Oracle Integrated Lights Out Manager (ILOM) 3.0

Supplement for Sun Server X2-4

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Contents

Using This Documentation

This supplement contains information about Oracle Integrated Lights Out Manager (ILOM) 3.0 that is specific to Oracle's Sun Server X2-4.

Note – The Sun Server X2-4 was formerly named the Sun Fire X4470 M2 server. This former name might still appear in the software. The new product name does not indicate any change in system features or functionality.

This supplement also includes an overview of some of the server management options that are available for your server.

This document is intended for system administrators, network administrators, and service technicians who have an understanding of server systems.

Getting the Latest Software and Firmware

Firmware, drivers, and other hardware-related software for each Oracle x86 server, server module (blade), and blade chassis are updated periodically.

For information and download instructions, see Chapter 4.

Related Documentation

Documentation	Link
All Oracle documentation	http://www.oracle.com/documentation
Sun Server X2-4	http://www.oracle.com/pls/topic/lookup?ctx=SunServerX2-4
Oracle Integrated Lights Out Manager (ILOM) 3.0	http://www.oracle.com/pls/topic/lookup?ctx=ilom30
Oracle Integrated Lights Out Manager (ILOM) 3.1 (for Sun Server X2-4 Software Release 1.3 and above)	http://www.oracle.com/pls/topic/lookup?ctx=ilom31
Oracle Hardware Installation Assistant	http://www.oracle.com/pls/topic/lookup?ctx=hia

Support and Accessibility

Description	Links
Access electronic support through My Oracle Support	http://support.oracle.com For hearing impaired: http://www.oracle.com/accessibility/support.html
Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

CHAPTER 1

Determining Your Server Management Strategy

With your Oracle x86 server, you have three single-server management tools available. They are:

- Oracle Integrated Lights Out Manager (ILOM)
- Oracle Hardware Management Pack
- Oracle Hardware Installation Assistant

Each server management tool has unique capabilities, but some of the functions of the tools overlap. Each server management tool is freely available. The tools also can be used together for comprehensive server management.

This chapter includes information to help you evaluate the single-server management solution that best fits your server environment. It also provides information on how to access the management software and related documentation.

This chapter includes the following topics:

Note – If you need to perform server management functions across several servers simultaneously, you might want to use Oracle Enterprise Manager Ops Center software, which you can order from Oracle. Refer to the Oracle Enterprise Manager Ops Center product information at:
http://www.oracle.com/us/products/enterprise-manager/044497.html

Common Server Management Tasks

The following table gives examples of common server management tasks that you can perform with the available single-server management software.

Task	Oracle Integrated Lights Out Manager	Oracle Hardware Management Pack	Oracle Hardware Installation Assistant
Update BIOS or Oracle ILOM firmware	Yes	No	Yes
Configure Oracle ILOM	Yes	Yes	Yes
Install Linux or Windows operating system and drivers	No	No	Yes
Monitor hardware components	Yes	Yes	No
Configure RAID	No	Yes	Yes
Update HBA and expander firmware	No	Yes	Yes
Power on or off the server remotely	Yes	No	No

Server Management Software Benefits

This section describes the benefits of the following server management software tools:

- "Oracle Integrated Lights Out Manager" on page 3
- "Oracle Hardware Management Pack" on page 4
- "Oracle Hardware Installation Assistant" on page 5

Oracle Integrated Lights Out Manager

Oracle Integrated Lights Out Manager (ILOM) is system management firmware that is preinstalled on Oracle's x86 servers and SPARC servers. The Oracle ILOM firmware automatically initializes as soon as power is applied to your server. Oracle ILOM enables you to actively manage and monitor components installed in your server. Using Oracle ILOM, you can remotely manage your server regardless of the state of the host system. You can also configure Oracle ILOM to integrate with other management tools in your datacenter.

Oracle ILOM enables you to actively manage and monitor the server independently of the operating system state, providing you with a reliable Lights Out Management (LOM) system. With Oracle ILOM, you can:

- Learn about hardware errors and faults as they occur
- Remotely control the power state of your server
- View the graphical and non-graphical consoles for the host
- View the current status of sensors and indicators on the system
- Determine the hardware configuration of your system
- Receive generated alerts about system events in advance via IPMI PETs, SNMP traps, or email alerts.

The Oracle ILOM service processor (SP) runs its own embedded operating system and has a dedicated Ethernet port, which together provide out-of-band management capability. In addition, you can access Oracle ILOM from the server's host operating system (Oracle Solaris, Linux, or Windows). Using Oracle ILOM, you can remotely manage your server as if you were using a locally attached keyboard, monitor, and mouse.

Oracle provides a full-featured, browser-based web interface and an equivalent command-line interface (CLI). There is also an industry-standard SNMP interface and IPMI interface.

You can easily integrate these management interfaces with other management tools and processes that you might have working already with your servers, such as Oracle Enterprise Manager Ops Center software. For more information about Oracle Enterprise Manager Ops Center, go to:

`http://www.oracle.com/us/products/enterprise-manager/044497.html`

In addition, you can integrate Oracle ILOM with a number of third-party software tools, such as IBM Director, HP OpenView Operations, and Microsoft System Center Configuration Manager 2007. See the Oracle ILOM 3.0 Documentation Library, described in Chapter 2, for further details.

Note – For Oracle servers supporting the Storage Monitoring feature in Oracle ILOM, Oracle Hardware Management Pack must be installed to use the Storage Monitoring features.

Oracle Hardware Management Pack

Oracle Hardware Management Pack software is available for many Sun x86 servers and some SPARC servers. It includes the following categories of tools:

Oracle Hardware Management Agents

The Oracle Hardware Management Agent (Hardware Management Agent) and associated Oracle Hardware SNMP Plugins and Oracle Hardware Storage SNMP Plugins (SNMP Plugins) provide a way to monitor your server and server module's hardware. With the Hardware Management Agent SNMP Plugins you can use SNMP to monitor the Oracle servers and server modules in your data center, without having to connect the management port of the Oracle ILOM service processor to the network. This in-band functionality enables you to use a single IP address (the host's IP) for monitoring your servers and server modules.

The Hardware Management Agent SNMP Plugins run on the host operating system of Oracle servers. The Oracle Hardware SNMP Plugins use the keyboard controller-style (KCS) interface to communicate with the service processor, and the Oracle Hardware Storage SNMP Plugins use the Oracle Hardware Storage Access Libraries to communicate with the service processor. By regularly polling the service processor, information about the current state of the server is retrieved automatically by the Hardware Management Agent. This information is then made available through SNMP, using the SNMP Plugins.

Note – Previous versions of Hardware Management Pack have included a separate Storage Management Agent. However, starting with Oracle Hardware Management Pack 2.1, the Storage Management Agent has been merged with the functionality of the Hardware Management Agent. System storage information is now available using SNMP with the sunStorage MIB.

Oracle Server CLI Tools

Oracle Server CLI Tools (CLI Tools) are command-line interface tools that configure Oracle servers. CLI Tools is a Hardware Management Pack component and is installed using Oracle Hardware Management Pack Installer. The CLI Tools are available for the Oracle Solaris, Linux, Windows, and Oracle VM operating systems. The following table describes the tasks that you can perform using the CLI Tools.

Server Management Task From Host OS	Tool
Configure BIOS CMOS settings, device boot order, and some SP settings.	biosconfig CLI
Query, update, and validate firmware versions on supported SAS storage devices, embedded SAS storage controllers, LSI SAS storage expanders, and disk drives.	fwupdate CLI
Restore, set, and view Oracle ILOM configuration settings, as well as view and set Oracle ILOM properties that are associated with network management, clock configuration, and user management.	ilomconfig CLI
View or create RAID volumes on storage drives that are attached to RAID controllers, including storage arrays.	raidconfig CLI

IPMItool

A version of IPMItool is provided as part of the Hardware Management Pack. It can be installed if your server does not already have IPMItool installed. IPMItool is a command-line application that enables you to manage and configure devices that support the IPMI protocol.

Oracle Hardware Installation Assistant

The Oracle Hardware Installation Assistant application is a provisioning tool for Sun Fire and Sun Blade x86 servers. The application guides you through server setup and maintenance by providing a single interface that facilitates server installation, configuration, maintenance, and recovery tasks.

The features and benefits of the Oracle Hardware Installation Assistant include:

- Supports multiple boot media options. Launch the Oracle Hardware Installation Assistant application from either a local drive attached to the server (CD/DVD or USB flash drive), a remote redirected network drive (virtual CD/DVD drive or ISO image), or an image available on your PXE network environment.

- Guides you through operating system installation and provides Oracle-certified, server-specific and configuration-specific device drivers for optional accessory cards and other system hardware.
- Guides you through RAID configuration for servers that contain an integrated LSI disk controller. Support is for RAID 0 and RAID 1 integrated mirror or integrated mirror enhanced (striping). Assisted RAID 1 configuration is also available (beginning with Oracle Hardware Installation Assistant 2.4) for LSI SAS-2 controllers (926x, 9280).
- Provides a specific set of service processor and Oracle ILOM configuration capabilities.
  - Enables management of Oracle ILOM user account settings and configuration of network settings, system clock, and system identification information.
  - Allows BIOS-level boot device priority configuration and next boot device selection.
- Contains firmware update capabilities for:
  - System BIOS and Oracle ILOM firmware
  - HBA firmware
  - Expander firmware

Evaluating Your Server Environment

This section can help you to decide which type of server management option or combination of options is best for your server environment.

The evaluation covers the following questions:

- "Which Operating System Do You Plan to Install?" on page 6
- "From Which Platform Do You Want to Run the Software?" on page 7
- "Do You Want to Update or Monitor Your System Components?" on page 8
- "Do You Have a Modular System Environment?" on page 8

Which Operating System Do You Plan to Install?

Most of the server management software will work with most operating systems that are supported for Oracle servers. However, there are some exceptions that are important to note. See the following table for detailed information.

