Oracle® Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Fire X4800 Server

Part No: 821–0284
-10, May 2012

ORACLE

Copyright © 2010, 2012, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS. Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Ce logiciel et la documentation qui l'accompagne sont protégés par les lois sur la propriété intellectuelle. Ils sont concédés sous licence et soumis à des restrictions d'utilisation et de divulgation. Sauf disposition de votre contrat de licence ou de la loi, vous ne pouvez pas copier, reproduire, traduire, diffuser, modifier, breveter, transmettre, distribuer, exposer, exécuter, publier ou afficher le logiciel, même partiellement, sous quelque forme et par quelque procédé que ce soit. Par ailleurs, il est interdit de procéder à toute ingénierie inverse du logiciel, de le désassembler ou de le décompiler, excepté à des fins d'interopérabilité avec des logiciels tiers ou tel que prescrit par la loi.

Les informations fournies dans ce document sont susceptibles de modification sans préavis. Par ailleurs, Oracle Corporation ne garantit pas qu'elles soient exemptes d'erreurs et vous invite, le cas échéant, à lui en faire part par écrit.

Si ce logiciel, ou la documentation qui l'accompagne, est concédé sous licence au Gouvernement des Etats-Unis, ou à toute entité qui délivre la licence de ce logiciel ou l'utilise pour le compte du Gouvernement des Etats-Unis, la notice suivante s'applique:

U.S. GOVERNMENT END USERS. Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

Ce logiciel ou matériel a été développé pour un usage général dans le cadre d'applications de gestion des informations. Ce logiciel ou matériel n'est pas conçu ni n'est destiné à être utilisé dans des applications à risque, notamment dans des applications pouvant causer des dommages corporels. Si vous utilisez ce logiciel ou matériel dans le cadre d'applications dangereuses, il est de votre responsabilité de prendre toutes les mesures de secours, de sauvegarde, de redondance et autres mesures nécessaires à son utilisation dans des conditions optimales de sécurité. Oracle Corporation et ses affiliés déclinent toute responsabilité quant aux dommages causés par l'utilisation de ce logiciel ou matériel pour ce type d'applications.

Oracle et Java sont des marques déposées d'Oracle Corporation et/ou de ses affiliés. Tout autre nom mentionné peut correspondre à des marques appartenant à d'autres propriétaires qu'Oracle.

Intel et Intel Xeon sont des marques ou des marques déposées d'Intel Corporation. Toutes les marques SPARC sont utilisées sous licence et sont des marques ou des marques déposées de SPARC International, Inc. AMD, Opteron, le logo AMD et le logo AMD Opteron sont des marques ou des marques déposées d'Advanced Micro Devices. UNIX est une marque déposée d'The Open Group.

Ce logiciel ou matériel et la documentation qui l'accompagne peuvent fournir des informations ou des liens donnant accès à des contenus, des produits et des services émanant de tiers. Oracle Corporation et ses affiliés déclinent toute responsabilité ou garantie expresse quant aux contenus, produits ou services émanant de tiers. En aucun cas, Oracle Corporation et ses affiliés ne sauraient être tenus pour responsables des pertes subies, des coûts occasionnés ou des dommages causés par l'accès à des contenus, produits ou services tiers, ou à leur utilisation.

120606@25097

Contents

Using This Documentation 5
- Product Information Web Site 5
- Documentation and Feedback 5
- About This Documentation (PDF and HTML) 6
- Contributors 6
- Change History 6

Overview of the ILOM Supplement 7

Introduction to Oracle ILOM Software 9
- ILOM Documentation Overview 9
- ILOM Software Overview 9
- What Does ILOM Do? 10

How to Access the Console 11
- How to Access the Console 11

Updating Firmware 19
- Firmware Versions Worksheet 19
- Determining Current Firmware Versions 20
- Preparing for the Firmware Update 26
- Updating the ILOM and System BIOS 27
- Updating the Embedded HBA BIOS 31

Indicators, Sensors, and Traps 35
- Indicators 35
- Sensors 37
- SNMP and PET Traps 41

Index 47

Using This Documentation

This section describes related documentation, submitting feedback, and a document change history.

- "Product Information Web Site" on page 5
- "Documentation and Feedback" on page 5
- "About This Documentation (PDF and HTML)" on page 6
- "Contributors" on page 6
- "Change History" on page 6

Product Information Web Site

For information about the Sun x86 servers, go to `http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html`.

For software and firmware downloads for your x86 server product, go to `http://www.oracle.com/technetwork/server-storage/sun-x86/downloads/index.html` page and click on your server model.

Documentation and Feedback

Documentation	Link
All Oracle products	`http://www.oracle.com/documentation`
Sun Fire X4800 server	`http://download.oracle.com/docs/cd/E19140-01/index.html`
Oracle ILOM 3.0	`http://www.oracle.com/technetwork/documentation/sys-mgmt-networking-190072.html#ilom`

Provide feedback on this documentation at: `http://www.oracle.com/goto/docfeedback`.

About This Documentation (PDF and HTML)

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendixes, or section numbering.

A PDF that includes all information on a particular topic subject (such as hardware installation or product notes) can be downloaded by clicking on the PDF button in the upper left corner of the page.

Contributors

Primary Authors: Michael Bechler, Ralph Woodley, Ray Angelo, Cynthia Chin-Lee.

Change History

The following changes have been made to the documentation set.

- April 2010 – Installation Guide released.
- June 2010 – Installation Guide and Getting Started Guide re-released.
- July 2010 – Initial release of other documents.
- August 2010 – Product Notes and Service Manual re-released. ESX Installation Guide added.
- October 2010 – Product Notes re-released.
- December 2010 – Product Notes re-released.
- March 2011 – Documents re-released for SW1.2 including the Installation Guide, the Product Notes, the Linux Installation Guide, the Oracle Solaris Installation Guide, the Windows Installation Guide, and the Service Manual.
- July 2011 – Product Notes and Service Manual re-released.
- January 2012 – Product Notes updated for SW1.4.
- June 2012 – Product Notes, Oracle VM Installation Guide, Oracle Solaris Installation Guide, Oracle ILOM 3.0 Supplement, and the Diagnostics Manual re-released.

Overview of the ILOM Supplement

Note – Before performing the procedures contained in this topic set, set up your hardware as shown in the *Sun Fire X4800 Server Installation Guide*.

The following topics are covered in this topic set.

Description	Link
Learn about managing the server with the Integrated Lights Out Manager (ILOM).	"ILOM Software Overview" on page 9
Learn how to connect to the system console.	"How to Access the Console" on page 11
Update ILOM, BIOS, and HBA firmware.	"Updating Firmware" on page 19
View information about ILOM indicators, sensors, SNMP, and PET traps.	"Indicators, Sensors, and Traps" on page 35

Introduction to Oracle ILOM Software

This section contains information on the following topics:

- "ILOM Documentation Overview" on page 9
- "ILOM Software Overview" on page 9
- "What Does ILOM Do?" on page 10

Note – The *Sun Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* describes how to recover a lost password from the ILOM serial console. As part of the recovery, you must prove physical presence at the server. To prove physical presence, press the Locate button (left-most button on the front of the server and on the rear of the server near the serial management port).

ILOM Documentation Overview

The following documents provide additional information about the Oracle Integrated Lights Out Manager (ILOM):

- The *Oracle Integrated Lights Out Management (ILOM) 3.0 Documentation* collection provides detailed information about the ILOM.
- "Cabling and Power" in *Sun Fire X4800 Server Installation Guide* provides instructions for cabling your server so you can communicate with the ILOM.
- "Communicating With the ILOM and the System Console" in *Sun Fire X4800 Server Installation Guide* provides instructions for connecting to the ILOM.

