS screen labels.
- Restore the XML file of the backed up or edited configuration parameters to BIOS.

The BUI and CLI methods for using Oracle ILOM are described in the accessible HTML documentation for Oracle ILOM at <https://www.oracle.com/goto/ilom/docs>.

Oracle Hardware Management Pack Accessibility

Oracle Hardware Management Pack software is a set of CLI tools. Oracle Hardware Management Pack software does not include product-specific accessibility features. Using a keyboard, you can run the CLI tools as text commands from the operating system of a supported Oracle server. All output is text-based.

Additionally, most Oracle Hardware Management Pack tools support command output to a text log file or XML file, which can be used for text-to-speech conversion. Accessible man pages are available that describe the Hardware Management Pack tools on the system on which those tools are installed.

You can install and uninstall Oracle Hardware Management Pack by using text commands entered from the CLI. Assistive technology products such as screen readers, digital speech synthesizers, or magnifiers can be used to read the content of the screen.

Refer to the assistive technology product documentation for information about operating system and command-line interface support.

The CLI tools for using the software are described in the accessible HTML documentation for Hardware Management Pack at <https://www.oracle.com/goto/ohmp/docs>.

BIOS Accessibility

When viewing BIOS output from a terminal using the serial console redirection feature, some terminals do not support function key input. However, BIOS supports the mapping of function keys to Control key sequences when serial redirection is enabled. Descriptions of the function key to Control key sequence mappings are provided in the product documentation, typically within the server Service Manual. You can navigate the BIOS Setup Utility by using either a mouse or keyboard commands.

As an alternative method of configuring BIOS settings using the BIOS Setup Utility screens, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. For more information, see [“Oracle ILOM Accessibility” on page 30](#).

BIOS information and its functions are typically documented in the Oracle Server X6-2 Service Manual or Installation Guide.

Documentation Accessibility

Documentation for Oracle hardware is provided in HTML and PDF formats. The HTML documents are accessible using standard operating system controls and assistive technology. PDF documents are also provided, but are not an accessible format. PDF documents are considered support documents because the PDF content is available in accessible HTML format.

Product documentation provides figures, other types of images, and screenshots that do not rely on color for interpretation. Within the figures, callouts indicate the referenced component information. The callouts are mapped within a table to provide text descriptions of the referenced parts of the figures. In addition, alternative text is provided for all tables and images that provides the context of the information and images.

Note that screen readers might not always correctly read the code examples in the documentation. The conventions for writing code require that closing braces should appear on an otherwise empty line. However, some screen readers might not always read a line of text that consists solely of a bracket or brace.

The documentation might contain links to web sites of other companies and organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these web sites.

You can access the accessible HTML documentation for Oracle Server X6-2 products at <https://www.oracle.com/goto/x6-2/docs>.

Supported PCIe Cards

This section includes information about the PCIe cards that are supported on the Oracle Server X6-2.

The following table lists the quantity and slot restrictions for PCIe cards supported on the Oracle Server X6-2. The Maximum Quantity Supported column indicates the number of cards tested and supported by Oracle.

Note - PCIe slot 1 is nonfunctional in single-processor systems. PCIe cards that are supported in slot 1 in dual-processor systems are only supported in slots 2 and 3 in single-processor systems.

TABLE 2 PCIe Cards Supported, Quantity Supported, and Slot Restrictions

PCIe Card	Maximum Quantity Supported	Slot Restrictions
Oracle Storage 12 Gb/s SAS PCIe HBA, external: 8 port 7110119 (orderable option) 7110118 (for factory installation)	2	Supported in slots 1, 2, and 3.
Oracle Storage 12 Gb/s SAS PCIe HBA, internal: 8 port 7110485	1	Supported in slot 4 only.
Oracle Storage 12 Gb/s SAS PCIe RAID HBA, internal: 8 port and 1 GB memory 7113401 (orderable option) 7113249 (for factory installation)	1	Supported in slot 4 only.
Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP 7100477 (orderable option)	2	Supported in slots 1, 2, and 3.
Sun Storage Dual 16 Gb/s Fibre Channel PCIe Universal HBA, QLogic	2	Supported in slots 1, 2, and 3.