Server Management Software	Operating System Limitations
Oracle Integrated Lights Out Manager (ILOM)	There are no operating system limitations with Oracle ILOM, because the software runs on the system service processor, not on the operating system.
Oracle Hardware Management Pack	There are some limitations on which operating systems are supported with the Hardware Management Pack components. For details, refer to the Support Matrix at http://www.oracle.com/goto/hmp.
Oracle Hardware Installation Assistant	You can only install Windows and Linux (Oracle Linux, Red Hat Enterprise Linux, and SUSE Linux) operating systems with the Oracle Hardware Installation Assistant. If you have Oracle Solaris or Oracle VM installed on the server, you can update firmware and perform additional server management tasks.

From Which Platform Do You Want to Run the Software?

When deciding on your server management strategy, you need to determine whether you want to run your server management tasks from the system host, embedded firmware, or bootable media.

Server Management Software	Platform
Oracle Integrated Lights Out Manager (ILOM)	Embedded service processor firmware
Oracle Hardware Management Pack	Host operating system
Oracle Hardware Installation Assistant	Bootable media (CD/DVD or USB drive) from a local or remote source

Do You Want to Update or Monitor Your System Components?

The server management software tools are designed primarily to update or monitor system software and components. The following table lists the main functions of each software option.

Server Management Software	Update Functions	Monitoring Functions
Oracle Integrated Lights Out Manager (ILOM)	Updates ILOM and BIOS firmware.	Monitors component status and reports faults.
Oracle Hardware Management Pack	Configures ILOM and BIOS firmware. Updates HBA and expander firmware. Configures RAID.	Monitors component status and reports fault.
Oracle Hardware Installation Assistant	Updates and configures ILOM, BIOS, and HBA firmware. Assists in operating system and driver installation. Configures RAID.	Provides minimal system status information.

Do You Have a Modular System Environment?

All of the server management software can be used with modular systems (blades) or rack servers, but only one of the software tools, Oracle ILOM, can be used to manage blade servers from both the modular system chassis monitoring module (CMM) and blade server interfaces.

Server Management Software	Modular System CMM Interface?	Server Module Interface?
Oracle Integrated Lights Out Manager (ILOM)	Yes	Yes
Oracle Hardware Management Pack	No	Yes
Oracle Hardware Installation Assistant	No	Yes

Server Management Downloads and Documentation

The following table describes how you can download and find documentation for the server management software options.

Server Management Software	How to Access the Software	Documentation Library URL
Oracle Integrated Lights Out Manager (ILOM)	No installation required. Embedded on system service processor.	http://www.oracle.com/pls/topic/lookup?ctx=ilom30
Oracle Hardware Management Pack	Download from: http://support.oracle.com	http://www.oracle.com/pls/topic/lookup?ctx=ohmp
Oracle Hardware Installation Assistant	Standard option. If you opted not to use this software, you can download an .iso image from: http://support.oracle.com	http://www.oracle.com/pls/topic/lookup?ctx=hia

CHAPTER 2

Oracle ILOM 3.0 Documentation

Oracle ILOM 3.0 operates on Sun x86 servers and SPARC servers, supporting features that are common to all servers. This chapter provides a brief overview of the Oracle ILOM 3.0 Documentation Library, in which Oracle ILOM features that are common to all server platforms are described.

However, some Oracle ILOM 3.0 features are specific to certain platforms and not to all. For information about the Oracle ILOM features that are specific to the Sun Server X2-4, see Chapter 3.

Oracle ILOM 3.0 Documentation Collection

TABLE 2-1 identifies the guides in the Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Library. Refer to these guides for information about using Oracle ILOM features that are common to all server platforms.

You can view and download the guides in the Oracle ILOM 3.0 Documentation Library at:

http://www.oracle.com/pls/topic/lookup?ctx=ilom30

TABLE 2-1 Oracle ILOM 3.0 Documentation Library for Common Features

Title	Content
Oracle Integrated Lights Out Manager (ILOM) 3.0 HTML Documentation Collection	This online documentation collection includes all the guides in the Oracle ILOM 3.0 Documentation Library, with the exception of the Feature Updates and Release Notes.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes	For each point release after Oracle ILOM 3.0, this guide provides information about: • New Oracle ILOM 3.0.x features • Known issues and workarounds • Fixed issues
Oracle Integrated Lights Out Manager (ILOM) 3.0 Quick Start Guide	This guide provides easy-to-use setup and configuration procedures that enable you to start using Oracle ILOM.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management–Concepts Guide	This guide provides conceptual information for all common features available in Oracle ILOM 3.0.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management–Web Procedures Guide	This guide provides procedural information for all common web-based features available in Oracle ILOM 3.0.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management–CLI Procedures Guide	This guide provides procedural information for all common command-line features available in Oracle ILOM 3.0.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Protocol Management–SNMP, IPMI, CIM, WS-MAN Guide	This guide provides information about accessing Oracle ILOM functions when using management protocols such as: • Simple Network Management Protocol (SNMP) • Intelligent Platform Management Interface (IPMI) • Web Service Management (WS-MAN) and Common Information Model (CIM)

TABLE 2-1 Oracle ILOM 3.0 Documentation Library for Common Features *(Continued)*

Title	Content
Oracle Integrated Lights Out Manager (ILOM) 3.0 Maintenance and Diagnostics–CLI and Web Guide	This guide provides information about Oracle ILOM maintenance operations and server diagnostics tools.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Remote Direction Consoles–CLI and Web Guide	This guide provides information and procedures for using the Oracle ILOM remote redirection consoles: • Oracle ILOM Remote Console • Oracle ILOM Remote Redirection CLI
Oracle Integrated Lights Out Manager (ILOM) CMM Administration Guide for Sun Blade 6000 and Sun Blade 6048 Modular Systems	This guide provides information and procedures for accessing CMM-specific Oracle ILOM functions.

Oracle ILOM 3.0 Server-Specific Documentation

For information about the Oracle ILOM 3.0 features that are specific to the Sun Server X2-4, see Chapter 3.

CHAPTER 3

Oracle ILOM Platform Features for the Sun Server X2-4

Oracle's Sun Server X2-4 supports the entire Oracle ILOM feature set provided in Oracle ILOM 3.0, with the exception of the Power Budget features. In addition, the server supports Oracle ILOM features that are specific to the Sun Server X2-4.

For detailed information about Oracle ILOM features that are common to all server platforms, see the Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection, as described in Chapter 2.

Oracle ILOM features discussed in this chapter, which are specific to the Sun Server X2-4, are as follows:

Supported Sun Server X2-4 Firmware

The following table identifies the supported Oracle ILOM and BIOS firmware versions supported on the Sun Server X2-4.

Software Release	Oracle ILOM SP Firmware	BIOS Firmware
1.3	3.1.2.24 r73820	16.04.01.02
1.2	3.0.6.12.a r70287	16.03.01.03
1.1	3.0.16.12 r65661	16.02.01.01
1.0	3.0.14.20 r63740	16.01.01.18

For information about how to update the firmware on your server, refer to the Oracle ILOM 3.0 Documentation Library at:

http://www.oracle.com/pls/topic/lookup?ctx=ilom30

Power Management Policies

This release of Oracle ILOM 3.0 software provides new Power Management policies that are supported on the Sun Server X2-4.

For more information about the latest Oracle ILOM 3.0 Power Management policies, see the *Oracle Integrated Lights Out Manager (ILOM 3.0) Feature Updates and Release Notes*.

This section includes the following topics:

Host Power Throttling and Recovery

The Sun Server X2-4 supports a simple mechanism to automatically apply hardware throttles to the CPUs and memory controllers when power exceeds the rated capacity of the available power supplies. This can occur when a redundant power supply has failed or has been removed from the system.

When the server's hardware (power CPLD) determines that power demand has exceeded the system's available power, it automatically throttles the host processor to reduce its power consumption. The service processor (SP) removes this hardware throttle after it has been applied for 5 seconds. Host power throttling and recovery continues until such action is no longer needed.

Service Processor Power-On Policy

The service processor (SP) power-on policy determines the power state of the server when AC power is applied to the server.

Service processor power-on policies are mutually exclusive, meaning that if one policy is enabled, the other policy is disabled by default. If both policies are disabled, then the server SP will not apply main power to the server at boot time. A brief description of the SP power-on policies and default settings follows:

- **Auto Power-On Host On Boot** – When this option is enabled, the SP automatically applies main power to the server. When disabled (default), main power is not applied to the server.
- **Set Host Power to Last Power State On Boot** – When this option is enabled, the SP automatically applies main power to the server based on the last power state of the server. The SP automatically tracks the last power state and restores the server to its last remembered power state following a power state change of at least 10 seconds. When disabled (default), the last power state is not applied to the server.

You can configure SP power-on policies using the Oracle ILOM web interface or the Oracle ILOM command-line interface (CLI). For instructions, see the following sections:

- "Configure SP Power Management Policies Using the Web Interface" on page 18
- "Configure SP Power Management Policies Using the CLI" on page 19

Low Line AC Override Policy

The Low Line AC Override policy setting is provided to enable special test scenarios of a 4-CPU system using low-line (110 volt) power. Low-line voltage is normally supported only in 2-CPU system configurations. The capacity of each power supply unit (PSU) is roughly 1000 watts at low line. Since the power of a 4-CPU system can exceed 1000 watts by a large amount, enabling this setting results in a loss of PSU redundancy. This setting is disabled by default on the Sun Server X2-4.

Note – The server is rated to have a maximum AC input current of 12 amps (with one or both PSUs working). When the Low Line AC Override policy is enabled, a 4-CPU system can require more than 12 amps total current for both PSUs. In any case, each AC inlet will not exceed 12 amps.