ILOM Software Overview

ILOM provides advanced service processor hardware and software that you can use to manage and monitor your Sun servers. ILOM's dedicated hardware and software is preinstalled on a variety of Sun server platforms, including x64-based Sun Fire servers, Sun Blade modular chassis systems, Sun Blade server modules, as well as on SPARC-based servers. ILOM is a vital management tool in the data center and can be used to integrate with other data center management tools that are already installed on your systems.

Oracle is currently transitioning many systems to support ILOM so that customers will have a single, consistent, and standards-based service processor (SP) across Oracle's product lines.

For customers, this means you will have:

- Single, consistent system management interfaces for operators
- Rich protocol and standards support
- Increasing third-party management support
- System management functions integrated into Oracle servers at no extra cost

What Does ILOM Do?

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 ILOM, you can proactively:

- 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 using IPMI PETs, SNMP Traps, or Email Alerts

The 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 ILOM from the server's host operating system that Sun supports (Oracle Solaris, Linux, and Windows). Using ILOM, you can remotely manage your server as if you were using a locally attached keyboard, monitor, and mouse.

ILOM automatically initializes as soon as power is applied to your server. It provides a full-featured, browser-based web interface and has an equivalent command-line interface (CLI). There is also an industry-standard SNMP interface and IPMI interface.

How to Access the Console

This section describes how to connect to the system console.

The console is used to communicate with the operating system (OS) during OS installation, and for some low-level maintenance activities. It provides a simple, text-based interface that requires only a keyboard and a video display.

During an OS installation, at some point, the operating system starts displaying either console or video output on the video monitor. However, it continues to display text-based output on the console. Exactly when it displays output on the video monitor depends on what OS is being installed. See your OS documentation for more details.

How to Access the Console

Choose one of the following methods to access the console:

- Directly, using the serial connector or the multiport cable. For this you must be located at the system.
- Using the ILOM CLI. After accessing the ILOM CLI, a command passes control from the ILOM CLI to the console.
- Using the ILOM GUI and a JavaRConsole session.

▼ How To Access the System Console Directly

1 **Connect a keyboard, monitor, and mouse to the multiport cable or the serial connector on the front panel.**

See "Front Features and Components" in *Sun Fire X4800 Server Installation Guide*

2 **Power the server on.**

See "Powering the Server On and Off" in *Sun Fire X4800 Server Installation Guide*for more details.

Console messages appear on the monitor.

How To Access the System Console Remotely Using the ILOM CLI

The ILOM allows you to log on to the CLI remotely, using as SSH session.

Before You Begin The ILOM must be running and connected to the same network as your terminal. Also, you must know the ILOM's IP address, username, and password.

1. **Establish an SSH connection using the following command, and then enter the default password (`changeme`) when you are prompted:**

   `# ssh –l root` *sp_ip_address*

   `changeme`

   After you have successfully logged in, the SP displays its default command prompt:

   `->`

2. **To power on the system, type the command: `start /SYS`.**

   You can also power the system on or off using a stylus or button, as described in "Powering the Server On and Off" in *Sun Fire X4800 Server Installation Guide*.

3. **To start the system console, type: `start /SP/console`**

4. **To exit the system console and return to the ILOM CLI, press Esc-Shift-9.**

How to Connect Remotely Using the ILOM Web Interface

This procedure uses the ILOM to create a remote javaRConsole session. This allows you to access a system equipped with ILOM from another, remote system.

javaRConsole sessions take place on two systems: the *local system* and the *target system*. It makes the resources on the local system available to the ILOM on the target system.

- The local system is where you enter commands and view the results.
- The target system is where the commands are executed and the results take place.

Before You Begin The following equipment is required:

- The local system must have:
  - An operating system such as Oracle Solaris, Linux, or Windows
  - Java Runtime Environment (JRE) 1.5 or later
  - A keyboard, monitor, and mouse
  - A browser such as Firefox or Internet Explorer
  - A connection to the same network as the target system

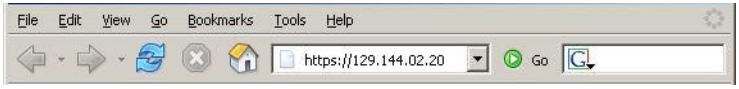
- (Optional) A CD/DVD drive or equivalent ISO file, or a floppy drive

Note – If the remote console system is running Oracle Solaris OS, volume management must be disabled for the remote console to access the floppy and the CD/DVD drives.

- The target system must have:
  - ILOM installed and running
  - A connection to the same network as the local system

1 **Start the remote console application by typing the IP address of the ILOM service processor into a browser on the local system.**

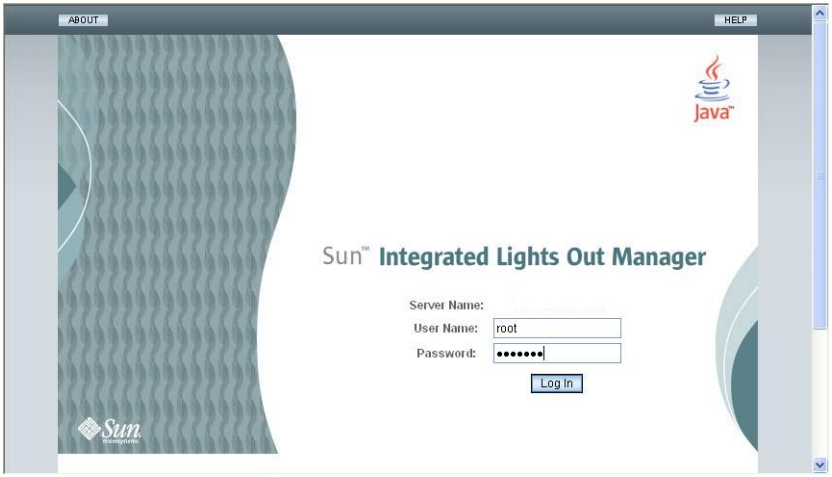
Note – All of these steps are physically located on the local system.



A Security Alert dialog box might be displayed.

2 **If a Security Alert dialog box appeared, click Yes.**

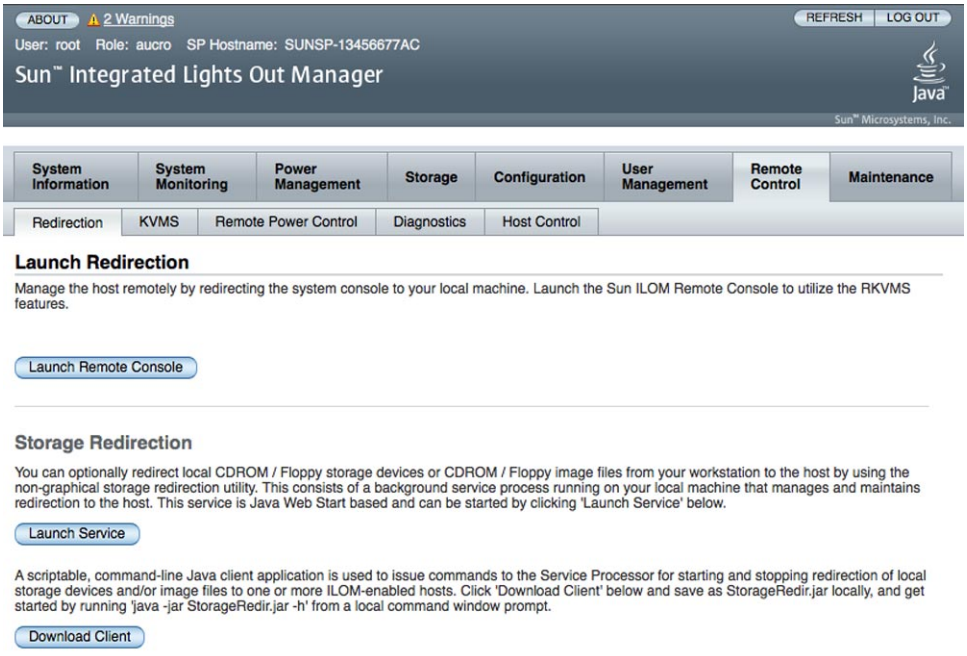
The ILOM login screen appears.