Supported PCIe Cards

PCIe Card	Maximum Quantity Supported	Slot Restrictions
<p>Note - This HBA is not supported with the Windows Server 2016 operating system.</p> <p>7101674 (orderable option)</p> <p>7101673 (for factory installation)</p>		
<p>Sun Storage Dual 16 Gb/s Fibre Channel PCIe Universal HBA, Emulex</p> <p>Note - This HBA is not supported with the Windows Server 2016 operating system.</p> <p>7101684 (orderable option)</p> <p>7101683 (for factory installation)</p>	2	Supported in slots 1, 2, and 3.
<p>Sun Dual Port QDR InfiniBand Host Channel Adapter for PCIExpress Gen 3</p> <p>7104074 (orderable option)</p> <p>7104073 (for factory integration)</p>	2	Supported in slots 1, 2, and 3.
<p>Sun Dual Port 10GBase-T Adapter</p> <p>7100488 (orderable option)</p> <p>7100563 (for factory installation)</p>	2	Supported in slots 1, 2, and 3.
<p>Sun Dual 10GbE SFP+ PCIe 2.0 Low Profile Adapter (incorporates the Intel 82599 10 Gigabit Ethernet controller)</p> <p>1109A-Z (orderable option)</p> <p>X1109A-Z (for factory installation)</p>	2	Supported in slots 1, 2, and 3.
<p>Oracle NVMe PCIe switch</p> <p>7110357 (factory installation for eight disk cages)</p> <p>Note - Supported only in server configurations that include NVMe storage drives.</p>	1	Supported in slot 1.
<p>Oracle Quad 10 Gb and Dual 40 Gb Ethernet Adapter</p>	Quad 10Gb = 2	Supported in slots 1, 2, and 3

PCIe Card	Maximum Quantity Supported	Slot Restrictions
7114134 (orderable option) 7114148 (for factory installation) Note - Not supported with Red Hat Enterprise Linux (RHEL) 6 Update 7 and 8 and 7 Update 2 operating systems.	Dual 40Gb = 1	Note - See also Bug ID 20939415 in this document.

Known Issues

For the latest information about known issues on the Oracle Server X6-2, refer to the updated product notes, which are available at the following web site: <https://www.oracle.com/goto/x6-2/docs>.

Known open issues are grouped by categories and presented in the following sections.

Note - Where applicable, the following known issues include a Bug ID number, which is the identification number assigned by the current Oracle BugDB bug tracking system. Service personnel can use the Bug ID number to find additional information about an issue.

- “Hardware Known Issues” on page 35
- “Oracle Solaris Operating System Known Issue” on page 38
- “Linux Operating Systems Known Issues” on page 38
- “Windows Operating System Known Issue” on page 41
- “Virtual Machine Known Issues” on page 41
- “Documentation Known Issues” on page 42

Hardware Known Issues

This section lists and describes hardware known issues.

Oracle ILOM SNMP v3 traps are not delivered after SNMP engine ID change

Bug ID 23634048

Issue: If you change the engine ID, create an SNMP v3 user, and configure an alert using that user without waiting approximately 10 seconds between each action, the internal user configuration might be incorrect and traps are missed.

Affected hardware and software: Oracle Server X6-2

Workaround: Do not create multiple configuration changes without verifying the effect of each configuration change. To prevent misconfigured users and missed traps, insert sleep statements in the script. For example:

```
# change engineID
set /SP/services/snmp engineid=NEWENGINEID
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify engineID
show /SP/services/snmp engineid
# verify SNMPv3 users have been deleted
show /SP/services/snmp/users

# create snmpv3 user
create /SP/services/snmp/users newuser authenticationpassword=...
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify user
show /SP/services/snmp/users newuser
# do a snmpget with that user to verify it

# configure alert
set /SP/alertmgmt/rules/1 type=snmptrap ...
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify alert
show /SP/alertmgmt/rules/1
set /SP/alertmgmt/rules/1 testrule=true
```

Oracle ILOM does not display correct storage information after installing Oracle

Bug ID 22268254

Issue: Oracle ILOM configuration does not display the correct storage information from the command-line interface or web interface after installing Oracle Hardware Management Pack 2.3.5.0.