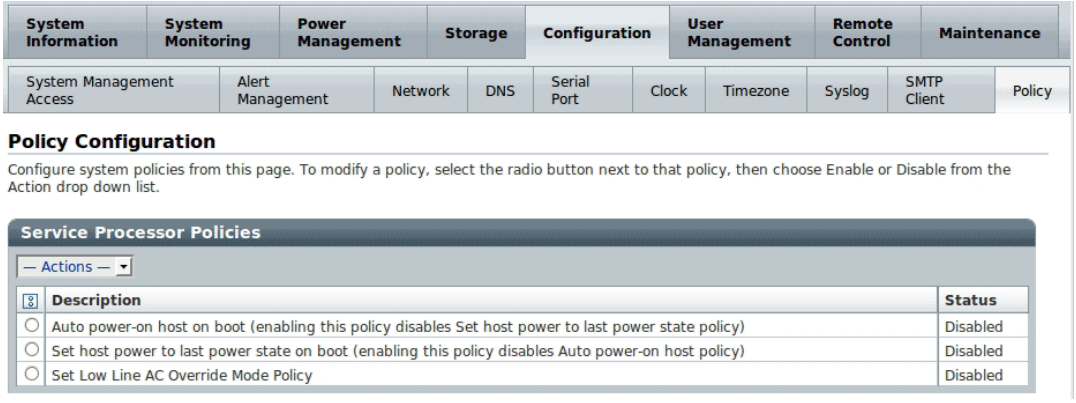
You can configure the Low Line AC Override policy setting using the Oracle ILOM web interface or the Oracle ILOM command-line interface (CLI). For instructions, see the following sections:

- "Configure SP Power Management Policies Using the Web Interface" on page 18
- "Configure SP Power Management Policies Using the CLI" on page 19

▼ Configure SP Power Management Policies Using the Web Interface

1. **Log in to the Oracle ILOM web interface.**
2. **Select Configuration --> Policy.**

   The Policy Configuration page is displayed.



3. **Select the radio button next to the SP policy that you want to configure.**

   The SP policy options include:

   - Auto power-on host on boot
   - Set host power to last power state on boot
   - Set Low Line AC Override Mode Policy

4. **Click the Actions drop-down menu and select Enable or Disable.**
5. **Click OK to enable or disable the SP policy.**

▼ Configure SP Power Management Policies Using the CLI

1. **Log in to the Oracle ILOM CLI.**
2. **To show the current power policy settings, type:**

   -> **show /SP/policy**

   The SP policy properties are displayed. For example:

```
 /SP/policy
    Targets:

    Properties:
    HOST_AUTO_POWER_ON = disabled
    HOST_LAST_POWER_STATE = disabled
    LOW_LINE_AC_OVERRIDE_MODE = disabled

    Commands:
    cd
    set
    show
->
```

   In the above output, Host Auto Power On is `disabled`, Host Last Power State is `disabled`, and Low Line AC Override Mode is `disabled`.

3. **Depending on the SP policy you want to configure, do the following:**
   - To enable or disable Host Auto Power On, type:

     -> **set /SP/policy/ HOST_AUTO_POWER_ON=[enabled|disabled]**
   - To enable or disable Host Last Power State, type:

     -> **set /SP/policy/ HOST_LAST_POWER_STATE=[enabled|disabled]**
   - To enable or disable Low Line AC Override Mode, type:

     -> **set /SP/policy/ LOW_LINE_AC_OVERRIDE_MODE= [enabled|disabled]**

Oracle ILOM Sideband Management

By default, you connect to the server's service processor (SP) using the out-of-band network management port (NET MGT). The Oracle ILOM sideband management feature enables you to select either the NET MGT port or one of the server's Gigabit

Ethernet ports (NET 0, 1, 2, 3), which are in-band ports, to send and receive Oracle ILOM commands to and from the server SP. In-band ports are also called sideband ports.

The advantage of using a sideband management port to manage the server's SP is that one fewer cable connection and one fewer network switch port is needed. In configurations where numerous servers are being managed, such as data centers, sideband management can represent a significant savings in hardware and network utilization.

You can configure sideband management using either the web interface, the command-line interface (CLI), the BIOS, or IPMI. For special considerations and configuration instructions, see the following sections:

- "Special Considerations for Sideband Management" on page 20
- "Configure Sideband Management Using the Web Interface" on page 21
- "Configure Sideband Management Using the CLI" on page 21
- "Configure Sideband Management Using the Host BIOS Setup Utility" on page 23

Special Considerations for Sideband Management

When sideband management is enabled in Oracle ILOM, the following conditions might occur:

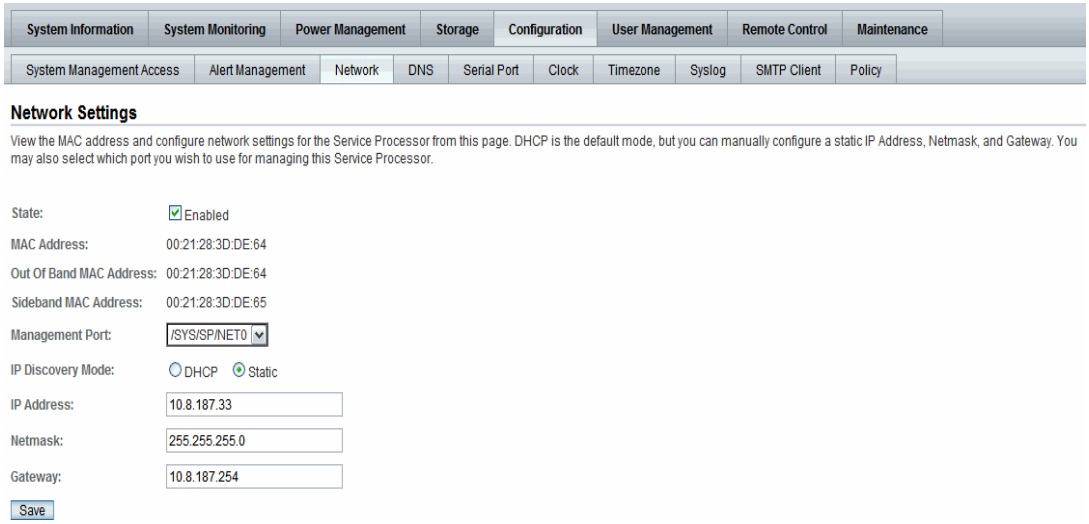
- Connectivity to the server SP might be lost when the SP management port configuration is changed while you are connected to the SP using a network connection, such as SSH, web, or Oracle ILOM Remote Console.
- In-chip connectivity between the SP and the host operating system might not be supported by the on-board host Gigabit Ethernet controller. If this condition occurs, use a different port or route to transmit traffic between the source and destination targets instead of using L2 bridging/switching.
- Server host power cycles might cause a brief interruption of network connectivity for server Gigabit Ethernet ports (NET 0, 1, 2, 3) that are configured for sideband management. If this condition occurs, configure the adjacent switch/bridge ports as host ports.

Note – If the ports are configured as switch ports and participate in the Spanning Tree Protocol (STP), you might experience longer outages due to spanning tree recalculation.

▼ Configure Sideband Management Using the Web Interface

1. **Log in to the Oracle ILOM web interface.**
2. **Select Configuration --> Network.**

   The Network Settings page is displayed.



3. **In the Network Settings page, do the following:**

   a. **Select DHCP to acquire the IP address automatically, or select Static to specify the appropriate IP address.**

   b. **To select a sideband management port, click the Management Port drop-down list and select the desired management port.**

      The drop-down list enables you to change to any one of the four Gigabit Ethernet ports, `/SYS/MB/NET`*n*, where *n* is 0 to 3. The SP NET MGT port, `/SYS/SP/NET0`, is the default.

   c. **Click Save for the changes to take effect.**

▼ Configure Sideband Management Using the CLI

1. **Log in to the Oracle ILOM CLI.**

Note – Using a serial connection for this procedure eliminates the possibility of losing connectivity during sideband management configuration changes.

2. **If you logged in using the serial port, you can assign a static IP address.**

   For instructions, see the information about assigning an IP address in the *Sun Server X2-4 Installation Guide*.

3. **To show the current port settings, type:**

   -> **show /SP/network**

   The network properties are displayed. For example:

```
/SP/network
    Targets:
    Properties:
        commitpending = (Cannot show property)
        dhcp_server_ip = none
        ipaddress = xx.xx.xx.xx
        ipdiscovery = static
        ipgateway = xx.xx.xx.xx
        ipnetmask = xx.xx.xx.xx
        macaddress = 11.11.11.11.11.86
        managementport = /SYS/SP/NET0
        outofbandmacaddress = 11.11.11.11.11.86
        pendingipaddress = xx.xx.xx.xx
        pendingipdiscovery = static
        pendingipgateway =  xx.xx.xx.xx
        pendingipnetmask =  xx.xx.xx.xx
        pendingmanagementport = /SYS/SP/NET0
        sidebandmacaddress = 11.11.11.11.11.87
        state = enabled
```

   In the above output the current active `macaddress` is the same as the SP's `outofbandmacaddress` and the current active `managementport` is set to the default (`/SYS/SP/NET0`).

4. **To set the SP management port to a sideband port, type the following commands:**

   -> **set /SP/network pendingmanagementport=/SYS/MB/NET***n*

   Where *n* equals 0, 1, 2, or 3.

   -> **set commitpending=true**

5. **To view the change, type:**

   -> **show /SP/network**

   The network properties appear and show that the change has taken effect. For example:

```
/SP/network
    Targets:
    Properties:
        commitpending = (Cannot show property)
        dhcp_server_ip = none
        ipaddress = xx.xx.xx.xx
        ipdiscovery = static
        ipgateway = xx.xx.xx.xx
        ipnetmask = xx.xx.xx.xx
        macaddress = 11.11.11.11.11.87
        managementport = /SYS/MB/NETn
        outofbandmacaddress = 11.11.11.11.11.86
        pendingipaddress = xx.xx.xx.xx
        pendingipdiscovery = static
        pendingipgateway =  xx.xx.xx.xx
        pendingipnetmask =  xx.xx.xx.xx
        pendingmanagementport = /SYS/MB/NETn
        sidebandmacaddress = 11.11.11.11.11.87
        state = enabled
```

   In the above output the `macaddress` matches the `sidebandmacaddress`, and the `managementport` matches the `pendingmanagementport`.