3 **Enter the user name and password and click Log In.**

The default user name is **root**, and default password is **changeme**.

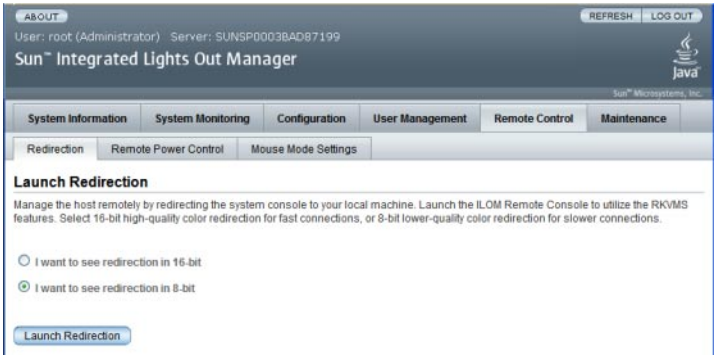
The ILOM main screen appears.



4 Click the Remote Control tab in the ILOM Web interface.

The Launch Redirection screen appears.

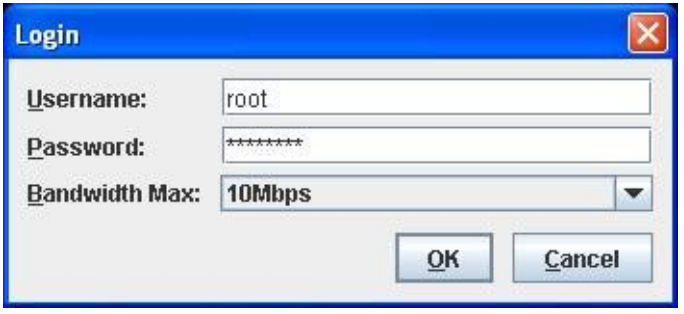
Note – Make sure that the mouse mode is set to Absolute mode in the Mouse Mode Settings tab.



5 **Click 8-bit color or 16-bit color, and then click Launch Redirection.**

Note – When you are using a Windows system for remote console redirection, an additional warning might appear after clicking Launch Redirection. If the Hostname Mismatch dialog box is displayed, click the Yes button.

The Remote Control dialog box appears.



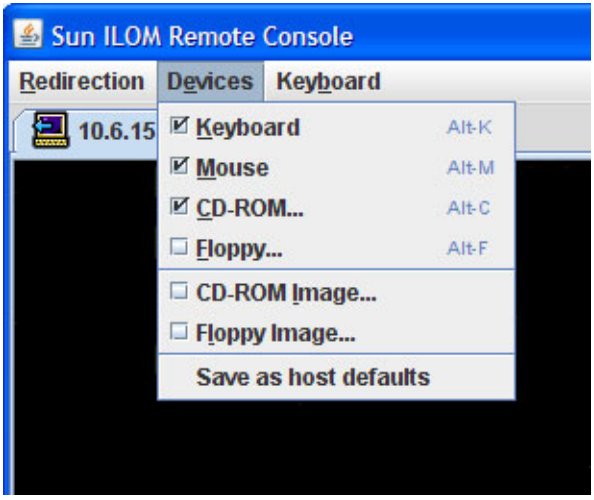
6 **In the Remote Control Login dialog box, enter your user name and password and click OK.**

Note – You must have administrator privileges.

The default user name is **`root`** and password is **`changeme`**.

The JavaRConsole screen appears.

7 **(Optional) If you require access to physical media on the local machine, select the corresponding media from the Devices menu.**



- **Remote Physical Floppy Disk** – Select Floppy to redirect the server to the physical floppy drive attached to the remote console.
- **Remote Floppy Image** – Select Floppy Image to redirect the server to the floppy image file located on the remote console.
- **Remote Physical CD/DVD** – Select CD-ROM to redirect the server to the CD/DVD in the CD/DVD drive attached to the remote console.
- **Remote CD/DVD Image** – Select CD-ROM Image to redirect the server to the `.iso` image file located on the remote console .

Note – Using either of the CD/DVD options to install software on your server significantly increases the time necessary to perform the installation because the content is accessed over the network. The installation duration depends on the network connectivity and traffic.

Updating Firmware

Updates to the firmware for ILOM, system BIOS, and LSI HBA are periodically available on the server download site to provide additional features and bug fixes for the server. The firmware components must all be updated together for a given software update. The "Firmware Versions Worksheet" on page 19 can be used to keep track of the firmware versions needed for the upgrade process.

The firmware update process includes the procedures covered in the following topics. The procedures are listed in the recommended completion order.

Step	Description	Link
1	Verify the firmware versions that are currently running on the server.	"Determining Current Firmware Versions" on page 20
2	Determine the target firmware versions and download the firmware.	"Preparing for the Firmware Update" on page 26
3	Update the ILOM and system BIOS.	"Updating the ILOM and System BIOS" on page 27
4	Update the Embedded HBA BIOS.	"Updating the Embedded HBA BIOS" on page 31

Firmware Versions Worksheet

The following table is provided to help keep track of firmware versions that you will identify in the procedures described in this section.

Firmware Type	Current Version	Intermediate Version	Target Version
ILOM			
BIOS			
LSI HBA		n/a	
CPLD			

Firmware Type	Current Version	Intermediate Version	Target Version
NEM			
FMOD			

Determining Current Firmware Versions

The first three methods this section describe ways to determine current the ILOM and BIOS firmware versions. The fourth method describes how to determine the LSI HBA firmware version.

This section contains the following procedures:

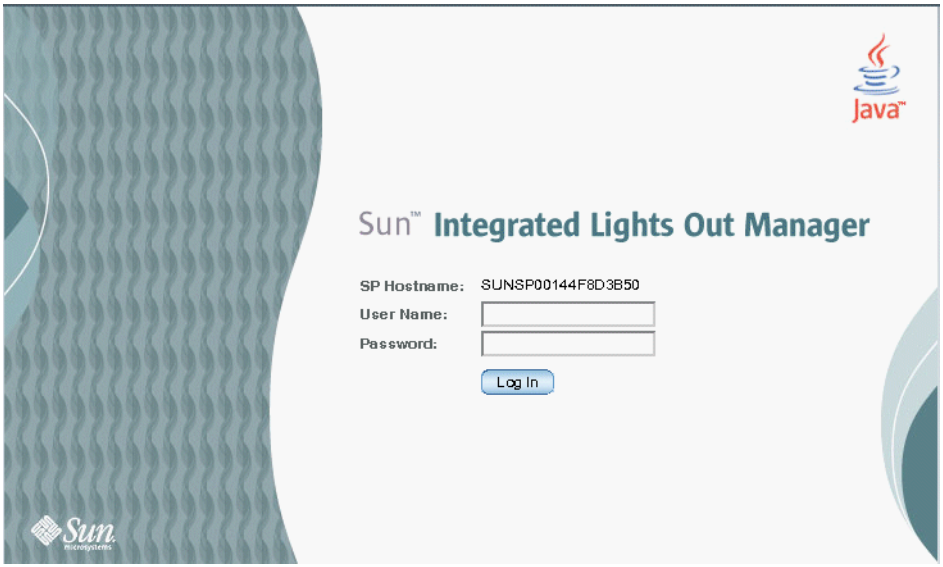
- "How to Verify the ILOM and BIOS Firmware Versions Using the Web Interface" on page 20
- "How to Verify the ILOM and BIOS Firmware Versions Using the Command-Line Interface Through the Serial Port" on page 23
- "How to Verify the ILOM and BIOS Firmware Versions Using the Command—Line Interface Through the Management Ethernet Port" on page 24
- "How to Verify the LSI HBA Firmware Version" on page 25

