

**Oracle® Integrated Lights Out Manager
(ILOM) 3.0 Supplement for the Sun Fire
X2270 M2 Server**



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Contents

Preface	5
Related Books	5
About This Documentation (PDF and HTML)	7
Documentation Comments	7
Documents History	7
Overview of the ILOM Supplement	9
ILOM Feature Set	11
ILOM Overview	11
What Does ILOM Do?	12
Supported Platform Firmware	12
Supported ILOM 3.0 Feature Set	12
Sun Fire X2270 M2 Server Platform-Specific Features	13
Communicating With the ILOM and the System Console	15
Server Back Panel LEDs and Ports	15
Basic Server Connection	16
About ILOM SP IP Addresses and the ILOM Interfaces	16
Determining the SP IP Address	17
Connecting to the ILOM	18
Connecting to the System Console	21
ILOM Platform Features for the Sun Fire X2270 M2 Server	29
Hardware Information	29
Switching Serial Port Output Between SP and Host Console	30
How to Clear Server Faults	31
ILOM Sideband Management	32
Running IPMITool from the Host	35
Updating ILOM Firmware Using the IPMIflash Utility	36
Sensors	36
How to View the Sensors From the System BIOS	50

BIOS System Event Log Sensor Error List	50
Using ILOM to Monitor the Host	53
System ILOM Sensors	53
System ILOM Indicators	54
Updating Firmware	57
Firmware Versions Worksheet	57
Determining Current Firmware Versions	58
Preparing for a Firmware Update	62
Updating the ILOM and System BIOS	64
Index	69

Preface

This preface describes related documentation, available documentation formats, and the process for submitting feedback to Oracle. It also includes a document change history.

- “Related Books” on page 5
- “About This Documentation (PDF and HTML)” on page 7
- “Documentation Comments” on page 7
- “Documents History” on page 7

Related Books

The following is a list of documents related to Oracle's Sun Fire X2270 M2 server. These and additional support documents are available on the web at:

<http://docs.sun.com/app/docs/prod/sf.x2270m2#hic>

Document Group	Document	Description
Sun Fire X2270 M2 Server-Specific Documentation	Sun Fire X2270 M2 Server Product Documentation	Integrated HTML version of all starred (*) documents, including Search and Index.
	<i>Sun Fire X2270 M2 Server Getting Started Guide</i>	Pictorial setup quick reference.
	<i>Sun Fire X2270 M2 Server Installation Guide*</i>	How to install, rack, and configure the server up to initial power-on.
	<i>Sun Fire X2270 M2 Server Product Notes*</i>	Important late-breaking information about the server.
	<i>Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers*</i>	An Oracle tool used to perform an assisted installation of a supported Windows or Linux OS, upgrade firmware (regardless of OS), and other tasks.
	<i>Sun Fire X2270 M2 Server Installation Guide for Oracle Solaris Operating Systems*</i>	How to install the Oracle Solaris OS on your server.

Document Group	Document	Description
	<i>Sun Fire X2270 M2 Server Installation Guide for Oracle VM*</i>	How to install Oracle VM on your server.
	<i>Sun Fire X2270 M2 Server Installation Guide for Linux Operating Systems*</i>	How to install a supported Linux OS on your server.
	<i>Sun Fire X2270 M2 Server Installation Guide for Windows Operating Systems*</i>	How to install supported versions of Microsoft Windows on your server.
	<i>Sun Fire X2270 M2 Server Installation Guide for ESX Software*</i>	How to install supported versions of the ESX OS on your server.
	<i>Integrated Lights Out Manager Supplement for the Sun Fire X2270 M2 Server*</i>	Version-specific supplemental information for your server's Integrated Lights Out Manager.
	<i>Sun Fire X2270 M2 Server Diagnostics Guide*</i>	How to diagnose problems with your server.
	<i>Sun Fire X2270 M2 Server Service Manual*</i>	How to service and maintain your server.
	<i>Sun Fire X2270 M2 Server Safety and Compliance Guide</i>	Safety and compliance information about your server.
Oracle Integrated Controller Disk Management	<i>Sun x64 Server Disk Management Overview</i>	Information about managing your server storage.
x64 Servers Applications and Utilities Reference Documentation	<i>Sun x64 Server Utilities Reference Manual</i>	How to use the available utilities included with your server.
Integrated Lights Out Manager (ILOM) 3.0 Documentation	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes</i>	Information about new ILOM features.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide</i>	Overview of ILOM 3.0.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i>	Conceptual information about ILOM 3.0.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide</i>	How to use ILOM through the web interface.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide</i>	How to use ILOM through commands.

Document Group	Document	Description
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 SNMP and IPMI Procedures Guide</i>	How to use SNMP and IPMI commands.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide</i>	Information about management protocols.

About This Documentation (PDF and HTML)

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

Documentation Comments

We are interested in improving the product documentation and welcome your comments and suggestions. You can submit your comments by clicking the floating feedback link [+] at:

<http://docs.sun.com/app/docs/prod/sf.x2270m2#hic>

Please include the title and part number of your document with your feedback.