Affected software:

- Oracle ILOM 3.2.6 and 3.2.7

- Oracle Hardware Management Pack 2.3.5.0

Workaround: A fix for this issue is planned for a future release of Oracle Hardware Management Pack.

Option ROM space might run out when server uses Legacy BIOS Mode and Oracle Quad 10Gb Ethernet Adapter cards are installed

Bug ID 20939415

Issue: The Oracle Server X6-2 supports up to two Oracle Quad 10Gb Ethernet Adapter cards. In Legacy BIOS Mode, those cards must be installed in PCIe slot 2 and/or slot 3 to avoid running out of Option ROM space. As a result, some of the cards or ports will not be listed in BIOS as available for booting over the network. This issue does not occur when the Oracle Server X6-2 is running in UEFI Mode.

Affected hardware and software:

- Oracle Server X6-2
- Oracle Quad 10 Gb and Dual 40 Gb Ethernet Adapter cards

Workarounds: Do one of the following:

- If you encountered this situation, you can obtain Option ROM space by disabling cards and ports that are listed as available for booting over the network, but that are not actually used for booting:
 1. Boot the server from the SP by issuing the `reset /System` or `start /System` commands.
 2. During the system boot process, press F2, when prompted, to access the BIOS Setup Utility.
 3. Navigate to the IO tab, and press Enter.
 4. From the options that are displayed, select Add In Cards, and then select Slot Number.
 5. To disable the slot, select Disable.
 6. Press the Esc key to return to the main BIOS Setup Utility menu, and select Exit.
 7. To save your changes, select Save Changes and Exit.
You will now have Option ROM space, and the Oracle Quad 10Gb Ethernet Adapter card will now be listed as available for booting over the network.
- If you have not yet encountered this situation and would like to prevent it from occurring, you can disable 64-bit resource allocation:
 1. Boot the server from the SP by issuing the `reset /System` or `start /System` commands.

2. During the system boot process, press F2, when prompted, to access the BIOS Setup Utility.
3. Navigate to the IO tab, and press Enter.
4. From the options that are displayed, select PCI Subsystem Settings, and then select PCI 64 bit Resources.
5. To disable the PCI 64-bit resource allocation, select Disabled.
6. Press the Esc key to return to the main BIOS Setup Utility menu, and select Exit.
7. To save your changes, select Save Changes and Exit.

The server will now maintain enough Option ROM space to list which Oracle Quad 10Gb Ethernet Adapter cards and their ports are available for booting over the network.

Oracle Solaris Operating System Known Issue

This section lists and describes Oracle Solaris operating system known issue.

usbecm driver causes a network timeout and host-to-SP link failure

Bug ID 22815570

Issue: The physical link between the host server and the Oracle ILOM service processor (SP) is the USB communication class ECM (usbecm) driver. After the first post-installation boot, the usbecm driver causes a network timeout, which causes the link between the host and SP to fail.

Affected operating system: Oracle Solaris 11.3

Workaround: Reboot the server.

Linux Operating Systems Known Issues

This section lists and describes Linux operating system known issues.

PXE installation method fails to install Oracle Linux 7 Update 2 or RHEL 7 Update 2

Bug ID 22382621

Issue: During the PXE installation, the Red Hat Enterprise Linux (RHEL) kernel sets the onboard NIC to low power mode, then disables the Preboot eXecution Environment (PXE) on reboot.

Affected operating systems:

- Red Hat Enterprise Linux 7 Update 2
- Oracle Linux 7 Update 2 Red Hat Compatible Kernel
- Oracle Unbreakable Enterprise Kernel (UEK)

Workarounds:

- Red Hat Enterprise Linux 7 Update 2: Perform a cold reboot of the server.
- Oracle Linux 7 Update 2 Red Hat Compatible Kernel: Perform a cold reboot of the server.