▼ How to Verify the ILOM and BIOS Firmware Versions Using the Web Interface

1 Connect to the ILOM Web interface by typing the IP address of the server's SP into your browser's address field. For example:

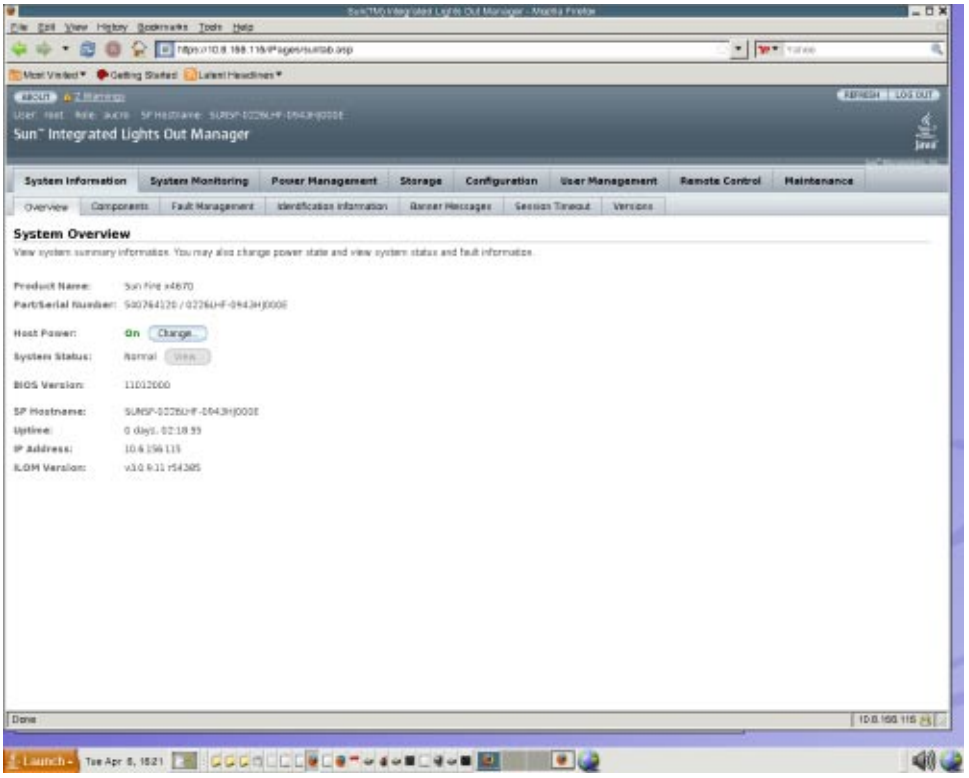
```
https://129.146.53.150
```

The ILOM login screen appears.



2 **Log in to the ILOM SP and type the default user name (root) with the default password (`changeme`).**

The first web page presented is the System Information —> Overview page, which includes the ILOM version and Build Number.

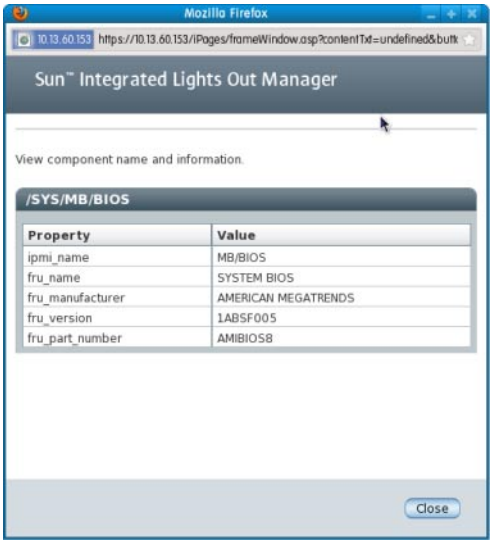


3 **Click on System Information —> Components.**

4 **Click on /SYS/BIOS in the Component Name field.**

The view component name and information dialog box is displayed.

The FRU version field shows the BIOS version number.



5 **Note the ILOM and BIOS versions on the "Firmware Versions Worksheet" on page 19.**

▼ How to Verify the ILOM and BIOS Firmware Versions Using the Command-Line Interface Through the Serial Port

1 **Configure your terminal device or the terminal emulation software running on a laptop or PC to the following settings:**

- 8N1: eight data bits, no parity, one stop bit
- 9600 baud
- Disable hardware flow control (CTS/RTS)
- Disable software flow control (XON/XOFF)

2 **Connect a serial cable from the RJ-45 SER MGT port on your server's back panel to your terminal device or PC.**

3 **Press Enter on the terminal device to establish a connection between that terminal device and the server's SP.**

The SP displays the login prompt:

SUN0111AP0-0814YT06B4 login:

In this example, the login prompt, 0111AP0-0814YT06B4 is the product serial number by default. This value can also be the host name, which is assigned by the user or the DHCP server.

4 **Log in to the ILOM SP and type the default user name (root) with the default password (`changeme`).**

After you have successfully logged in, the SP displays its default command prompt:

```
->
```

5 **To view the ILOM version information, type:**

```
version
```

This command returns output similar to the following:

```
SP firmware 2.0.2.16
SP firmware build number: 42063
SP firmware date: Mon Feb  9 22:45:34 PST 2009
SP filesystem version: 0.1.16
```

6 **To view the BIOS version, type:**

```
show /SYS/BIOS
```

The command returns output similar to the following:

```
 /SYS/MB/BIOS
    Targets:

    Properties:
    type = BIOS
    ipmi_name = MB/BIOS
    fru_name = SYSTEM BIOS
    fru_manufacturer = AMERICAN MEGATRENDS
    fru_version = 1ABSF005
    fru_part_number = AMIBIOS8

    Commands:
    cd
    show
```

The fru_version field contains the BIOS version number.

7 **Note the ILOM and BIOS versions on the "Firmware Versions Worksheet" on page 19.**

▼ How to Verify the ILOM and BIOS Firmware Versions Using the Command—Line Interface Through the Management Ethernet Port

1 **Connect an RJ-45 Ethernet cable to the NET MGT Ethernet port on the back panel.**

2 **Establish an SSH connection using the following command, and then enter the default password (`changeme`) when you are prompted:**

```
# ssh –l root sp_ip_address

changeme
```

After you have successfully logged in, the SP displays its default command prompt:

```
->
```

3 **To view the ILOM version information, type:**

```
version
```

This command returns output similar to the following:

```
SP firmware 2.0.2.16
SP firmware build number: 42063
SP firmware date: Mon Feb  9 22:45:34 PST 2009
SP filesystem version: 0.1.16
```

4 **To view the BIOS version, type:**

```
show /SYS/BIOS
```

The command returns input similar to the following:

```
 /SYS/MB/BIOS
    Targets:

    Properties:
        type = BIOS
        fru_name = SYSTEM BIOS
        fru_description = SYSTEM BIOS
        fru_manufacturer = AMERICAN MEGATRENDS
        fru_version = 0ABMN052
        fru_part_number = AMIBIOS8

    Commands:
        cd
        show
```

The fru_version field contains the BIOS version number.