Documents History

- May 2010, initial publication
- June 2010, collection refresh, revisions to –11
- September 2010, Product Notes document revised for SW v1.1.0 release.

Overview of the ILOM Supplement

Note – Before performing the procedures contained in this topic, set up your hardware as shown in the *Sun Fire X2270 M2 Server Installation Guide*.

The following topics are covered in this topic set.

Description	Link
Document overview	“Overview of the ILOM Supplement” on page 9
System setup for accessing ILOM	“Communicating With the ILOM and the System Console” on page 15
General ILOM overview	“ILOM Feature Set” on page 11
Features specific to the Sun Fire X2270 M2 Server	“ILOM Platform Features for the Sun Fire X2270 M2 Server” on page 29
ILOM management procedures	“Using ILOM to Monitor the Host” on page 53
Procedures for updating ILOM, BIOS, and HBA firmware	“Updating Firmware” on page 57

ILOM Feature Set

This section provides information about ILOM and Oracle Sun Fire X2270 M2 server-specific ILOM features:

- [“ILOM Overview” on page 11](#)
- [“What Does ILOM Do?” on page 12](#)
- [“Supported Platform Firmware” on page 12](#)
- [“Supported ILOM 3.0 Feature Set” on page 12](#)
- [“Sun Fire X2270 M2 Server Platform-Specific Features” on page 13](#)

ILOM Overview

ILOM is a server system management feature that is preinstalled on most Oracle x86-based servers. ILOM consists of a hardware and software component. The service processor (SP) is the server system management *hardware* component. The SP runs its own embedded operating system (OS) and functions independently of the server OS. The SP boots when power is applied to the server (standby power mode), offering full functionality in a low-power or lights-out state. The SP continues to provide full functionality after the server OS boots and when the server is in full power mode.

The server system management *software* component is the ILOM application that resides on the SP as preinstalled firmware. ILOM enables you to actively manage the server system and its components. Management capabilities are provided through a full-featured, browser-based web interface and an equivalent command-line interface (CLI). Industry-standard SNMP and IPMI interfaces are also available.

You can access ILOM from the server's host operating system, and you can remotely manage your server as if you were using a locally attached keyboard, monitor, and mouse. However, the ILOM SP also has a dedicated Ethernet port, which provides an out-of-band management capability.

What Does ILOM Do?

ILOM enables you to actively manage and monitor the server independently of the OS state, providing you with reliable lights out management (LOM) capabilities. With ILOM, you can:

- Learn about hardware errors and faults as they occur
- Manage the server's power policy
- View storage topology
- 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

Supported Platform Firmware

Upon initial release the server supports the following ILOM and BIOS firmware versions.

ILOM SP Version	Host BIOS Version
3.0.9.20	2.03

Supported ILOM 3.0 Feature Set

The server supports the ILOM 3.0 feature set with the exception of chassis monitoring module (CMM) features, all ILOM 3.0 firmware features are supported on the Sun Fire X2270 M2 Server. In addition, the server supports platform-specific features offered in ILOM as of ILOM 3.0.9.20.

Note – For information about the use of the ILOM 3.0 feature set, refer to the ILOM 3.0 documentation collection.

Sun Fire X2270 M2 Server Platform-Specific Features

ILOM 3.0 operates on many platforms, supporting features that are common to all platforms. Some ILOM 3.0 features belong to a subset of platforms and not to all. This document describes the features that belong to the Sun Fire X2270 M2 Server, augmenting the set of features described in the ILOM 3.0 documentation collection.

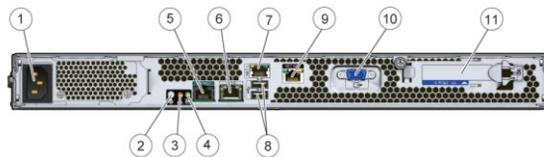
Communicating With the ILOM and the System Console

These topics provide instructions for connecting to the system service processor (SP) Integrated Lights Out Manager (ILOM) and the system console:

- “Server Back Panel LEDs and Ports” on page 15
- “Basic Server Connection” on page 16
- “About ILOM SP IP Addresses and the ILOM Interfaces” on page 16
- “Determining the SP IP Address” on page 17
- “Connecting to the ILOM” on page 18
- “Connecting to the System Console” on page 21

Server Back Panel LEDs and Ports

The following illustration shows the locations of LEDs and ports on the back panel of the server.



Legend

1	AC power connector	2	White Locate LED
3	Amber Fault LED	4	Green Power Status LED
5	Serial Management (SER MGT) port (RJ-45)	6	GigabitEthernet port (NET-0)
7	GigabitEthernet port (NET-1)	8	USB 2.0 ports (2)
9	Network Management (NET MGT) Ethernet port	10	HD-15 video connector (available only in systems with an SP module)
11	PCIe slot (Gen 2, x16)		

Basic Server Connection

Use these steps to make necessary cable connections to your server, so you can communicate with ILOM.