Hotplug of an NVMe drive in a system running default Oracle Linux kernel settings requires a kernel argument

Bug ID 21899618

Issue: Performing a hotplug insert of an NVMe storage drive with the default Oracle Linux kernel settings will result in incorrect PCIe configuration settings. The values for MPS (MaxPayloadSiz) and MRR (MaxReadRequest) of the hotplugged NVMe storage drive will not be the same as the values for the PCIe switch or root port into which the NVMe storage drive is plugged. Any attempt to use the drive with those mismatched settings will result in a FATAL PCIe ERROR, system reset, and possible data corruption.

Affected operating system: Oracle Linux 6 Update 7 and 8, and 7 Update 2

Workaround: A kernel argument must be passed at boot time that sets the MPS and MRR values for hotplugged NVMe storage drives to values that are supported by (and identical to) the upstream PCIe root port and switch to which it is connected. Users should configure their boot loader with the following argument before attempting any hotplug actions:

```
pci=pcie_bus_perf
```

Java console outage could occur when booting Oracle Linux 7 Update 2 for the first time

Bug ID 22359892

Issue: There is a slight chance of encountering a black screen during the first boot after Oracle Linux 7 Update 2 installation. The problem occurs after accepting the license agreement.

Affected operating system: Oracle Linux 7 Update 2

Workaround: Reboot the server.

Oracle Hardware Management Pack generates output that causes high volume of call-trace traffic on Oracle Linux

Bug ID 22538152

Issue: When running utilities and agents for Hardware Management Pack 2.3.5.0, the following display message (dmesg) may appear in the Oracle Linux system logs: Program `fwrxmldiff` tried to access `/dev/mem` between `f0000->101000`. This output will cause high amounts of call-trace traffic for `fwrxmldiff` in the system when running high stress testing of HDD and SSD storage performance and storage data integrity.

Affected operating system: Oracle Linux 6 Update 7 and 8, and 7 Update 2

Workaround: A fix for this issue is planned for a future release of Hardware Management Pack.

Systems running Oracle Storage 8-Port 12 Gb/s SAS-3 PCIe HBA (Internal) hang when booting Oracle Linux or RHEL

Bug ID 21920619

Issue: Systems with the Oracle Storage 8-Port 12 Gb/s SAS-3 PCIe HBA (Internal) might hang when booting Oracle Linux or Red Hat Enterprise Linux (RHEL). The following message will appear: `"mpt3sas0: _base_event_notification: timeout"` and `"mpt3sas0: failure @ at drivers/scsi/mpt3sas/mpt3sas_scsih.c:7869/_scsih_probe()!"`

Affected operating systems:

- Oracle Linux 6 Update 7 and 8, and 7 Update 2 with Unbreakable Enterprise Kernel 4 (UEK4)
- Red Hat Enterprise Linux (RHEL) 6 Update 7 and 8, and 7 Update 2

Workaround: Reboot the system.

Windows Operating System Known Issue

This section lists and describes Windows operating system known issue.

Installing Windows Server 2012 R2 operating system causes delays when attempting to view network properties

Bug ID 21870717

Issue: Installing the Windows Server 2012 R2 operating system, drivers and tools using Hardware Management Pack in UEFI Boot Mode can cause delays when attempting to view network properties. For example, this issue occurs when performing the following steps:

1. Open the Windows Network and Sharing Center to check the Network Cards Driver.
2. Click Change Adapter Settings. It takes several minutes for the Network Connections window to appear.
3. Click any network connection to display the network properties. It takes several minutes for the Network Properties window to appear.

Affected hardware, operating system, and software:

- Installed PCIe option cards
- Windows Server 2012 R2 operating system
- Hardware Management Pack 2.3.5.0

Workaround Reboot the service processor (SP).

Virtual Machine Known Issues

This section lists and describes virtual machine known issues.

Increase partition sizes to upgrade to Oracle VM Server Release 3.4.1

Bug ID 22568283

Issue: Current default partition sizes are not adequate to upgrade Oracle VM Server to Release 3.4.1.

Affected operating system: Oracle VM 3.4.1

Workaround: When upgrading to Oracle VM Server Release 3.4.1, increase the minimum partition sizes to the following: 500MB for the /boot partition, and 5GB for the /root partition.

Oracle VM Server installation fails in UEFI mode if target disk partition label is not listed on the GUID Partition Table

Bug ID 22577200

Issue: Installation of Oracle VM Server 3.4.1 fails when installing on the server in UEFI mode if the selected target disk is not "sda" and the target disk's partition label is not listed on the GUID Partition Table (GPT).