5 **Note the ILOM and BIOS versions on the "Firmware Versions Worksheet" on page 19.**

▼ How to Verify the LSI HBA Firmware Version

1 **Reboot the server.**

2 **Note the LSI firmware version that is displayed during system boot.**

3 **Record the current LSI firmware version in the "Firmware Versions Worksheet" on page 19.**

Preparing for the Firmware Update

This section contains the following topics:

- "How to Plan the Firmware Update" on page 26
- "How to Download Firmware Updates" on page 26

How to Plan the Firmware Update

Use the "Firmware Versions Worksheet" on page 19 to record intermediate and target firmware version identified in this procedure.

1. **View the Product Notes for information on all firmware versions available for the server, and select the software download version that contains the versions of the firmware that you want to download.**

Note – For some ILOM and BIOS updates, you need to update to an intermediate firmware version before you update to the final target ILOM version. Any needed intermediate firmware versions will be specified in the Product Notes.

---

2. **Record the intermediate and target firmware versions in the "Firmware Versions Worksheet" on page 19.**

3. **Navigate to the Oracle support web site to access the available software download versions.**

   All system firmware and software are available from the Oracle Support site.

Next Steps "How to Download Firmware Updates" on page 26

How to Download Firmware Updates

1. **Go to: `http://support.oracle.com`**

2. **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 Search).**

   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 Fire X4800) 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).

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.

Updating the ILOM and System BIOS

The following procedures describe two different methods for updating the ILOM and system BIOS.

- "How to Update the ILOM and System BIOS Using the Web Interface" on page 27
- "How to Update the ILOM and System BIOS Using the Command-Line Interface" on page 30

▼ How to Update the ILOM and System BIOS Using the Web Interface

Before You Begin

- Identify the version of ILOM that is currently running on your system. See "Determining Current Firmware Versions" on page 20.
- Download the firmware image (such as `ILOM-3_0_3_31-r42822.pkg-Sun_Fire_X4800 Modular.pkg`)for your server or CMM from the support web site. See "How to Download Firmware Updates" on page 26.
- Copy the firmware image to the system on which the web browser is running, using a supported protocol (TFTP, FTP, HTTP, HTTPS).
- Obtain an ILOM user name and password that has Admin (a) role account privileges. You must have Admin (a) privileges to update the firmware on the system.

Note – The firmware update process might take about 15 minutes to complete, depending on whether the system is a 4 or 8 socket system. During this time, do not perform other ILOM tasks. When the firmware update is complete, the system reboots.

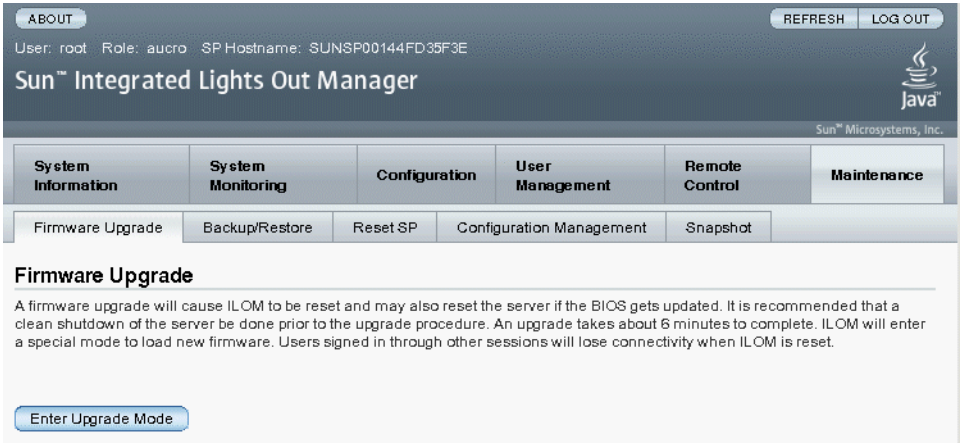
---

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

See "How to Connect to the ILOM Web Interface" in *Sun Fire X4800 Server Installation Guide*.

2 **Select Maintenance –> Firmware Upgrade.**

The Firmware Upgrade page appears.

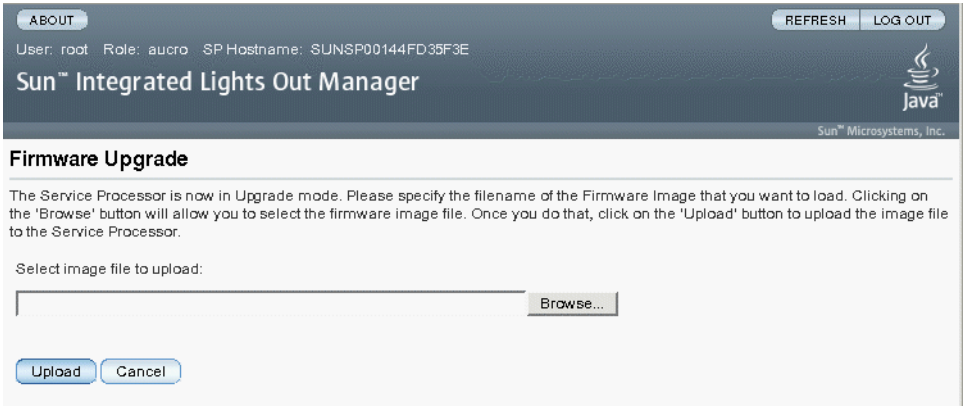


3 **In the Firmware Upgrade page, click Enter Upgrade Mode.**

An Upgrade Verification dialog appears, indicating that other users who are logged in will lose their session when the update process is completed.

4 **In the Upgrade verification dialog box, click OK to continue.**

You are prompted to select an image file to upload.



5 **Perform the following actions:**

a. **Specify the image location by performing one of the following:**

- **Click Browse to select the location of the firmware image you want to install.**

- **If supported on your system, click Specify URL. Then type into the text box the URL for the firmware image.**

b. Click the Upload button to upload and validate the file.

Wait for the file to upload and validate.

The Firmware Verification page appears.

6 In the Firmware Verification page, enable any of the following options:

- **Preserve Configuration. Enable this option if you want to save your existing configuration in ILOM and restore that existing configuration after the update process is completed.**
- **Delay BIOS upgrade until next server power off. Enable this option if you want to postpone the BIOS upgrade until the next time the system reboots.**

7 Click Start Upgrade to start the upgrade process or click Exit to cancel the process.

When you click Start Upgrade the upload process starts and a prompt to continue the process appears.

Note – If you did not preserve the ILOM configuration before the firmware update, you need to perform the initial ILOM setup procedures to reconnect to ILOM.

---

8 At the prompt, click OK to continue.

The Update Status page appears, providing details about the update progress. When the update indicates 100%, the firmware upload is complete. When the upload is completed, the system automatically reboots.

Note – The ILOM web interface might not refresh properly after the update is completed. If the ILOM web interface is missing information or displays an error message, you might be viewing a cached version of the page from the version previous to the update. Clear your browser cache and refresh your browser before continuing.

---

9 Log in to the SP ILOM web interface.

10 Select System Information –> Version to verify that the firmware version on the SP or CMM corresponds to the firmware image you installed.