-
- 1 Connect power cable to power source.
 - 2 Connect a serial cable between the SER MGT port and a terminal device or a PC.
Note – You might need an adapter. The server comes with a DB9-to-RJ45 serial port adapter.
 - 3 (Optional) Connect an Ethernet cable between the NET MGT port and the network.
 - 4 Connect an Ethernet cable between one of the NET ports and the network.
-

About ILOM SP IP Addresses and the ILOM Interfaces

The ILOM SP is assigned a DHCP IP address by default.

There are two requirements for DHCP IP address assignment to occur:

- Connection to your network must be through a NET MGT port.
- DHCP services must be present on your network infrastructure.

If a DHCP server cannot be reached after three DHCP requests, the ILOM SP is assigned a *static* IP address based on the network management port MAC address. This IP address is always in the format 192.168.xxx.xxx, where xxx.xxx is the remainder of the IP address.

You can choose from one of several ILOM SP interfaces to support system management on your server.

You can access SP firmware applications through the following ILOM SP interfaces:

- Serial port command-line interface (CLI) (local access)
- Secure shell (SSH) CLI (remote access over the network)
- Web interface (remote access over the network)

See also: [“Basic Server Connection” on page 16](#)

Determining the SP IP Address

You need to know the service processor (SP) IP address to access the ILOM to manage the server.

You can determine the IP address using one of these methods:

- “[How to Get the SP IP Address Using the BIOS Setup Utility](#)” on page 17
- “[How to Get the SP IP Address Using a Serial Connection and the CLI](#)” on page 17

▼ How to Get the SP IP Address Using the BIOS Setup Utility

- Before You Begin**
- Complete the hardware setup as described in the hardware installation documentation.
 - Apply standby power for your server by plugging an AC cord into the system power supply. See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the power cord connectors.

- 1 **Reboot the server.**
- 2 **Press the F2 key when prompted, to access the BIOS Setup Utility.**
- 3 **In the BIOS Setup Utility, choose Advanced → IPMI 2.0 Configuration → Set LAN Configuration → IP address.**

The IP address for the SP is displayed.

▼ How to Get the SP IP Address Using a Serial Connection and the CLI

- Before You Begin**
- Complete the hardware setup as described in the hardware installation documentation.
 - Apply standby power for your server by plugging an AC cord into the system power supply. See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the power cord connectors.

- 1 **Verify that your terminal, laptop, or terminal server is operational.**
- 2 **Configure the terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
 - 8, N, 1 (eight data bits, no parity, one stop bit).
 - 9600 baud.
 - Disable hardware flow control (CTS/RTS).
 - Disable software flow control (XON/XOFF).

- 3 **Connect a serial cable from the RJ-45 SERIAL MGT port on the server's back panel to a terminal device.**

See [“Server Back Panel LEDs and Ports” on page 15](#) for the location of the RJ-45 SERIAL MGT port.

- 4 **Press Enter on the terminal device to establish a connection between that terminal device and the ILOM SP.**

The SP login prompt appears. For example:

```
SUNSPproduct_serial_numberlogin:
```

where

- The string SUNSP is the same for all SPs.
- *product_serial_number* 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.

- 5 **Log in to the ILOM.**

- a. **Type the default user name: root.**
- b. **Type the default password: changeme.**

Once you have successfully logged in, the CLI prompt appears:

```
->
```

Note – For detailed instructions on CLI commands, refer to the *Oracle Integrated Lights-Out Manager 3.0 CLI Procedures Guide*.

- 6 **To display the SP IP address, type:**

```
cd /SP/network
```

Note – You can switch back to the SP CLI from the serial console by pressing the **Esc** (key sequence.

Connecting to the ILOM

This section contains procedures for connecting to the ILOM:

- [“How to Connect to the Command-Line Interface Using SSH” on page 19](#)
- [“How to Connect to the ILOM Command-Line Interface Through the SER MGT Port” on page 19](#)
- [“How to Connect to the ILOM Web Interface” on page 20](#)

▼ How to Connect to the Command-Line Interface Using SSH

Before You Begin

- Perform the hardware setup as described in the server installation guide.
- Apply standby power to the server by connecting AC power to the system power supply.

1 Connect the server to the Internet with an Ethernet cable connected to the server's RJ-45 NET MGT Ethernet port.

See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the RJ-45 NET MGT port.

2 Using a client system, access a command line and establish a Secure Shell (SSH) connection to the service processor's IP address with the following command:

```
ssh -l root sp_ip_address
```

For example, to connect to the SP with the DHCP-assigned IP address of 129.144.82.20, type the following command:

```
ssh -l root 129.144.82.20
```

3 Log in to the ILOM.

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

▼ How to Connect to the ILOM Command-Line Interface Through the SER MGT Port

Use this procedure to establish a serial connection to the ILOM SP so that you can perform initial configuration of ILOM.

Before You Begin

- Perform the hardware setup as described in the [Sun Fire X2270 M2 Server Installation Guide](#).
- Apply standby power to the server by connecting AC power to the system power supply. See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the power connectors.
- Verify that your terminal, laptop, or terminal server is operational.

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

- 8, N, 1 (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 SERIAL MGT port on the server's back panel to a terminal device.