▼ Configure Sideband Management Using the Host BIOS Setup Utility

You can access the BIOS Setup Utility screens from the following interfaces:

- A USB keyboard, mouse, and VGA monitor connected directly to the server.
- A terminal (or terminal emulator connected to a computer) connected through the serial port on the back panel of the server.
- A connection using the Oracle ILOM Remote Console. To use this interface, you must know the IP address of the server. For instructions on viewing the server IP address, see the *Sun Server X2-4 Installation Guide*.

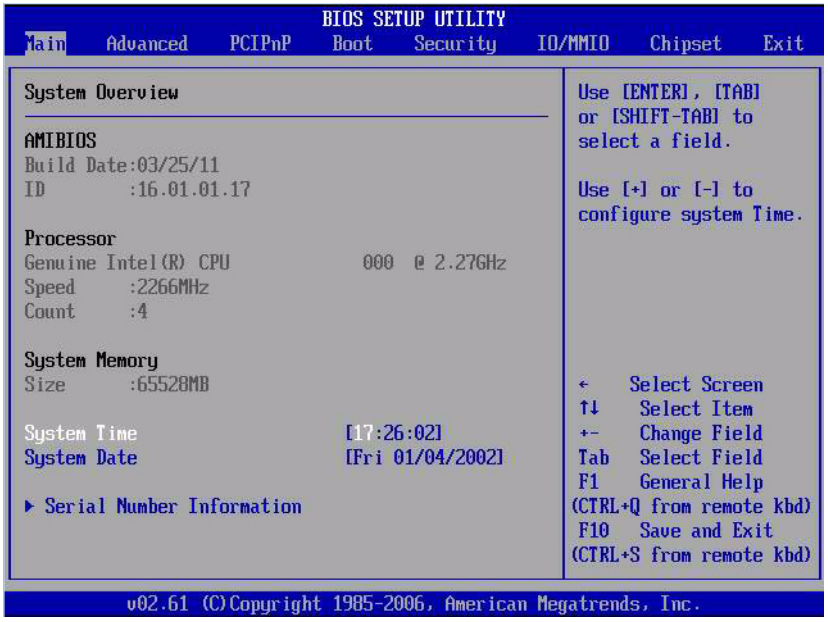
To configure sideband management using the host BIOS Setup Utility, perform the following steps:

1. **Power on or power cycle the server.**

2. **To enter the BIOS Setup Utility, press the F2 key while the system is performing the power-on self-test (POST).**

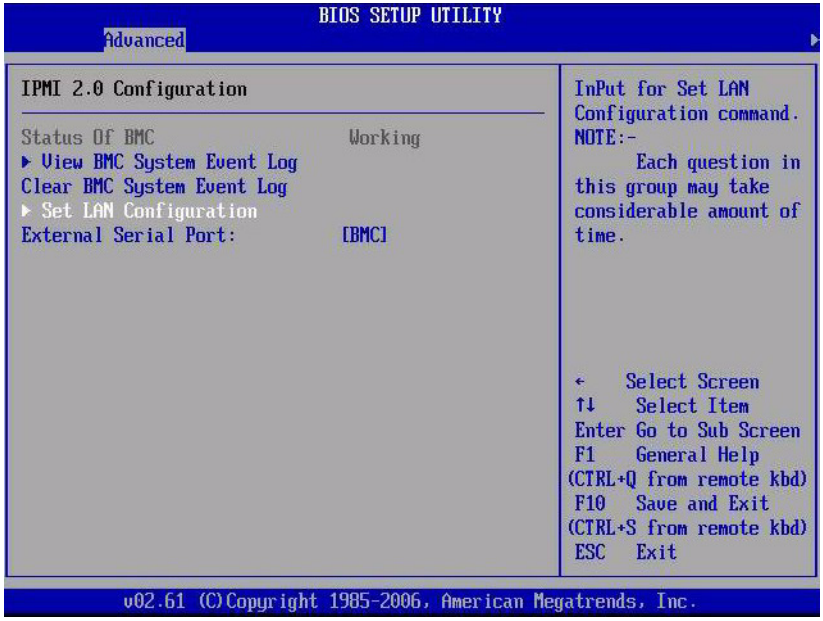
```
Initializing USB Controllers .. Done.
Press F2 to run Setup (CTRL+E on Remote Keyboard)
Press F8 for BBS POPUP  (CTRL+P on Remote Keyboard)
Press F12 to boot from the network (CTRL+N on Remote Keyboard)
```

When BIOS is started, the main BIOS Setup Utility top-level screen appears. This screen provides seven menu options across the top of the screen.



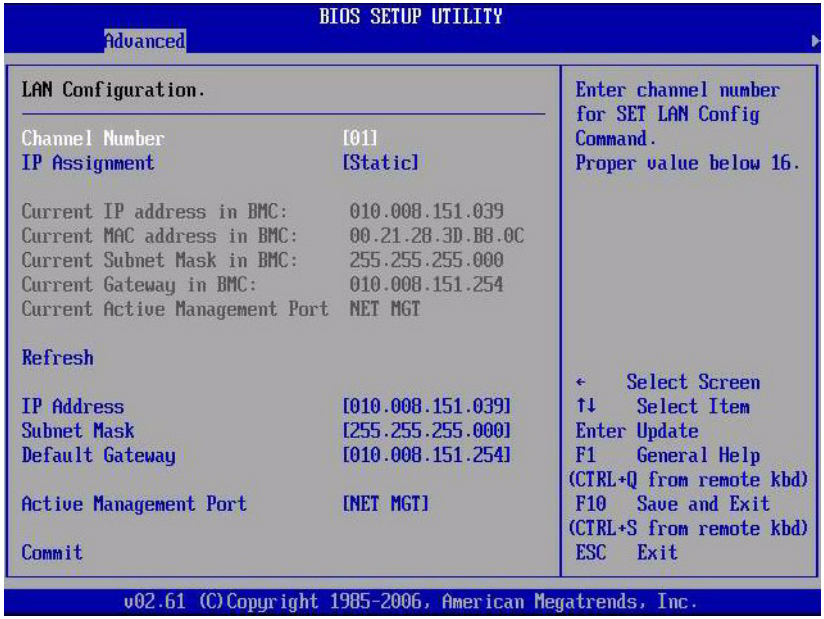
3. **In the main screen, select Advanced --> IPMI 2.0 Configuration.**

The IPMI 2.0 Configuration screen appears.



4. **In the IPMI 2.0 Configuration screen, select the Set LAN Configuration option.**

   The LAN Configuration screen appears.



5. **In the LAN Configuration screen, do the following:**

a. **Use the left and right arrow keys to select the IP Assignment option and set it to DHCP to acquire the IP address automatically, or set it to Static to manually specify the IP address.**

b. **Use the left and right arrow keys to select the Active Management Port option and set the port to a sideband management port (NET0, NET1, NET2, NET3).**

   The NET MGT port is the default.

c. **Select Commit for the change to take effect.**

Switch Serial Port Output Between SP and Host Console

You can switch the serial port output of the Sun Server X2-4 between the SP console (SER MGT) and the host console (COM1). By default, the SP console is connected to the system serial port. This feature is beneficial for Windows kernel debugging, as it enables you to view non-ASCII character traffic from the host console.

You can switch serial port output using either the Oracle ILOM web interface or the command-line interface (CLI). For instructions, see the following sections:

- "Switch Serial Port Output Using the Web Interface" on page 26
- "Switch Serial Port Output Using the CLI" on page 27

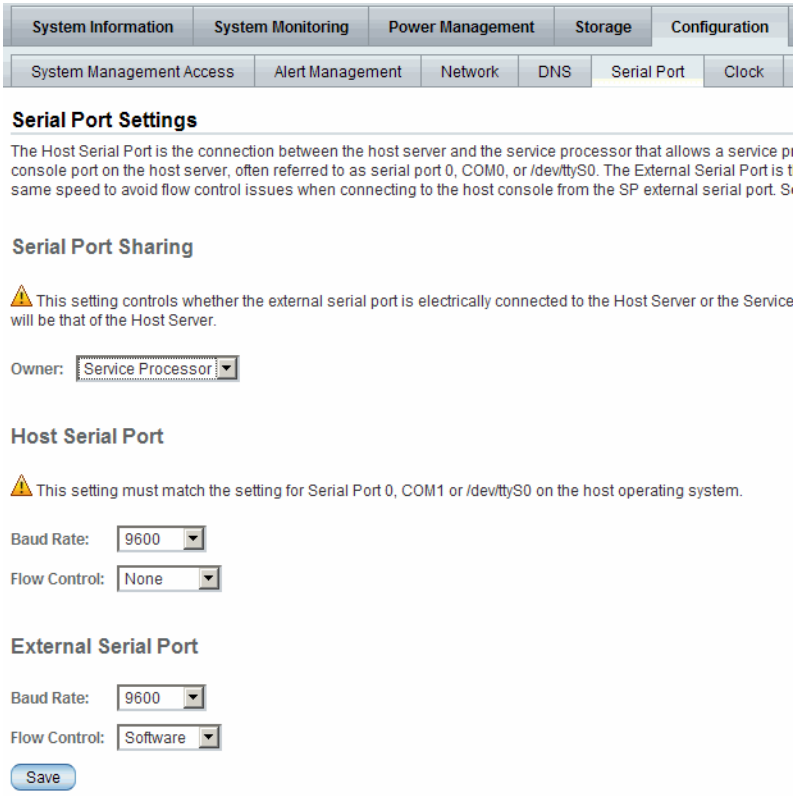
Caution – You should set up the network on the SP before attempting to switch the serial port owner to the host server. If a network is not set up, and you switch the serial port owner to the host server, you will be unable to connect using the CLI or web interface to change the serial port owner back to the SP. To change the serial port owner back to the SP, you must use the Oracle ILOM Preboot Menu to restore access to the serial port over the network. For more information, see the Oracle ILOM Preboot Menu information in the *Sun Server X2-4 Service Manual*.