▼ How to Update the ILOM and System BIOS Using the Command-Line Interface

Before You Begin

- Identify the version of ILOM that is currently running on your system. See "Determining Current Firmware Versions" on page 20.
- Download the firmware image for your server from the Sun platform product web site. See "How to Download Firmware Updates" on page 26.
- Copy the firmware image to a local server using a supported protocol (TFTP, FTP, HTTP, HTTPS).
- Obtain an ILOM user name and password that has Admin (a) role account privileges. You must have Admin (a) privileges to update the firmware on the system.
- To verify that you have network connectivity to update the firmware, type -> **`show /SP/network`**.

Note – The firmware update process takes about fifteen to twenty minutes to complete, depending on whether it is a 4 or 8 socket system. During this time, do not perform other ILOM tasks. When the firmware update is complete, the system reboots automatically.

---

1 Log in to the ILOM CLI.

See "Connecting to the ILOM" in *Sun Fire X4800 Server Installation Guide* for more information.

2 Type the following command to load the ILOM firmware image:

->**`load –source`** *supported_protocol://server_ip/path_to_firmware_image/filename*.**`ima`**

Use TFTP, FTP, HTTP, or HTTPS.

A note about the firmware update process appears, followed by message prompts to load the image. The text of the note depends on your server platform.

3 **At the prompt for loading the specified file, type y for yes or n for no.**

The prompt to preserve the configuration appears.

4 **At the preserve configuration prompt, type y for yes or n for no.**

Type y to save your existing ILOM configuration and to restore that configuration when the update process is completed.

Typing n at this prompt advances you to another platform-specific prompt.

A prompt to postpone the BIOS update appears.

5 **When asked if you want to force the server off to upgrade the BIOS, type y for yes or n for no.**

Note – If you answer no (n) to the prompt, the system postpones the BIOS update until the next time the system reboots. If you answer yes (y) to the prompt, the system automatically updates the BIOS, if necessary, when updating the firmware.

The system loads the specified firmware file and then automatically reboots to complete the firmware update.

6 **Reconnect to the ILOM server SP or CMM using an SSH connection and using the same user name and password that you provided in Step 1 of this procedure.**

If you did not preserve the ILOM configuration before the firmware update, you must perform the initial ILOM setup procedures to reconnect to ILOM. See "Communicating With the ILOM and the System Console" in *Sun Fire X4800 Server Installation Guide* for additional information.

7 **To ensure that the proper firmware version was installed, at the CLI prompt, type:**

```
-> version
```

Updating the Embedded HBA BIOS

To update the LSI firmware, you must boot the system from a special CD or CD image.

There are two ways you can do this:

- "How to Update the LSI Firmware Using the Remote Console Method" on page 32
- "How to Update the LSI Firmware Using the Local Method" on page 33

How to Update the LSI Firmware Using the Remote Console Method

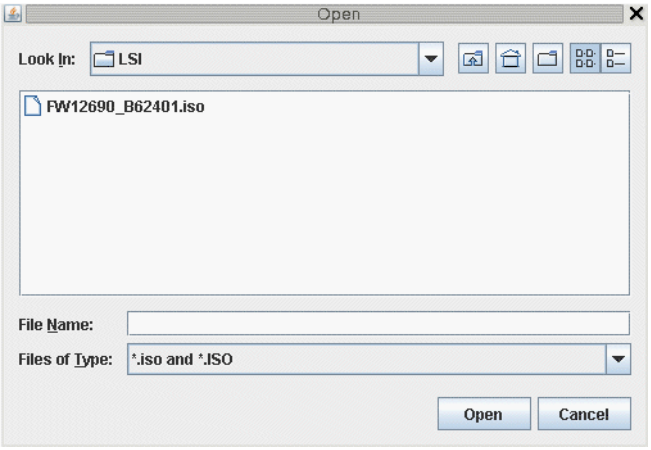
1. **Connect to the ILOM Remote Console, according to the instructions in "How to Connect to the ILOM Web Interface" in *Sun Fire X4800 Server Installation Guide*.**

2. **In the remote console window, select Devices.**

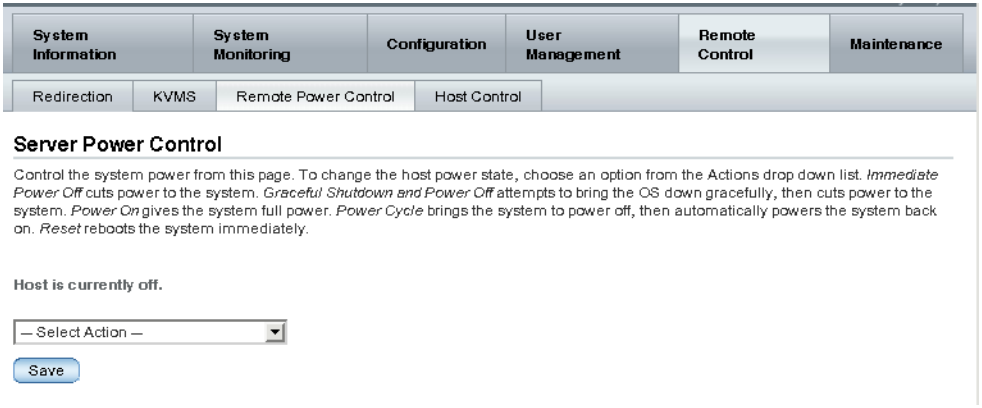
3. **At the pop-up screen, select the CD-ROM Image.**

   A check mark is displayed on the drop-down menu selection.

4. **Browse to the LSI firmware update image .iso file, and select the correct .iso image file.**



5. **Select Remote Control -> Remote Power Control in the ILOM GUI.**



6. **Select Reset from the drop-down menu.**

7 **When the system reboots, select 1 (Perform the Update) from the remote console window.**

The update proceeds.

When complete, the console responds with a new prompt.

8 **In the remote console window, select Devices -> CDROM Image to detach the LSI firmware update .iso file.**

9 **Select Keyboard -> Control Alt Delete.**

The system boots, and the new LSI firmware version is displayed in the boot messages.

You will notice the new LSI firmware version.

▼ How to Update the LSI Firmware Using the Local Method

1 **Download the LSI firmware .iso file from the Sun Fire X86 servers web site and burn it to a bootable CD.**

Note – The bootable CD appear blanks when viewed using the operating system. This is expected behavior.

---

2 **Insert the bootable CD and reboot the server.**

The firmware is upgraded.

3 **Reboot the system.**

The new LSI firmware version is displayed in the boot messages.

Indicators, Sensors, and Traps

This chapter describes the ILOM sensors and indicators, and the SNMP and PET traps.

- Indicators report the state of system indicators such as LEDs. See "Indicators" on page 35.
- Sensors report physical information about the server, including voltages, temperatures, fan speeds, and installation and removal of components. See "Sensors" on page 37.
- SNMP and PET traps send information about events to the event log and an IPMI baseboard management controller. See "SNMP and PET Traps" on page 41.

Indicators

These values represent the state of LEDs on the chassis and other system components.