See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the RJ-45 SERIAL MGT port.

3 Press Enter on the terminal device to establish a connection between that terminal device and the ILOM SP.

The SP eventually displays a login prompt, such as the following example:

```
SUNSPproduct_serial_numberlogin:
```

where

- The string SUNSP is the same for all SPs.
- *product_serial_number* 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 To log in, enter a user name and password with administrator privileges.

Note – You must have administrator privileges for this task.

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

The CLI prompt appears:

```
->
```

Note – For detailed instructions on CLI commands, refer to *Oracle Integrated Lights Out Manager 3.0 CLI Procedures Guide*.

5 To start the serial console, type:

```
cd /SP/console
```

```
-> start
```

Note – You can switch back to the SP CLI from the serial console by pressing the **Esc** (key sequence.

▼ How to Connect to the ILOM Web Interface

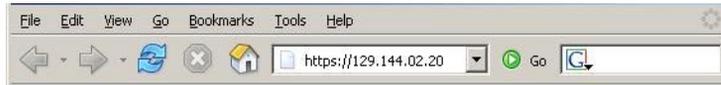
Note – The screen shots presented in this topic are for informational purposes only and might differ slightly from the screens you see.

Before You Begin

- Perform the hardware setup as described in the hardware setup documentation.
- Apply standby power to the server by connecting AC power to the system power supply. See “[Server Back Panel LEDs and Ports](#)” on page 15 for the location of the power connectors.

1 Type the IP address of the ILOM SP in the browser locator box and press Enter.

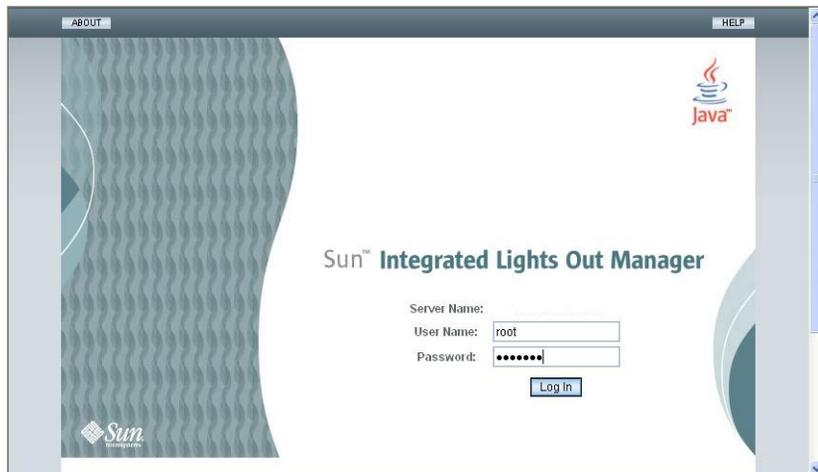
For example, if the IP address for your ILOM SP is 129.144.02.20, you would enter it as shown here:



2 To log in, enter a user name and password with administrator privileges.

Note – You must have administrator privileges for this task.

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



Connecting to the System Console

Use one of these methods to connect to the system console:

- Physical console. See [“How to Connect to the Server Locally \(Physical Console\)”](#) on page 21
- Remote console through the ILOM web interface. See [“How to Connect Remotely Using the ILOM Web Interface”](#) on page 22.
- Serial console through the ILOM command-line interface. See [“How to Connect to the Serial Console Using the ILOM CLI”](#) on page 26.

▼ How to Connect to the Server Locally (Physical Console)

- Before You Begin**
- Perform the hardware setup as described in the hardware setup documentation.

- If you plan to interact with the system console directly, make the connections described in this procedure. See “[Server Back Panel LEDs and Ports](#)” on page 15 for the locations of the system connectors.

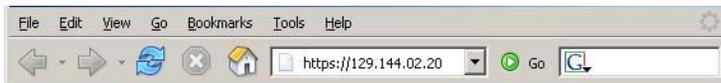
- 1 **Connect a mouse and a keyboard to the server USB connectors.**
- 2 **Connect a monitor to the server video connector.**

▼ **How to Connect Remotely Using the ILOM Web Interface**

Note – The screen shots presented in this topic are for informational purposes only and might differ slightly from the screens you see.

Before You Begin The requirements for the JavaRConsole (remote console) system are:

- Linux, Windows, or the Oracle Solaris OS is installed.
 - The system must be connected to a network that has access to the server's Ethernet management port.
 - Java Runtime Environment (JRE) 1.5 or later is installed.
 - If the remote console system is running the Solaris OS, volume management must be disabled for the remote console to access the physical floppy and CD/DVD-ROM drives.
 - If the remote console system is running Windows, Internet Explorer Enhanced Security must be disabled.
 - The remote console system and ILOM service processor must be set up according to the instructions in the *Oracle Integrated Lights Out Manager (ILOM) Web Interface Procedures Guide*.
- 1 **Start the Remote Console application by typing the IP address of the ILOM service processor into a browser on the remote system.**