▼ Switch Serial Port Output Using the Web Interface

1. **Log in to the Oracle ILOM web interface.**

2. **Select Configuration --> Serial Port.**

   The Serial Port Settings page is displayed.



3. **To select a serial port owner, click the Owner drop-down list and select the desired serial port owner.**

   The drop-down list enables you to select either `Service Processor` or `Host Server`.

   By default, `Service Processor` is selected.

4. **Click Save for your change to take effect.**

▼ Switch Serial Port Output Using the CLI

1. **Log in to the Oracle ILOM CLI.**

2. **To set the serial port owner, type:**

   -> **set /SP/serial/portsharing/ owner=host**

   By default, `owner=SP`.

Server Chassis Intrusion Sensor

The `/SYS/INTSW` sensor is asserted when the server's top cover is removed while power is being applied to the server. This is an improper service action so this sensor serves to alert you to any unauthorized and inadvertent removal of the server's cover. Thus, this sensor enables system administrators to have confidence that the physical integrity of the server has not been violated. This is particularly beneficial when the server is in a remote or uncontrolled location.

Note – The server cannot be powered on when the server top cover is off and the `/SYS/INTSW` sensor is asserted. If the server's top cover is removed while the server is powered-on, the host will immediately employ a non-graceful shutdown to power off the server.

How the `/SYS/INTSW` Sensor Works

The `/SYS/INTSW` sensor is asserted when the chassis intrusion switch trips while the server is powered-on. If the AC power cords are connected to the server, power is being applied to the server. Even when you shut down the server's host, power is still being applied to the server. The only way to remove power from the server completely is to disconnect the server's AC power cords.

The chassis intrusion switch will trip if the server's cover is removed, the switch itself is misaligned, or the cover is not properly seated. This sensor is deasserted when the integrity of the server's chassis is restored, that is, when the removed cover is properly reinstalled, returning the chassis intrusion switch to its closed state.

Caution – Removing the server's top cover while the power cord is connected to the system is not an authorized service action. Proper service action requires that host and SP shutdown operations be observed and that the power cords be disconnected from the system before the cover is opened. If proper service actions are taken, you should not see the `/SYS/INTSW` sensor asserted unless there are other issues, such as a misaligned chassis intrusion switch.

Fault Management

When a server component fails, error telemetry is either captured via the BIOS or is monitored by the Oracle ILOM SP. Oracle ILOM consumes error telemetry from both sources and provides diagnosis in the form of a fault event. The fault event is stored in the Oracle ILOM event log as a fault message. You can use either the Oracle ILOM web interface or the command-line interface (CLI) to manually clear faults.

This section includes the following topics. The first four topics describe how to examine and clear faults, while the last topic provides reference information for sensors and indicators.

Determining Faults

When a system fault occurs, you can view system indicators and use the Oracle ILOM CLI or web interface to determine the fault:

- **LEDs** – The Service Required LED will always be illuminated, and the component or subsystem-specific Service LED will be illuminated when applicable.
- **Oracle ILOM CLI** – Examine fault messages in the Oracle ILOM event log or see a fault summary.

  For example:

  - To view the Oracle ILOM event log, log in to the Oracle ILOM CLI and type: **`show /SP/logs/event/list`**
  - To view a fault summary, log in to the Oracle ILOM CLI and type: **`show /SP/faultmgmt`**
- **Oracle ILOM web interface** – Examine fault messages in the Oracle ILOM event log or see a fault summary.

  For example:

  - To view the Oracle ILOM event log, log in to the Oracle ILOM web interface and select: System Monitoring --> Event Logs
  - To view a fault summary, log in to the Oracle ILOM web interface and select: System Information --> Fault Management

Clearing Faults

The procedure for clearing a fault differs depending on the type of component.

1. Customer-replaceable units (CRUs) that are hot-swappable and are monitored by the SP will have their faults cleared automatically when the failed component is replaced and the updated status is reported as deasserted.
2. CRUs and field-replaceable units (FRUs) that have a FRUID container with identity information will have their faults cleared automatically when the failed component is replaced, as the SP is able to determine when a component is no longer present in the system.
3. CRUs and FRUs that are not hot-swappable or lack a FRUID container with identity information will not have their faults cleared automatically.

You can use the Oracle ILOM web interface or the command-line interface (CLI) to manually clear faults. For information on how to use the Oracle ILOM web interface or the CLI to clear server faults, see the Oracle ILOM 3.0 Documentation Library at:

http://www.oracle.com/pls/topic/lookup?ctx=ilom30

The following types of faults are diagnosed by the Oracle ILOM SP:

- **Environmental events** – Fan modules, power supplies, ambient temperature, AC power loss, and chassis intrusion switch
- **Memory Reference Code (MRC) errors and warnings** – Memory initialization and population
- **I/O Hub (IOH) uncorrectable error events** – Motherboard
- **Memory ECC uncorrectable and correctable events** – Memory DIMMs
- **CPU uncorrectable error events** – Processor
- **Boot progress events** – Power-on, power-off, IPMI, MRC, QPI, BIOS, setup, and boot retries
- **Service Processor error events** – ILOM

TABLE 3-1 lists the server component faults that are persistent after a system cold boot and the action to clear the fault.

TABLE 3-1 Component Fault Events

Component	Action to Clear the Fault
Motherboard	Fault is automatically cleared upon component replacement.
Memory riser	Fault is automatically cleared upon component replacement.
Fan board	Fault is automatically cleared upon component replacement.
DDR3 Memory DIMMs	Fault is automatically cleared upon component replacement.

TABLE 3-1 Component Fault Events *(Continued)*

Component	Action to Clear the Fault
CPU module	Clear fault manually after component replacement.
PCIe cards	Clear fault manually after component replacement.
Fan module	Fault is automatically cleared when the sensor status is OK.
Power supply	Fault is automatically cleared when the sensor status is OK.
Disk drive	Fault is automatically cleared when the sensor status is OK.

In addition to the above faults, the following fault does not require replacement of a faulty part; however, user action is needed to clear it:

```
fault.security.integrity-compromised@/sys/sp
```

This fault is generated when the server's top cover is removed while the AC power cords are still connected to the power supply, that is, power is not completely removed from the server. To clear this fault, replace the server's top cover and either reboot the server's SP or remove the AC power cords, and then reconnect the power cords.

Components With No Fault Diagnosis

Certain Sun Server X2-4 components do not provide a mechanism to diagnose faults. These include:

- Disk backplane
- DVD player
- Disk drive
- Power supply backplane
- Lithium battery for host and SP real-time clocks

Viewing Sensors Using IPMItool

Sun Server X2-4 sensors can be viewed using IPMItool. For information and instructions for viewing sensors using IPMItool, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Protocol Management -- SNMP, IPMI, CIM, WS-MAN Guide*.

Sensors and Indicators Reference Information

The server includes several sensors and indicators that report on hardware conditions. Many of the sensor readings are used to adjust the fan speeds and perform other actions, such as illuminating LEDs and powering off the server.

This section describes the sensors and indicators that Oracle ILOM monitors for the Sun Server X2-4.

The following types of sensors are described:

Note – For information about how to obtain sensor readings or to determine the state of system indicators in Oracle ILOM, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management -- CLI Procedures Guide* and the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management -- Web Procedures Guide*.

System Components

TABLE 3-2 describes the system components.

TABLE 3-2 System Components

Component Name	Description
/SYS/DBP	Disk backplane
/SYS/DBP/HDD*n*	Hard disks *n*
/SYS/FB	Fan board
/SYS/FB/FAN*n*	Fan *n*

TABLE 3-2 System Components *(Continued)*

Component Name	Description
/SYS/MB	Motherboard
/SYS/MB/NET*n*	Host network interfaces *n*
/SYS/MB/P*n*	Processor *n*
/SYS/MB/P*n*/MR*n*	Processor *n*; Memory riser *n*
/SYS/MB/P*n*/MR*n*/D*n*	Processor *n*; Memory riser *n*; DIMM *n*
/SYS/MB/PCIE[*n*, CC]	PCIe slot *n*, or cluster card
/SYS/PS*n*	Power supply *n*
/SYS/SP	Service processor
/SYS/SP/NET*n*	SP network interface *n*

System Indicators

TABLE 3-3 describes the system indicators.

TABLE 3-3 System Indicators

Indicator Name	Description
/SYS/CPU_FAULT	System CPU Fault LED
/SYS/DBP/HDD*n*/OK2RM	Hard disk *n* OK-to-Remove LED
/SYS/DBP/HDD*n*/SERVICE	Hard disk *n* Service LED
/SYS/FAN_FAULT	System fan Fault LED
/SYS/FB/FAN*n*/OK	Fan *n* OK LED
/SYS/FB/FAN*n*/SERVICE	Fan *n* Service LED
/SYS/LOCATE	System Locate indicator LED
/SYS/MB/P*n*/SERVICE	Processor *n* Service LED
/SYS/MB/P*n*/MR*n*/SERVICE	Processor *n*; Memory riser *n* Service LED
/SYS/MB/P*n*/MR*n*/D*n*/SERVICE	Processor *n*; Memory riser *n*; DIMM *n*; Service indicator
/SYS/MEMORY_FAULT	System memory Fault LED
/SYS/OK	System OK LED
/SYS/PS_FAULT	System power supply Fault LED
/SYS/SERVICE	System Service LED

TABLE 3-3 System Indicators *(Continued)*

Indicator Name	Description
/SYS/SP/OK	SP OK LED
/SYS/SP/SERVICE	SP Service LED
/SYS/TEMP_FAULT	System temperature Fault LED

Temperature Sensors

TABLE 3-4 describes the environmental sensors.