Affected operating system: Oracle VM Server 3.4.1

Workaround: Switch to command line and change the disk partition label so that it is listed on the GPT during installation. If the installation fails after the change, reboot and restart the installation.

Documentation Known Issues

This section lists and describes known documentation issues.

To access the latest documentation for the Oracle Server X6-2, go to: <https://www.oracle.com/goto/x6-2/docs>.

Updates to the *Oracle Server X6-2 Getting Started Guide*

- The *Oracle Server X6-2 Getting Started Guide* (E62165-01 / 7306799) that is included in the server ship kit incorrectly includes procedures for setting up a preinstalled operating system. Preinstalled operating systems are not supported on the Oracle Server X6-2. This version of the document has been replaced with the *Oracle Server X6-2 Getting Started Guide* (E62165-02 / 7306799).
- The *Oracle Server X6-2 Getting Started Guide* (E62165-02 / 7306799) that is included in the server ship kit incorrectly states that the server ship kit includes an RJ-45 to DB-9 adapter. An RJ-45 to DB-9 adapter is not included in the server ship kit for the Oracle Server X6-2. This version of the document has been replaced with the *Oracle Server X6-2 Getting Started Guide* (E62165-03 / 7306799).

Getting Firmware and Software Updates

This section explains the options for accessing server firmware and software updates using My Oracle Support (MOS).

Customers are required to install the latest available operating system (OS), patches, and firmware versions for optimal system performance, security, and stability.

Description	Links
Learn about server firmware and software updates.	“Firmware and Software Updates” on page 43
Learn about options for accessing firmware and software.	“Options for Accessing Firmware and Software Updates” on page 44
Review available firmware and software releases.	“Software Releases” on page 44
Learn how to get firmware and software updates using My Oracle Support.	“Getting Updates From My Oracle Support” on page 45
Learn how to Install firmware and software updates using other methods.	“Installing Updates Using Other Methods” on page 46
Learn how to get support from Oracle.	“Oracle Support” on page 47

Firmware and Software Updates

Firmware and software for your server are updated periodically. These updates are made available as software releases. The software releases are a set of downloadable files (patches) that include all available firmware, software, hardware drivers, tools, and utilities for the server. All of these files have been tested together and verified to work with your server.

You must update your server firmware and software as soon as possible after a new software release becomes available. Software releases often include bug fixes, and updating your server ensures that your server has the latest firmware and software. These updates will increase your system performance, security, and stability.

The server product notes list the current server software release and firmware version that are available. To determine which Oracle ILOM firmware version is installed on your server, you can use either the Oracle ILOM web interface or the command-line interface (CLI).

- For the web interface, click System Information → Summary, then view the property value for System Firmware Version in the General Information table.
- For the CLI, at the command prompt, type: `show /System/Firmware`

The ReadMe document that is included with each patch in a software release contains information about the patch, such as what has changed or not changed from the prior software release, and bugs that are fixed with the current release.

Options for Accessing Firmware and Software Updates

Use one of the following options to obtain the latest firmware and software updates for your server:

- **My Oracle Support** – All system software releases are available from the My Oracle Support web site at <https://support.oracle.com>.
For information about what is available from the My Oracle Support web site, see “Software Releases” on page 44.
- **Other Methods** – You can use Oracle Enterprise Manager Ops Center, Oracle Hardware Management Pack, or Oracle ILOM to update your server software and firmware.
For information, see “Installing Updates Using Other Methods” on page 46.

Software Releases

Software releases on My Oracle Support are grouped by product family (such as Oracle Server), then the product (the specific server or blade), and finally the software release version. A software release contains all the updated software and firmware for your server or blade as a set of downloadable files (patches), including firmware, drivers, tools, or utilities, all tested together to be compatible with your server.

Each patch is a zip file that contains a ReadMe file and a set of subdirectories containing firmware or software files. The ReadMe file provides details on the components that have changed since the prior software release and the bugs that have been fixed.

My Oracle Support provides the set of software releases for your server as described in the following table. You can obtain these software releases by downloading the files from My Oracle Support.