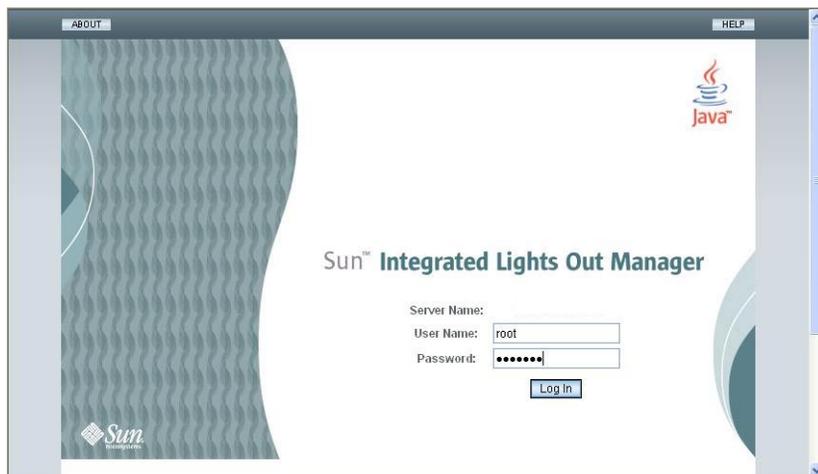


The Security Alert dialog box appears.



2 Click Yes.

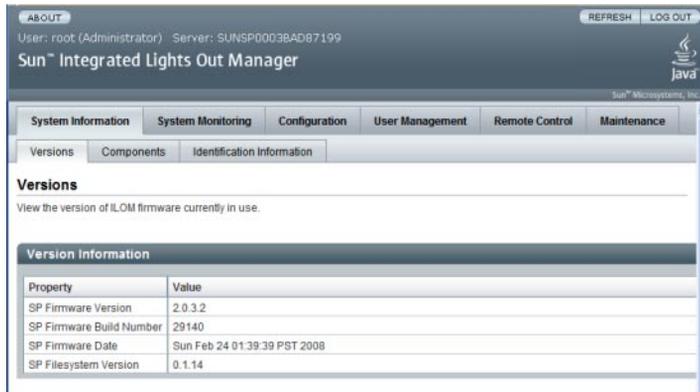
The ILOM login screen appears.



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

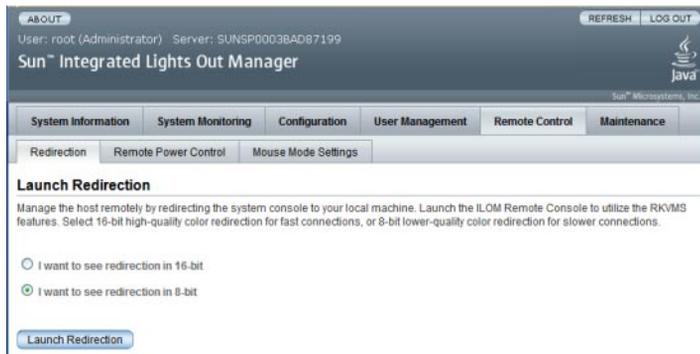
The default user name is **root**, and default password is **changeme**.

The ILOM Version Information screen appears.



- 4 Click the Remote Control tab in the ILOM web interface.

The Launch Redirection screen appears.



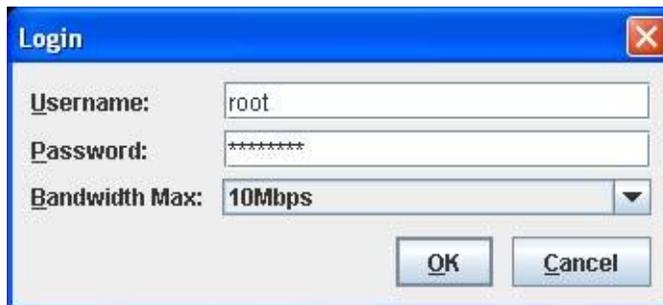
- 5 Set the mouse mode to Absolute mode in the Mouse Mode Settings tab.

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

When you use a Windows system for remote console redirection, an additional warning appears after you click Launch Redirection. If the Hostname Mismatch dialog box appears, click Yes.



The Remote Control Login dialog box appears.



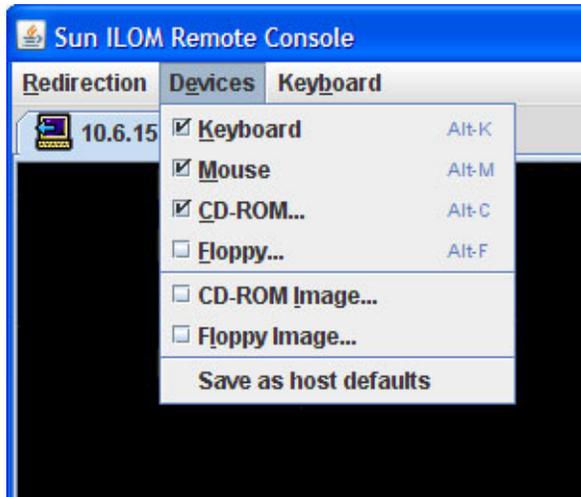
7 In the Remote Control Login dialog box, enter a user name and password with administrator privileges, and click OK.