TABLE 3-4 Temperature Sensors

Sensor Name	Sensor Type	Description
/SYS/DBP/T_AMB	Temperature	Disk back plane ambient temperature sensor
/SYS/MB/T_OUT*n*	Temperature	Motherboard exhaust temperature *n* sensor **Note -** These sensors are located in the rear of the chassis.
/SYS/T_AMB	Temperature	System ambient temperature sensor **Note -** This sensor is located on the underside of the fan board.
/SYS/PS*n*/T_OUT	Temperature	Power supply *n* exhaust temperature sensors

Power Supply Fault Sensors

TABLE 3-5 describes the power supply fault sensors. In the table, *n* designates the numbers 0-1.

TABLE 3-5 Power Supply Sensors

Sensor Name	Sensor Type	Description
/SYS/PS*n*/V_OUT_OK	Fault	Power supply *n* output voltage OK
/SYS/PS*n*/V_IN_ERR	Fault	Power supply *n* input voltage error
/SYS/PS*n*/V_IN_WARN	Fault	Power supply *n* input voltage warning
/SYS/PS*n*/V_OUT_ERR	Fault	Power supply *n* output voltage error
/SYS/PS*n*/I_OUT_ERR	Fault	Power supply *n* output current error

TABLE 3-5 Power Supply Sensors *(Continued)*

Sensor Name	Sensor Type	Description
/SYS/PS*n*/I_OUT_WARN	Fault	Power supply *n* output current warning
/SYS/PS*n*/T_ERR	Fault	Power supply *n* temperature error
/SYS/PS*n*/T_WARN	Fault	Power supply *n* temperature warning
/SYS/PS*n*/FAN_ERR	Fault	Power supply *n* fan error
/SYS/PS*n*/FAN_WARN	Fault	Power supply *n* fan warning
/SYS/PS*n*/ERR	Fault	Power supply *n* error

Fan Speed and Physical Security Sensors

TABLE 3-6 describes the fan and security sensors. In the table, *n* designates numbers 0, 1, 2, etc.

TABLE 3-6 Fan and Security Sensors

Sensor Name	Sensor Type	Description
/SYS/FB/FAN*n*/TACH	Fan speed	Fan board; Fan *n* tachometer
/SYS/INTSW	Physical security	This sensor tracks the state of the chassis intrusion switch. If the server's top cover is opened while the AC power cords are still connected so that power is being applied to the server, this sensor asserts. If the top cover is subsequently replaced, this sensor is de-asserted. For more information, see "Server Chassis Intrusion Sensor" on page 28.

Power Supply Unit Current, Voltage, and Power Sensors

TABLE 3-7 describes the power supply unit current, voltage, and power sensors. In the table, *n* designates numbers 0-1.

TABLE 3-7 Power Supply Unit Current, Voltage, and Power Sensors

Sensor Name	Sensor Type	Description
/SYS/PS*n*/V_IN	Voltage	Power supply *n* AC input voltage sensor
/SYS/PS*n*/V_12V	Voltage	Power supply *n* 12 volt output sensor
/SYS/PS*n*/V_3V3	Voltage	Power supply *n* 3.3 volt output sensor
/SYS/PS*n*/P_IN	Power	Power supply *n* input power sensor
/SYS/PS*n*/P_OUT	Power	Power supply *n* output power sensor
/SYS/VPS	Power	Server total input power consumption sensor

Entity Presence Sensors

TABLE 3-8 describes the entity presence sensors. In the table, *n* designates numbers 0, 1, 2, etc.

TABLE 3-8 Presence Sensors

Sensor Name	Sensor Type	Description
/SYS/DBP/HDD*n*/PRSNT	Entity presence	Hard drive device present monitor
/SYS/DBP/PRSNT	Entity presence	Disk backplane present monitor
/SYS/FB/FAN*n*/PRSNT	Entity presence	Fan board; Fan *n* present monitor
/SYS/MB/P*n*/PRSNT	Entity presence	Motherboard; CPU *n* present monitor
/SYS/MB/P*n*/MR*n*/PRSNT	Entity presence	Motherboard; CPU *n*; Memory riser *n* present monitor
/SYS/MB/P*n*/MR*n*/D*n*/PRSNT	Entity presence	Motherboard; CPU *n*; Memory riser *n*; DIMM *n* present monitor
/SYS/MB/PCIE*n*/PRSNT	Entity presence	PCIe card *n* present monitor **Note -** *n* represents PCIe cards 0-9 or the cluster controller (cc) card.
/SYS/PS*n*/PRSNT	Entity presence	Power supply *n* present monitor

SNMP and PET Message Reference Information

This section describes Simple Network Management Protocol (SNMP) and Platform Event Trap (PET) messages that are generated by devices being monitored by Oracle ILOM.

SNMP Traps

SNMP Traps are generated by the SNMP agents that are installed on the SNMP devices being managed by Oracle ILOM. Oracle ILOM receives the SNMP Traps and converts them into SNMP event messages that appear in the event log. For more information about the SNMP event messages that might be generated on your system, see TABLE 3-9.

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
Memory Events			
sunHwTrapComponentFault	fault.memory.intel.boot-setup-init-failed	Major; A component is suspected of causing a fault	/SYS/
	fault.memory.intel.boot-retries-failed		
	fault.memory.intel.dimm.none		/SYS/MB
	fault.memory.controller.input-invalid		
	fault.memory.controller.init-failed		

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapComponentFault Cleared	fault.memory.intel.boot-setup-init-failed	Informational; A component fault has been cleared	/SYS/
	fault.memory.intel.boot-retries-failed		
	fault.memory.intel.dimm.none		/SYS/MB
	fault.memory.controller.input-invalid		
	fault.memory.controller.init-failed		
Service Processor Events			
sunHwTrapComponentFault	fault.chassis.device.misconfig	Major; A component is suspected of causing a fault	/SYS/SP
	fault.sp.failed		
sunHwTrapComponentFaultCleared	fault.chassis.device.misconfig	Informational; A component fault has been cleared	
	fault.sp.failed		
Environmental Events			
sunHwTrapComponentFault	fault.chassis.env.temp.over-fail	Major; A component is suspected of causing a fault	/SYS/
sunHwTrapComponentFaultCleared	fault.chassis.env.temp.over-fail	Informational; A component fault has been cleared	/SYS/
sunHwTrapTempCritThreshold Exceeded	Lower critical threshold exceeded	Major; A temperature sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	/SYS/MB/T_OUT /SYS/DBP/T_AMB
	Upper critical threshold exceeded		/SYS/MB/T_OUT /SYS/T_AMB /SYS/DBP/T_AMB
sunHwTrapTempCritThreshold Deasserted	Lower critical threshold no longer exceeded	Informational; A temperature sensor has reported that its value is in the normal operating range	/SYS/MB/T_OUT /SYS/DBP/T_AMB
	Upper critical threshold no longer exceeded		/SYS/MB/T_OUT /SYS/T_AMB /SYS/DBP/T_AMB

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapTempNonCritThresholdExceeded	Upper noncritical threshold exceeded	Minor; A temperature sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	/SYS/MB/T_OUT /SYS/DBP/T_AMB
sunHwTrapTempOk	Upper noncritical threshold no longer exceeded	Informational; A temperature sensor has reported that its value is in the normal operating range	/SYS/MB/T_OUT /SYS/DBP/T_AMB
sunHwTrapTempFatalThresholdExceeded	Lower fatal threshold exceeded	Critical; A temperature sensor has reported that its value has gone above an upper fatal threshold setting or below a lower fatal threshold setting	/SYS/MB/T_OUT /SYS/DBP/T_AMB
	Upper fatal threshold exceeded		/SYS/MB/T_OUT /SYS/T_AMB /SYS/DBP/T_AMB
sunHwTrapTempFatalThresholdDeasserted	Lower fatal threshold no longer exceeded	Informational; A temperature sensor has reported that its value has gone below an upper fatal threshold setting or above a lower fatal threshold setting	/SYS/MB/T_OUT /SYS/DBP/T_AMB
	Upper fatal threshold no longer exceeded		/SYS/MB/T_OUT /SYS/T_AMB /SYS/DBP/T_AMB
System Power Events			
sunHwTrapComponentFault	fault.chassis.power.missing fault.chassis.power.overcurrent fault.chassis.power.inadequate	Major; A component is suspected of causing a fault	/SYS/
sunHwTrapComponentFaultCleared	fault.chassis.power.missing fault.chassis.power.overcurrent fault.chassis.power.inadequate	Informational; A component fault has been cleared	/SYS/
sunHwTrapPowerSupplyFault	fault.chassis.env.power.loss fault.chassis.power.ac-low-line fault.chassis.device.wrong	Major; A power supply component is suspected of causing a fault	/SYS/PS

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapPowerSupplyFault Cleared	fault.chassis.env.power.loss fault.chassis.power.ac-low-line fault.chassis.device.wrong	Informational; A power supply component fault has been cleared	/SYS/PS
sunHwTrapPowerSupplyError	Assert	Major; A power supply sensor has detected an error	/SYS/PWRBS /SYS/PS*n*/ V_IN_ERR /SYS/PS*n*/ V_IN_WARN /SYS/PS*n*/ V_OUT_ERR /SYS/PS*n*/ I_OUT_ERR /SYS/PS*n*/ I_OUT_WARN /SYS/PS*n*/T_ERR /SYS/PS*n*/ T_WARN /SYS/PS*n*/ FAN_ERR /SYS/PS*n*/ FAN_WARN /SYS/PS*n*/ERR
	Deassert		/SYS/PS*n*/ V_OUT_OK