TABLE 3 Software Release Packages

Package Name	Description	When to Download This Package
X6-2 SW <i>release</i> – Firmware Pack	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.
X6-2 SW <i>release</i> – OS Pack	Includes a package of all tools, drivers, and utilities for a specific OS. An OS Pack is available for each supported operating system version. Software includes Oracle Hardware Management Pack, LSI MegaRAID	You need to update OS-specific tools, drivers, or utilities.

Package Name	Description	When to Download This Package
	software, and any other optional software that Oracle recommends.	
	For the Windows OS, the OS Pack also includes Intel Network Teaming and Install Pack.	
X6-2 SW <i>release</i> – All Packs	Includes the Firmware Pack and all OS Packs.	You need to update a combination of system firmware and OS-specific software.
	This pack does not include Oracle VTS image.	
X6-2 SW <i>release</i> – Diagnostics	Includes Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.

Getting Updates From My Oracle Support

You can obtain updated firmware and software from the My Oracle Support web site at <https://support.oracle.com>. For instructions, see “Download Firmware and Software Updates From My Oracle Support” on page 45.

▼ Download Firmware and Software Updates From My Oracle Support

- 1. Go to the My Oracle Support web site:** <https://support.oracle.com>.
- 2. Sign in to My Oracle Support.**
- 3. At the top of the page, click the Patches & Updates tab.**
The Patch Search pane appears at the right of the screen.
- 4. Within the Search tab area, click Product or Family (Advanced).**
The Search tab area appears with search fields.
- 5. In the Product field, select the product from the drop-down list.**
Alternatively, type a full or partial product name (for example, Oracle Server X6-2) until a match appears.
- 6. In the Release field, select a software release from the drop-down list.**
Expand the list to see all available software releases.

7. Click Search.

The Patch Advanced Search Results screen appears, listing the patches for the software release. See “[Software Releases](#)” on page 44 for a description of the available software releases.

8. To select a patch for a software release, click the patch number next to the software release version.

You can use the Shift key to select more than one patch.

A pop-up action panel appears. The panel contains several action options, including the ReadMe, Download, and Add to Plan options. For information about the Add to Plan option, click the associated button and select “Why use a plan?”.

9. To review the ReadMe file for this patch, click ReadMe.

10. To download the patch for the software release, click Download.

11. In the File Download dialog box, click the patch zip file name.

The patch for the software release downloads.

Installing Updates Using Other Methods

In addition to using My Oracle Support, you can install firmware and software updates using one of the following methods:

- **Oracle Enterprise Manager Ops Center** – Use Oracle Enterprise Manager Ops Center to automatically download the latest firmware from Oracle and then install the firmware onto one or more servers. Firmware updates can also be loaded manually into the Enterprise Controller.

For information, refer to the product information page at: <https://www.oracle.com/enterprise-manager/technologies/>. For documentation, refer to the Oracle Enterprise Manager Cloud Control Documentation Library at: <https://docs.oracle.com/en/enterprise-manager/related-products.html>

- **Oracle Hardware Management Pack** – Use the fwupdate CLI Tool in the Oracle Hardware Management Pack software to update firmware in the system.

For information, refer to the product information page at: <https://www.oracle.com/servers/technologies/hardware-management-pack.html>. For documentation, refer to the Oracle Hardware Management Pack Documentation Library at: <https://www.oracle.com/goto/ohmp/docs>

- **Oracle Integrated Lights Out Management (ILOM)**. For information, refer to the product information page at: <https://www.oracle.com/servers/technologies/>

[integrated-lights-out-manager.html](#). For documentation, refer to the Oracle Integrated Lights Out Manager (ILOM) 5.0 Documentation Library at: <https://www.oracle.com/goto/ilom/docs>

Note - You can find a list of new Oracle ILOM features covered in the *Oracle ILOM Feature Updates and Release Notes Firmware Release 3.2.x*.

Oracle Support

If you need help getting firmware or software updates, or downloading a complete software application, you can call Oracle Support. Use the appropriate number from the Oracle Global Customer Support Contacts Directory at: <https://www.oracle.com/support/contact.html>