Note – You must have administrator privileges.

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

The JavaRConsole screen appears.

- 8 From the Devices menu, choose the appropriate item based on the delivery method you have chosen.



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

Note – Using the CD-ROM or CD-ROM Image 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.

▼ How to Connect to the Serial Console Using the ILOM CLI

- Before You Begin**
- Connect the server to your network through an Ethernet cable. See [“Server Back Panel LEDs and Ports”](#) on page 15.
 - If you have not already done so, determine the service processor’s IP address. See [“Determining the SP IP Address”](#) on page 17.

- 1 Using a client system, establish a Secure Shell (SSH) connection to the service processor's IP address:

```
ssh -l root sp_ip_address
```

- 2 Log in to the service processor as an administrator.

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

Note – Only accounts with administrator privileges are allowed to configure the SP serial port. See “Configuring Network Settings” in the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*.

- 3 Start the ILOM console mode by typing the following:

```
start /SP/console
```

- 4 If you have changed the SP serial port default settings, make sure you reset them to the default settings.

See Also [“Switching Serial Port Output Between SP and Host Console” on page 30](#)

ILOM Platform Features for the Sun Fire X2270 M2 Server

This chapter contains information about ILOM's platform-specific features supported on the Sun Fire X2270 M2 server.

- [“Hardware Information”](#) on page 29
- [“Switching Serial Port Output Between SP and Host Console”](#) on page 30
- [“How to Clear Server Faults”](#) on page 31
- [“ILOM Sideband Management”](#) on page 32
- [“Running IPMITool from the Host”](#) on page 35
- [“Updating ILOM Firmware Using the IPMIflash Utility”](#) on page 36
- [“Sensors”](#) on page 36
- [“How to View the Sensors From the System BIOS”](#) on page 50
- [“BIOS System Event Log Sensor Error List”](#) on page 50

Hardware Information

This topic contains information about the locations of the Locator LED and the server ports.

- [“Server Locator LED”](#) on page 29
- [“Port Locations”](#) on page 30

Server Locator LED

The Server Locator LED helps you to identify a specific server among many servers in a data center. The server has two Server Locator LED indicators. One indicator is positioned on the front of the server in the upper left corner, and the other indicator is on the back of the server in the lower center section (see [“Server Back Panel LEDs and Ports”](#) on page 15).



Legend

- | | | | |
|---|-------------------------|---|-----------------------------------|
| 1 | White Locate LED/button | 2 | Amber Service Action Required LED |
| 3 | Green Power Status LED | 4 | Power button |
-

Port Locations

ILOM communicates through the server's serial management port and through a network management Ethernet port. See [“Server Back Panel LEDs and Ports” on page 15](#) for the location of the serial port and the network management Ethernet port on the Sun Fire X2270 M2 server.

Switching Serial Port Output Between SP and Host Console

You can switch the serial port output of the Sun Fire X2270 M2 server between the SP console (NET 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.



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 via 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 perform the procedures in "Restoring ILOM Access to the Serial Console" in the *Sun Fire X2270 M2 Server Service Manual*.

- [“How to Switch Serial Port Output Between the SP and the Host Console Using the Web Interface” on page 31](#)
- [“How to Switch Serial Port Output Between the SP and the Host Console Using the CLI” on page 31](#)

▼ How to Switch Serial Port Output Between the SP and the Host Console Using the Web Interface

- 1 Log in to the ILOM web interface.
- 2 Select **Configuration > Serial Port**.
The Serial Port Settings screen appears.
- 3 Click the **Owner drop-down list** and select **Host Server** as the desired serial port owner.
The drop-down list allows you to select either Service Processor or Host Server. By default, Service Processor is selected.
- 4 Click **Save for your change to take effect**.

▼ How to Switch Serial Port Output Between the SP and the Host Console Using the CLI

- 1 Log in to the ILOM CLI.
- 2 To set the serial port owner, type:
-> `set /SP/serial/portsharing owner=host`
By default, the SP is the owner of the serial port.

▼ How to Clear Server Faults

When a server component fails, the server generates a component-specific fault that is captured by the ILOM SP. Some faults are cleared automatically when the failed component is replaced, but faults generated for components that are not hot-plug capable have to be cleared manually. You can use either the ILOM web interface or the command-line interface (CLI) to manually clear faults.

For the Sun Fire X2270 M2 Server, the following types of faults must be cleared manually after the faulty component is replaced:

- Fan faults
- DIMM faults
- CPU faults
- Motherboard faults
- PCIe faults

When clearing faults, consider the following:

- When clearing fan faults, note that the FRU is /SYS, not /SYS/Fn, where *n* designates the component number (1, 2, 3, etc.).
 - DIMM faults are either system wide (/SYS/MB) or on a per DIMM basis (/SYS/MB/Pn/Dn).
 - PCIe faults can cover one or more of the following components: /SYS/MB/NETn and /SYS/MB/RISERn/PCIEn.
- **To clear DIMM, CPU, motherboard, and PCIe faults, access the server's ILOM SP and clear the fault for the failed component.**

For information about how to use the ILOM web interface, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*; for information about how to use the CLI to clear server faults, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*.