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapPowerSupplyOk	Deassert	Informational; A power supply sensor has returned to its normal state	/SYS/PWRBS /SYS/PS*n*/ V_IN_ERR /SYS/PS*n*/ V_IN_WARN /SYS/PS*n*/ V_OUT_ERR /SYS/PS*n*/ I_OUT_ERR /SYS/PS*n*/ I_OUT_WARN /SYS/PS*n*/T_ERR /SYS/PS*n*/ T_WARN /SYS/PS*n*/ FAN_ERR /SYS/PS*n*/ FAN_WARN /SYS/PS*n*/ERR
	Assert		/SYS/PS*n*/ V_OUT_OK
sunHwTrapComponentError	ACPI_ON_WORKING ASSERT ACPI_ON_WORKING DEASSERT ACPI_SOFT_OFF ASSERT ACPI_SOFT_OFF DEASSERT	Major; A sensor has detected an error	/SYS/ACPI
Entity Presence Events			
UNKNOWN	ENTITY_PRESENT ASSERT ENTITY_PRESENT DEASSERT ENTITY_ABSENT ASSERT ENTITY_ABSENT DEASSERT ENTITY_DISABLED ASSERT ENTITY_DISABLED DEASSERT	Informational	/SYS/MB/P*n*/ PRSNT /SYS/MB/P*n*/MR*n* /PRSNT /SYS/MB/PCIE*n*/P RSNT /SYS/MB/ PCIE_CC/PRSNT

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
Fans, Hard Drives, and Physical Security Events			
sunHwTrapComponentFault	fault.chassis.device.fan.column-fail fault.security.enclosure-open	Major; A component is suspected of causing a fault	/SYS
sunHwTrapComponentFaultCleared	fault.chassis.device.fan.column-fail fault.security.enclosure-open	Informational; A component fault has been cleared	/SYS/
UNKNOWN	Assert Deassert	Informational	/SYS/MB/PCIE*n*/WIDTH /SYS/ESMR/ESM/FAULT
sunHwTrapSecurityIntrusion	CHASSIS_INTRUSION ASSERT CHASSIS_INTRUSION DEASSERT	Major; An intrusion sensor has detected that someone may have physically tampered with the system	/SYS/INTSW

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapFanSpeedCritThresholdExceeded	Lower critical threshold exceeded	Major; A fan speed sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	/SYS/FB/FAN*n*/TACH
sunHwTrapFanSpeedCritThresholdDeasserted	Lower critical threshold no longer exceeded	Informational; A fan speed sensor has reported that its value has gone below an upper critical threshold setting or above a lower critical threshold setting	
sunHwTrapFanSpeedFatalThresholdExceeded	Lower fatal threshold exceeded	Critical; A fan speed sensor has reported that its value has gone above an upper fatal threshold setting or below a lower fatal threshold setting	
sunHwTrapFanSpeedFatalThresholdDeasserted	Lower fatal threshold no longer exceeded	Informational; A fan speed sensor has reported that its value has gone below an upper fatal threshold setting or above a lower fatal threshold setting	
System Chassis and I/O Events			
sunHwTrapComponentFault	fault.chassis.boot.ipmi-init-failed fault.io.quickpath.qpirc-init-failed fault.io.quickpath.qpirc-failed fault.io.quickpath.mrc-failed	Major; A component is suspected of causing a fault	/SYS/

TABLE 3-9 SNMP Traps and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapComponentFaultCleared	fault.chassis.boot.ipmi-init-failed fault.io.quickpath.qpirc-init-failed fault.io.quickpath.qpirc-failed fault.io.quickpath.mrc-failed	Informational; A component fault has been cleared	/SYS/

PET Event Messages

Platform Event Trap (PET) event messages are generated by systems with Alert Standard Format (ASF) or an IPMI baseboard management controller. The PET events provide advance warning of possible system failures. For more information about the PET event messages that might occur on your system, see TABLE 3-10.

TABLE 3-10 PET Messages and Corresponding Oracle ILOM Events for Sun Server X2-4

PET Message	ILOM Event Message	Severity and Description	Sensor Name
System Power Events			
petTrapACPIPowerStateS5G2SoftOffAssert	SystemACPI 'ACPI_ON_WORKING'	Informational; System ACPI Power State S5/G2 (soft-off) was asserted	/SYS/ACPI
petTrapACPIPowerStateS5G2SoftOffDeassert	System ACPI Power State : ACPI : S5/G2: soft-off : Deasserted	Informational; System ACPI Power State S5/G2 (soft-off) was deasserted	
petTrapACPIPowerStateS0G0WorkingAssert	System ACPI Power State : ACPI : S0/G0: working : Asserted	Informational; System ACPI Power State S0/G0 (working)	
petTrapACPIPowerStateS0G0WorkingDeassert	System ACPI Power State : ACPI : S0/G0: working : Deasserted	Informational; System ACPI Power State S0/G0 (working) was deasserted	

TABLE 3-10 PET Messages and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

PET Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapPowerSupplyStateAsserted Assert	PowerSupply sensor DEASSERT	Informational; Power Supply is connected to AC Power	/SYS/PS*n*/ V_OUT_OK /SYS/PS*n*/ V_IN_ERR /SYS/PS*n*/ V_IN_WARN /SYS/PS*n*/ V_OUT_ERR /SYS/PS*n*/ I_OUT_ERR /SYS/PS*n*/ I_OUT_WARN /SYS/PS*n*/T_ERR /SYS/PS*n*/ T_WARN /SYS/PS*n*/ FAN_ERR /SYS/PS*n*/ FAN_WARN /SYS/PS*n*/ERR
petTrapPowerSupplyStateDeasserted Assert	PowerSupply sensor ASSERT	Warning; Power Supply is disconnected from AC Power	
Entity Presence Events			
petTrapEntityPresenceEntityPresentAssert	Entity Presence : PCIE1/PRSNT : Present : Asserted	Informational; The Entity identified by the Entity ID is present	/SYS/PCIE*n*/ PRSNT /SYS/PCIE_CC/ PRSNT
petTrapEntityPresenceEntityAbsentDeassert	Entity Presence : PCIE1/PRSNT : Absent : Deasserted		
petTrapEntityPresenceEntityAbsentAssert	Entity Presence : PCIE1/PRSNT : Absent : Asserted	Informational; The Entity identified by the Entity ID is absent	
petTrapEntityPresenceEntityPresentDeassert	Entity Presence : PCIE1/PRSNT : Present : Deasserted	Informational; The Entity identified by the Entity ID for the sensor is absent	

TABLE 3-10 PET Messages and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

PET Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapEntityPresenceEntityDisabledAssert	Entity Presence : PCIE1/PRSNT : Disabled : Asserted	Informational; The Entity identified by the Entity ID is present, but has been disabled	/SYS/PCIE4/PRSNT /SYS/PCIE6/PRSNT
petTrapEntityPresenceEntityDisabledDeassert	Entity Presence : PCIE1/PRSNT : Disabled : Deasserted	Informational; The Entity identified by the Entity ID is present and has been enabled	/SYS/PCIE_CC/PRSNT
petTrapEntityPresenceDeviceInsertedAssert	Entity Presence : PS0/PRSNT : DevicePresent	Informational; A device is present or has been inserted	/SYS/PS*n*/PRSNT /SYS/FB/FAN*n*/PRSNT
petTrapEntityPresenceDeviceRemovedAssert	Entity Presence : PS0/PRSNT : DeviceAbsent	Informational; A device is absent or has been removed	/SYS/DBP/HDD*n*/PRSNT
Environmental Events			
petTrapTemperatureUpperNonRecoverableGoingLowDeassert	Temperature Upper non-critical threshold has been exceeded	Major; Temperature has decreased below upper non-recoverable threshold	/SYS/MB/T_OUT /SYS/DBP/T_AMB /SYS/T_AMB
petTrapTemperatureUpperCriticalGoingLowDeassert	Temperature Lower non-critical threshold has been exceeded	Warning; Temperature has decreased below upper critical threshold	
petTrapTemperatureUpperNonRecoverableGoingHigh	Temperature Lower non-critical threshold no longer exceeded	Critical; Temperature has decreased below upper non-recoverable threshold	
petTrapTemperatureUpperCriticalGoingHigh	Temperature Lower fatal threshold has been exceeded	Major; Temperature has increased above upper critical threshold	
Fans, Hard Drives, and Physical Security Events			
petTrapPhysicalSecurityChassisIntrusionStateDeassertedAssert	Physical Security : INTSW : State Deasserted	Informational; Physical security: chassis intrusion alarm cleared	/SYS/INTSW
petTrapPhysicalSecurityChassisIntrusionStateAssertedAssert	Physical Security : INTSW : State Asserted	Warning; Physical security breach: chassis intrusion	

TABLE 3-10 PET Messages and Corresponding Oracle ILOM Events for Sun Server X2-4 *(Continued)*

PET Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapFanLowerCriticalGoingLow	Fan Lower fatal threshold has been exceeded	Major; Fan speed has decreased below lower critical threshold	/SYS/FB/FAN*n*/TACH
petTrapFanLowerCriticalGoingHighDeassert	Fan Lower fatal threshold no longer exceeded	Warning; Fan speed has increased above lower critical threshold	
petTrapDriveSlotDriveFaultAssert	Drive Slot : DBP/HDD0/STATE : Drive Fault : Asserted	Critical; HDD Fault has been detected. A corresponding HDD Fault LED is ON	DBP/HDD*n*/STATE
petTrapDriveSlotDriveFaultDeassert	Drive Slot : DBP/HDD0/STATE : Drive Fault : Deasserted	Informational; HDD Fault has been cleared. An HDD Fault LED which was ON is now OFF	
petTrapDriveSlotPredictiveFailureAssert	Drive Slot : DBP/HDD0/STATE : Predictive Failure : Asserted	Major; HDD Predictive Failure has been detected	
petTrapDriveSlotReadyToRemoveAssert	Drive Slot : DBP/HDD0/STATE : Hot Spare : Asserted	Informational: A drive has been unmounted and is ready to be physically removed. A corresponding OK-to-Remove LED is ON	
petTrapDriveSlotReadyToRemoveDeassert	Drive Slot : DBP/HDD0/STATE : Hot Spare : Deasserted	Informational; A drive is no longer ready to be physically removed. It has either been removed or mounted again. A corresponding OK-to-Remove LED is OFF	
petTrapDriveSlotPredictiveFailureDeassert	Drive Slot : DBP/HDD0/STATE : Predictive Failure : Deasserted	Informational; Hard Disk Predictive Failure state has been cleared	

CHAPTER 4

Getting Server Firmware and Software

This section explains the options for accessing server firmware and software.