Sensor	Description
OK	The state of the green OK LED: ■ ON – system power is on. ■ Fast-Blink – SP is booting. System not ready to turn on. ■ Slow-Blink – Host is booting ■ Stand-By – System power is off. ■ OFF – G5 system power is not connected.
SERVICE	The state of the amber SERVICE LED: ■ ON – The system has a fault ■ OFF – System does not have a fault.
TEMPFAIL	The state of the amber chassis temperature failure LED: ■ ON – The system is outside of normal operating temperature and power-on is not allowed. ■ OFF – The system is within normal operating temperature range and power-on is allowed.
LOCATE	The state of the white locate LED: ■ Fast Blink – The locate LED is blinking (to identify the system) ■ OFF – The locate LED is not blinking

Sensor	Description
Note – For all NEM indicators, *n* = 0 or 1.	
NEM*n*/OK	The state of the NEM's green LED: ■ ON – The NEM is ON ■ OFF – The NEM is OFF
NEM*n*/SERVICE	The state of the NEM's amber LED: ■ ON – The NEM has a fault ■ OFF – The NEM does not have a fault
NEM*n*/OK2RM	The state of the NEM's blue LED: ■ ON – The NEM is ready to be removed ■ OFF – The NEM is not ready to be removed
NEM*n*/LOCATE	The state of the NEM's locate button/LED: ■ ON – The NEM's locate LED is ON ■ OFF – The NEM's locate LED is OFF
FM*n*/SERVICE	The state of the fan module and its amber LED. *n* = 0 — 3: ■ ON – The LED is ON and the fan module has a fault ■ OFF – The LED is OFF and the fan module does not have a fault
Note – For all HDDs indicators, *n* = 0 through 7.	
DBP/HDD*n*/SVC	The state of the HDD and its amber LED. ■ ON – The HDD has a fault ■ OFF – The HDD has no faults
DBP/HDD*n*/OK2RM	The state of the blue Ok to Remove LED on the HDD: ■ ON – the HDD is ready to remove ■ OFF – the HDD is not ready to be removed
Note – For all processor module indicators, *n* = 0 through 3.	
BL*n*/OK	The state of the green OK LED on the processor module: ■ ON – the processor module is running ■ Slow-blink – the processor module is booting ■ OFF – the processor module is offline
BL*n*/SERVICE	The state of the amber SERVICE LED on the processor module: ■ ON – the processor module has a fault ■ OFF – the processor module does not have a fault
BL*n*/OK2RM	The sate of the blue OK to Remove LED on the processor module: ■ ON – the processor module is ready to be removed ■ OFF – the processor module is not ready to be removed

Sensor	Description
BL*n*/LOCATE	The state of the LOCATE button/white LED on the processor module: ■ Fast Blink – the LOCATE LED is blinking ■ OFF – the LOCATE LED is OFF
BL*n*/FMOD*x*/SVC	The state of the SERVICE LED on the processor module's fan module (x = 0 or 1): ■ ON – the fan module has a fault ■ OFF – the fan module does not have a fault
BL*n*/P*x*/SVC	The state of the red SERVICE LED for the CPU on the processor module (*x* = 0 or 1) ■ ON – the CPU has a fault ■ OFF – the CPU does not have a fault
BL*n*/P*x*/D*y*/SVC	The state of the SERVICE LED for one of the DIMMs on the processor module, where: ■ *x* identifies CPU 0 or CPU 1 ■ *y* identifies DIMM 0 through DIMM 15. The values are: ■ ON – the DIMM has a fault ■ OFF – the DIMM does not have a fault

Sensors

Sensors report the state of the sensors located throughout the server's components.

System Sensors

Sensors report physical information about the server, including voltages, temperatures, fan speeds, and installation and removal of components.

Sensor	Description
PWRBS	Unused
ACPI	System power ■ 0x0010 – server is ON ■ 0x0020 – server is OFF
SP/T_AMB	Service processor temperature in degrees
T_AMB	Ambient chassis temperature ■ Upper critical temperature = 40'C ■ Upper non-recoverable temperature = 45'C

Sensor	Description
HOT	Discreet temperature sensor on processor modules ■ 0x0001 = deasserted. Main fans run at normal speed ■ 0x0002 = asserted. Main fans run at high speed
VPS	Chassis power consumption in Watts

NEMs

The server supports one or two Network Expansion Modules (NEMs). NEM*x* identifies, NEM0 or NEM1.

Sensor	Description
NEM*n*/PRSNT	0x0001 – NEM*n* is absent
	0x0002 – NEM*n* is present
NEM*n*/STATE	0x0001 – NEM*n* is running
	0x0004 – NEM*n* is powered off
	0x0020 – NEM*n* is ready to be removed
NEM*n*/ERR	0x0001 – Asserted. NEM*n* has faults
	0x0002 – Deasserted. NEM*n* has no faults

Chassis Fan Modules and Fans

The chassis has four fan modules with two fans each.

- *n* represents fan modules 0 through 3
- *x* represents fans 0 or 1

Sensor	Description
FM*n*/PRSNT	0x0001 – FM*n* is absent. Non-fault
	0x0002 – FM*n* is present. Fault.
FM*n*/ERR	0x0001 – Asserted. FM*n* is absent. SERVICE LED is ON.
	0x0002 – Deasserted. FM*n* is not faulty.
FM*n*/F*x*/TACH	Speed of the fan in revolutions per minute.

Power Supply

This section lists the power supply sensors. PS*n* identifies PS0 through PS3.

Sensor	Description
PS*n*/P_IN	Input power for PS*n*
PS*n*/P_OUT	Output power for PS*n*
PS*n*/V_IN	Input voltage for PS*n*
PS*n*/V_12V	Voltage for 12V rail of PS*n*
PS*n*/V_3V3	Voltage for 3.3V rail of PS*n*
PS*n*/T_AMB	Ambient temperature sensor for PS*n*
PS*n*/V_OUT_OK	Discreet sensor for PS*n* output. ■ 0x0001 – Deasserted – PS*n* – output is OFF ■ 0x0002 – Asserted – PS*n* – output is ON
PS*n*/V_IN_ERR	PS*n* input voltage error. ■ 0x0001 – Deasserted – PS*n* – input voltage is normal ■ 0x0002 – Asserted – PS*n* – input voltage error
PS*n*/V_IN_WARN	PS*n* input voltage warning. ■ 0x0001 – Deasserted – PS*n* – input voltage is normal ■ 0x0002 – Asserted – PS*n* – input voltage is out of range
PS*n*/V_OUT_ERR	PSn output voltage error ■ 0x0001 – Deasserted – PS*n* – output voltage is normal ■ 0x0002 – Asserted – PS*n* – output voltage error
PS*n*/I_OUT_ERR	PSn output current ■ 0x0001 – Deasserted – PS*n* – output current is normal ■ 0x0002 – Asserted – PS*n* – output current error
PS*n*/I_OUT_WARN	PS*n* output current warning ■ 0x0001 – Deasserted – PS*n* – output current is normal ■ 0x0002 – Asserted – PS*n* – output current is out of range
PS*n*/T_ERR	PSn temperature fault ■ 0x0001 – Deasserted – PS*n* temperature is OK ■ 0x0002 – Asserted – PS*n* temperature error
PS*n*/T_WARN	PS*n* temperature warning ■ 0x0001 – Deasserted – PS*n* temperature is OK ■ 0x0002 – Asserted – PS*n* temperature warning
PS*n*/FAN_ERR	PS*n* fan fault ■ 0x0001 – Deasserted – PS*n* fans OK ■ 0x0002 – Asserted – PS*n* fans faulty

Sensor	Description
PS*n*/FAN_WARN	PS*n* fan warning ■ 0x0001 – Deasserted – PS*n* fans OK ■ 0x0002 – Asserted – PS*n* fans warning
PS*n*/ERR	PS*n* error ■ 0x0001 – Deasserted – PS*n* OK ■ 0x0002 – Asserted – PS*n* fault
PS*n* PRSNT	PS*n* presence ■ 0x0001 – PS*n* is absent. Chassis is faulted when PS*n* is missing. ■ 0x0002 – PS*n* is present. Chassis is OK.

Hard Disk Drive Sensors

The server supports eight hard disk drives (HDDs). HDD*n* identifies HDD0 through HDD7.