Description	Links
Learn about server firmware and software updates.	"Firmware and Software Updates" on page 49
Learn about the options for accessing firmware and software.	"Firmware and Software Access Options" on page 50
View the available firmware and software packages	"Available Software Release Packages" on page 50
Access the firmware and software packages through My Oracle Support, or Physical Media Request.	"Accessing Firmware and Software" on page 51
Install firmware and software updates.	"Installing Updates" on page 55

Firmware and Software Updates

Firmware and software, such as hardware drivers and tools for the server, are updated periodically. These are made available as a software release. The software release is a set of downloads (patches) that includes all available firmware, hardware drivers, and utilities for the server. All these have been tested together. The ReadMe document that is included with the download explains what has changed and what has not changed from the prior software release.

You should update your server firmware and software as soon as possible after the software release becomes available. 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.

The ReadMe file in the download package contains information about the updated files in the download package, as well as bugs that are fixed with the current release. The product notes also provide information about which server software versions are supported.

Firmware and Software Access Options

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

- **Oracle Hardware Installation Assistant** – Oracle Hardware Installation Assistant is a factory-installed feature for the Sun Server X2-4 that allows you to easily update server firmware and software.
- For more information about Oracle Hardware Installation Assistant, refer to the *Oracle Hardware Installation Assistant 2.5 User's Guide for x86 Servers* at `http://www.oracle.com/pls/topic/lookup?ctx=hia`
- **My Oracle Support** – All system firmware and software are available from the My Oracle Support web site.

  For more information about what is available on the My Oracle Support web site, see `http://support.oracle.com`.

  For instructions on how to download software releases from My Oracle Support, see "Download Firmware and Software Using My Oracle Support" on page 51.
- **Physical Media Request (PMR)** – You can request a DVD that contains any of the downloads (patches) that are available from My Oracle Support.

  For information see, "Requesting Physical Media" on page 52.

Available Software Release Packages

Downloads on My Oracle Support are grouped by product family, then product, then version. The version contains one or more downloads (patches).

For servers and blades, the pattern is similar. The product is the server. Each server contains a set of releases. These releases are not true software product releases, but rather are releases of updates for the server. These updates are called software releases and comprise several downloads, all tested together. Each download contains firmware, drivers, or utilities.

My Oracle Support has the same set of download types for this server family as shown in the following table. These can also be requested through a physical media request (PMR).

Package Name	Description	When to Download This Package
X4470 M2 SERVER SW 1.3 - ILOM_AND_BIOS	Oracle ILOM and BIOS	You need the latest platform firmware.
X4470 M2 SERVER SW 1.3 – ORACLE_HARDWARE_INSTALLATION_ASSISTANT	Oracle Hardware Installation Assistant recovery and ISO update image.	You need to manually recover or update Oracle Hardware Installation Assistant.
X4470 M2 SERVER SW 1.3 ˇ2013 TOOLS_DRIVERS_AND_FIRMWARE_DVD	Includes the tools and drivers and platform FWs. This DVD does not include Oracle VTS.	You need to update a combination of system firmware and OS-specific software.
X4470 M2 SERVER SW 1.0 - DIAGNOSTICS	Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.

Accessing Firmware and Software

This section covers instructions for downloading or requesting software release files. See:

- "Download Firmware and Software Using My Oracle Support" on page 51
- "Requesting Physical Media" on page 52

▼ Download Firmware and Software Using My Oracle Support

1. **Navigate to the following web site:** `http://support.oracle.com`
2. **Select the Flash interface and sign in to My Oracle Support.**

3. **At the top of the page, click the Patches and Updates tab.**

   The Patches and Updates screen appears.

4. **In the Search screen, click Product or Family (Advanced).**

   The screen 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, Sun Server X2-4) until a match appears.

6. **In the Release field, select a software release from the drop-down list.**

   Expand the folders to see all available software releases.

7. **Click Search.**

   The software release comprises a set of downloads (patches).

   See "Available Software Release Packages" on page 50 for a description of the available downloads.

8. **To select a patch, click the check box next to the patch name (you can select more than one patch).**

   A pop-up action panel appears. The panel contains several action options.

9. **To download the update, click Download in the pop-up panel.**

   The download begins automatically.

Requesting Physical Media

If your processes do not allow downloads from Oracle web sites, you can access the latest software release through a physical media request (PMR).

The following table describes the high-level tasks for making a physical media request and provides links for further information.

Description	Link
Gather information you will need to provide for the request.	"Gathering Information for the Physical Media Request" on page 53
Make the physical media request either online or by calling Oracle Support.	"Request Physical Media (Online)" on page 53 "Request Physical Media (By Phone)" on page 54

Gathering Information for the Physical Media Request

You must have a warranty or support contract for your server in order to make a physical media request (PMR).

Before you make the PMR, gather the following information:

Obtain product name, software release version, and patches required. It will be easier to make the request if you know the latest software release and the name of the download packages (patches) that you are requesting.

- *If you have access to My Oracle Support* – Follow the instructions in "Download Firmware and Software Using My Oracle Support" on page 51 to determine the latest software release and view available downloads (patches). After viewing the list of patches, you can navigate away from the Patch Search Results page, if you do not want to continue with the download steps.
- *If you do not have access to My Oracle Support* – Use the information in "Available Software Release Packages" on page 50 to determine which packages you want, then request those packages for the latest software release.
- **Have the shipping information ready.** You will need to provide a contact, phone number, email address, company name, and shipping address as part of the request.

▼ Request Physical Media (Online)

Gather the information described in "Gathering Information for the Physical Media Request" on page 53 before making the request.

1. **Go to the following web site:** `http://support.oracle.com`.
2. **Select the Flash interface, then sign in to My Oracle Support.**
3. **Click on the Contact Us link in the upper right corner of the page.**
4. **In the Request Description section, fill in the following:**
   a. **In the Request Category drop-down menu, select the following:**
      Software and OS Media Requests
   b. **In the Request Summary field, type:** `PMR for latest software release for Sun Server X2-4`.
5. **In the Request Details section, answer the questions shown in the following table:**

Question	Your Answer
Is this a physical software media shipment request?	Yes
Which product line does the media request involve?	Sun Products
Are you requesting a required password for a patch download?	No
Are you requesting a patch on CD/DVD?	Yes
If requesting a patch on CD/DVD, please provide the patch number and OS/platform?	Enter the patch number for each download that you want from the software release.
List the product name and version requested for the physical media shipment?	*Product Name:* Sun Server X2-4 *Version:* Latest software release number
What is the OS/platform for the requested media?	If you are requesting OS-specific downloads, specify the OS here. If you are requesting system firmware only, enter Generic.
Are any languages required for this shipment?	No

6. **Fill in the Ship-To contact, phone number, email address, company name, and shipping address information.**
7. **Click Next.**
8. **In the Upload Files, Relevant Files screen, click next.**

   You do not need to supply any information.
9. **In the Related Knowledge screen, review Knowledge Articles applicable to your request.**
10. **Click Submit.**

▼ Request Physical Media (By Phone)

Gather the information described in "Gathering Information for the Physical Media Request" on page 53 before making the request.

1. **Call Oracle support, using the appropriate number from the Oracle Global Customer Support Contacts Directory at:**

   `http://www.oracle.com/us/support/contact-068555.html`

2. **Tell Oracle support that you want to make a physical media request (PMR) for the Sun Server X2-4.**
   - If you are able to access the specific software release and patch number information from My Oracle Support, provide this information to the support representative.
   - If you are unable to access the software release information, request the latest software release for the Sun Server X2-4.

Installing Updates

The following sections provide information about installing firmware and software updates:

- "Installing Firmware" on page 55
- "Installing Hardware Drivers and OS Tools" on page 56

Installing Firmware

Updated firmware can be installed using one of the following:

- **Oracle Hardware Installation Assistant** – Oracle Hardware Installation Assistant can download and install the latest firmware from Oracle.
- For more information about Oracle Hardware Installation Assistant, refer to the *Oracle Hardware Installation Assistant 2.5 User's Guide for x86 Servers* at `http://www.oracle.com/pls/topic/lookup?ctx=hia`
- **Oracle Enterprise Manager Ops Center** – Ops Center Enterprise Controller can automatically download the latest firmware from Oracle, or firmware can be loaded manually into the Enterprise Controller. In either case, Ops Center can install the firmware onto one or more servers, blades, or blade chassis.

  For more information, go to: `http://www.oracle.com/us/products/enterprise-manager/044497.html`.
- **Oracle Hardware Management Pack** – The `fwupdate` CLI Tool within the Oracle Hardware Management Pack can be used to update firmware within the system.

  For more information, refer to the Oracle Hardware Management Pack Documentation Library at: `http://www.oracle.com/pls/topic/lookup?ctx=ohmp`.

- **Oracle ILOM** – Oracle ILOM and BIOS firmware are the only firmware that can be updated using either the Oracle ILOM web interface or the command-line interface.

  For more information, refer to the Oracle Lights Out Manager (ILOM) 3.0 Documentation Library at:
  http://www.oracle.com/pls/topic/lookup?ctx=ilom30

  You can access the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at:
  http://www.oracle.com/pls/topic/lookup?ctx=ilom31.

Installing Hardware Drivers and OS Tools

Updated hardware drivers and operating system (OS)-related tools, such as Oracle Hardware Management Pack, can be installed using one of the following:

- **Oracle Enterprise Manager Ops Center**

  For more information, go to:
  http://www.oracle.com/us/products/enterprise-manager/044497.html.

- **Other deployment mechanisms,** such as JumpStart, KickStart, or third-party tools.

  For more information, refer to your operating system documentation.

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