Sensor	Description
DBP/HDD*n*/PRSNT	HDD*n* presence ■ 0x0001 – HDD*n* is absent. This is not a fault. ■ 0x0002 – HDD is present.
DBP/HDD*n*/STATE	HDD*n* state ■ 0x0001 – HDD*n* is normal. ■ 0x0002 – HDD is faulted.

Processor Modules

The server contains two or four processor modules. BL*n* identifies processor modules BL0 through BL3.

Sensor	Example	Description
BL*n*/PRSNT	0x02	0x02 = present, 0x01 = not present. ■ Processor module 0 and 3 must be present ■ Processor modules 1 and 2 are optional
BL*n*/VPS	290 Watts	Power used by processor module.
BL*n*/STATE	0x04	RANGES AND VALUES TBD
BL*n*/ERR	0x01	RANGES AND VALUES TBD
BL*n*/HOT	0x01	RANGES AND VALUES TBD

Sensor	Example	Description
BL*n*/FEM*x*/PRSNT	0x02	Each processor module can support one or two Fabric Expansion Modules (FEMs), FEM0 and FEM1.
Bl*n*/REM/PRSNT	0x01	Each processor module can support a single Raid Expansion Module (REM)
EM*x.x*/PRSNT	0x01	The server provides eight PCIe ExpansionModule slots. Each processor module is associated with two slots. ■ 0.0 – slot 0 – BL0 ■ 0.1 – slot 1 – BL0 ■ 1.0 – slot 2 – BL1 ■ 1.1 – slot 3 – BL1 ■ 2.0 – slot 4 – BL2 ■ 2.1 – slot 5 – BL2 ■ 3.0 – slot 6 – BL3 ■ 3.1 – slot 7 – BL3
BL*n*/Px/PRSNT	0x02	Each processor module supports two processors, P0 and P1.
BL*n*/FMOD*x*/PRSNT	0x01	Each processor module supports two fan modules, FMOD0 and FMOD1.
BL*n*/T_AMB	27 degrees C	Processor module ambient temperature.

SNMP and PET Traps

SNMP traps are generated by SNMP agents that are enabled on the SNMP devices being managed by ILOM. ILOM receives the SNMP traps and converts them into SNMP event messages that appear in the event log.

Platform Event Trap (PET) events 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.

The MIBs are available on the tools and drivers CD and can be downloaded from `http://www.oracle.com/goto/x4800`.

The following table shows the relationship between traps and sensors.

Sensor	Trap/Event/Severity	Description
NEM	sunHwTrapIOFault event fault.chassis.device.fail MAJOR	A component in the IO subsystem is suspected of causing a fault.
	sunHwTrapIOFaultCleared event fault.chassis.device.fail INFORMATIONAL	An IO subsystem component fault has been cleared.
PS	sunHwTrapPowerSupplyFault event fault.chassis.env.power.loss MAJOR	A power supply component is suspected of causing a fault.
	sunHwTrapPowerSupplyFaultCleared event fault.chassis.env.power.loss INFORMATIONAL	A power supply component fault has been cleared.

Sensor	Trap/Event/Severity	Description
T_AMB PS*n*/T_AMB BL*n*/T_AMB *n* = 0 through 3	sunHwTrapTempCritThreshold Exceeded Upper 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. The sunHwTrapThresholdType object indicates whether the threshold was an upper or lower.
	sunHwTrapTempCritThreshold Deasserted Upper critical threshold no longer exceeded INFORMATIONAL	A temperature sensor has reported that its value has gone below an upper critical threshold setting or above a lower critical threshold setting. The sunHwTrapThresholdType object indicates whether the threshold was an upper or lower.
	sunHwTrapTempFatalThreshold Exceeded Upper 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. The sunHwTrapThresholdType object indicates whether the threshold was an upper or lower.
	sunHwTrapTempFatalThreshold Deasserted Upper 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. The sunHwTrapThresholdType object indicates whether the threshold was an upper or lower.
BL*n*/T_AMB *n* = 0 through 3	sunHwTrapTempNonCritThreshold Exceeded Upper noncritical threshold exceeded MINOR	A temperature sensor has reported that its value has gone above an upper non-critical threshold setting or below a lower non-critical threshold setting. The sunHwTrapThresholdType object indicates whether the threshold was an upper or lower.
	sunHwTrapTempOk Upper noncritical threshold no longer exceeded INFORMATIONAL	A temperature sensor has reported that its value is in the normal operating range.

Sensor	Trap/Event/Severity	Description
HOT BLn/HOT	sunHwTrapComponentError Assert MAJOR	A sensor has detected an error. This generic 'component' trap is generated when the SNMP agent does not recognize the component type.
	sunHwTrapComponentOk Deassert INFORMATIONAL	A sensor has returned to its normal state. This generic 'component' trap is generated when the SNMP agent does not recognize the component type.
PWRBS PS*n*/V_IN_ERR PS*n*/V_IN_WARN PS*n*/V_OUT_ERR PS*n*/I_OUT_ERR PS*n*/I_OUT_WARN	sunHwTrapPowerSupplyError Assert MAJOR	A power supply sensor has detected an error.
PS*n*/T_ERR PS*n*/T_WARN PS*n*/FAN_ERR PS*n*/FAN_WARN PS*n*/ERR *n* = 0 through 3	sunHwTrapPowerSupplyOk Deassert INFORMATIONAL	A power supply sensor has returned to its normal state.
ACPI	sunHwTrapComponentError MAJOR One of: ■ ACPI_ON_WORKING DEASSERT ■ ACPI_ON_WORKING DEASSERT ■ ACPI_SOFT_OFF ASSERT ■ ACPI_SOFT_OFF DEASSERT	A sensor has detected an error. This generic component trap is generated when the SNMP agent does not recognize the component type.
PS*n*/V_OUT_OK *n* = 0 through 3	sunHwTrapPowerSupplyError Deassert MAJOR	A power supply sensor has detected an error.
	sunHwTrapPowerSupplyOk Assert INFORMATIONAL	A power supply sensor has returned to its normal state.

Sensor	Trap/Event/Severity	Description
DBP/HDD*n*/STATE *n* = 0 through 7	sunHwTrapHardDriveStatus DRIVE_FAULT ASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.
	sunHwTrapHardDriveStatus DRIVE_FAULT DEASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.
	sunHwTrapHardDriveStatus PREDICTIVE_FAILURE ASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.
	sunHwTrapHardDriveStatus PREDICTIVE_FAILURE DEASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.
	sunHwTrapHardDriveStatus HOT_SPARE ASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.
	sunHwTrapHardDriveStatus HOT_SPARE DEASSERT INFORMATIONAL	The hard drive identified by sunHwTrapComponentName has changed state.

Index

B

BIOS firmware
- updating, 27
- updating using CLI, 30–31
- updating using web interface, 27–30

F

firmware
- downloading, 26–27
- planning the update, 26
- preparing for update, 26
- updating, 19–33
- updating HBA BIOS, 31
  - using local method, 33
  - using remote console method, 32–33
- updating ILOM and system BIOS
  - using CLI, 30–31
  - using web interface, 27–30

firmware versions
- determining current versions, 20
- verifying using CLI through management Ethernet port, 24–25
- verifying using CLI through serial port, 23–24
- verifying using web interface, 20–23
- worksheet, 19

H

HBA BIOS update
- using local method, 33
- using remote console method, 32–33

I

ILOM firmware
- updating, 27
- updating using CLI, 30–31
- updating using web interface, 27–30

introduction to ILOM software, 9

O

overview of ILOM Supplement, 7

P

PET
- messages, 41
- traps, 41

S

SNMP
- messages, 41
- traps, 41

Sun Integrated Lights Out Manager (ILOM) 3.0 CLI
Procedures Guide, 9–10