ILOM Sideband Management

By default, you connect to the server's SP using the out-of-band network management port (NET MGT). The 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), which are in-band ports, to send and receive 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 less cable connection and one less network session are needed. In configurations where a great number of servers are being managed, such as data centers, sideband management can represent a significant savings in hardware and network utilization.

Note – 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 ILOM Remote Console.

You can configure sideband management using either the web interface or the command-line interface (CLI). For instructions, refer to following sections: "Configure Sideband Management Using the Web Interface" on page 9 "Configure Sideband Management Using the CLI" on page 10.

Special Considerations for Sideband Management

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

- In-chip connectivity between the SP and the host operating system might not be supported by the on-board host GigabitEthernet 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.
- Server host power cycles might cause a brief interruption of network connectivity for server Gigabit Ethernet ports (NET 0, 1) that are configured for sideband management. You should configure the adjacent switch or bridge ports as host ports. Note that 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.

▼ How to Configure Sideband Management Using the Web Interface

- 1 Log in to the ILOM web interface.
- 2 Select **Configuration > Network**.
The Network Settings screen appears.
- 3 In the Network Settings screen, do the following:
 - a. Select DHCP to acquire the IP address automatically or specify the appropriate IP address.
 - b. To select a sideband management port, click the Management Port drop-down list and select the management port you want.
The drop-down list allows you to select either of the Gigabit Ethernet ports, /SYS/SP/NET n , where n is 0 or 1.
The SP NET MGT port, /SYS/SP/NET0, is the default.
- 4 Click **Save** for the changes to take effect.

▼ How to Configure Sideband Management Using the CLI

- 1 Log in to the ILOM CLI using the SP's serial console port.
For instructions, refer to the *Sun Fire X2270 M2 Server Installation Guide*. The ILOM CLI prompt appears:

->

2 To show the current port settings, type:

```
-> show /SP/network
```

The network properties appear. For example:

```
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
```

```
/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 this output, the current active MAC address (`macaddress`) is the same as the SP's out-of-band MAC address (`outofbandmacaddress`), and the current active management port (`managementport`) is set to the default (`/SYS/SP/NET0`).

3 To set the SP management port to a sideband port, type the following commands:

```
-> set /SP/network pendingmanagementport=/SYS/MB/NETn
```

where `n` equals 0 or 1.

```
-> set commitpending=true
```

4 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 this output, the `macaddress` matches the `sidebandmacaddress`, and the `managementport` matches the `pendingmanagementport`.

Running IPMITool from the Host

The network management (NET MGT) interface enables you to use the host operating system to execute IPMITool commands on the ILOM service processor. Using IPMITool commands, you can perform server initialization, monitoring, and maintenance tasks from the host operating system.

Note – The latest version of IPMITool is available on the Sun Fire X2270 M2 Server Tools & Drivers CD.

The Sun Fire X2270 M2 Server supports in-band systems management using IPMI v1.5 or 2.0 with the NET MGT interface and the IPMI kernel driver. IPMI is an industry-supported standard for performing autonomous platform management functions.

You can run IPMITool commands on Solaris, Linux, and Windows Server operating systems. For a description of the IPMITool commands and options, see the `ipmitool` man screen on the web at:

<http://ipmitool.sourceforge.net/manpage.html>

For a listing of the present server components, SP event log entries, or SP information about the network interface card (NIC), use the following IPMITool commands that are appropriate for your server operating system.

- For Linux and the Oracle Solaris OS:

```
# ipmitool -I interface sdr list
# ipmitool -I interface sel list
# ipmitool -I interface lan print 1
```

where *interface* is `bmc` on Oracle Solaris OS systems and `open` on Linux systems.

- For Windows Server 2003/2008:

```
#ipmitool -I ms sdr list
```

```
# ipmitool -I ms sel list
#ipmitool -I ms lan print 1
```

If you are using Linux or the Oracle Solaris OS, refer to *Remote Monitoring of Sun x86 Systems Using IPMITOOL and IPMIEVD for IPMITool* for installation and user instructions. This document is available on the web at:

<http://www.sun.com/blueprints/0107/820-1011.pdf>

If you are using a Windows Server 2003 R2 operating system, install the optional Windows Hardware Management interface driver. For instructions on how to install this driver, refer to *Hardware Management in Microsoft Windows Server 2003 R2 RC0* and perform the procedure described in "How to Enable the Hardware Management Feature." It is not necessary to perform any of the other procedures described in this document, such as "Configuration and Security." This document is available on the web at:

<http://technet.microsoft.com/en-us/default.aspx>

Additional information about IPMI, including the IPMITool manpage and detailed specifications, is available on the web at the following locations:

- <http://ipmitool.sourceforge.net/manpage.html>
- <http://openipmi.sourceforge.net>
- <http://www.intel.com/design/servers/ipmi/spec.htm>

Updating ILOM Firmware Using the IPMIflash Utility

The IPMIflash utility, provided on the Tools & Drivers CD, provides the ability to update the ILOM service processor firmware and BIOS remotely over the management network or locally from the server. This utility is available for Linux and Solaris operating systems. Refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 SNMP and IPMI Procedures Guide* for more information and instructions for updating ILOM firmware using the IPMIflash utility.

Sensors

The Sun Fire X2270 M2 server includes several sensors that generate entries in the system event log (SEL) when the sensor crosses a threshold. Many of these readings are used to adjust the fan speeds and perform other actions, such as illuminating LEDs and powering off the chassis.

These sensors can also be configured to generate IPMI PET traps as described in the *Oracle Integrated Lights Out Manager (ILOM) 3.0 SNMP and IPMI Procedures Guide*.



Caution – Do not use any interface other than the Integrated Lights Out Manager CLI or web interface to alter the state or configuration of any sensor or LED. Doing so could void your warranty.

This section contains the following sensor-related topics:

- “Temperature and Voltage Readings” on page 37
- “Sensor List” on page 37

Temperature and Voltage Readings

The system monitors 2 temperature sensors and 14 voltage sensors. They all generate IPMI events that are logged in the system event log (SEL) when an upper threshold is exceeded. The temperature sensor readings are used to adjust the fan speeds. Any sensor outside a threshold causes the SP to illuminate the service LEDs and possibly power off the server.

The sensors and their respective thresholds are as follows:

Ambient temperature	<ul style="list-style-type: none"> ▪ Upper noncritical: 30 degrees C ▪ Upper critical: 45 degrees C ▪ Upper nonrecoverable: 52 degrees C
Voltage	<ul style="list-style-type: none"> ▪ Upper noncritical: +/-10% V ▪ Upper critical: +/-20% V ▪ Upper nonrecoverable: +/-25% V

Sensor List

The following table lists the server sensors and data information.

Sensor Name	Information	Data
ACPI	Sensor ID	ACPI (0x0)
	Entity ID	7.0
	Sensor Type (Discrete)	System ACPI Power State
	States Asserted	System ACPI Power State [S0/G0: working]

Sensor Name	Information	Data
/P0/PRSNT	Sensor ID	/P0/PRSNT (0x1)
	Entity ID	3.0
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Present]
/P1/PRSNT	Sensor ID	/P1/PRSNT (0x2)
	Entity ID	3.1
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P0/D0/PRSNT	Sensor ID	/P0/D0/PRSNT (0x3)
	Entity ID	32.0
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P0/D1/PRSNT	Sensor ID	/P0/D1/PRSNT (0x4)
	Entity ID	32.1
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P0/D2/PRSNT	Sensor ID	/P0/D2/PRSNT (0x5)
	Entity ID	32.2
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P0/D3/PRSNT	Sensor ID	/P0/D3/PRSNT (0x6)
	Entity ID	32.3
	Sensor Type (Discrete)	Entity Presence

Sensor Name	Information	Data
	States Asserted	Availability State [Device Absent]
/P0/D4/PRSNT	Sensor ID	/P0/D4/PRSNT (0x7)
	Entity ID	32.4
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P0/D5/PRSNT	Sensor ID	/P0/D5/PRSNT (0x8)
	Entity ID	32.5
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P1/D0/PRSNT	Sensor ID	/P1/D0/PRSNT (0x9)
	Entity ID	32.6
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P1/D1/PRSNT	Sensor ID	/P1/D1/PRSNT (0xa)
	Entity ID	32.7
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P1/D2/PRSNT	Sensor ID	/P1/D2/PRSNT (0xb)
	Entity ID	32.8
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]

Sensor Name	Information	Data
/P1/D3/PRSNT	Sensor ID	/P1/D3/PRSNT (0xc)
	Entity ID	32.9
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P1/D4/PRSNT	Sensor ID	/P1/D4/PRSNT (0xd)
	Entity ID	32.10
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/P1/D5/PRSNT	Sensor ID	/P1/D5/PRSNT (0xe)
	Entity ID	32.11
	Sensor Type (Discrete)	Entity Presence
	States Asserted	Availability State [Device Absent]
/MB/T_AMB	Sensor ID	/MB/T_AMB (0xf)
	Entity ID	7.8
	Sensor Type (Analog)	Temperature
	States Reading	22 (+/- 0) degrees C
	Status	ok
	Lower Non-Recoverable	-10.000
	Lower Critical	-5.000
	Lower Non-Critical	0.000
	Upper Non-Critical	50.000
	Upper Critical	55.000
	Upper Non-Recoverable	60.000
	Assertions Enabled	lnc- lcr- lnr- unc+ ucr+ unr+
Deassertions Enabled	lnc- lcr- lnr- unc+ ucr+ unr+	

Sensor Name	Information	Data
MB/V_+12V	Sensor ID	MB/V_+12V (0x10)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	12.033 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	9.576
	Lower Non-Critical	10.773
	Upper Non-Critical	13.167
	Upper Critical	14.364
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
	MB/V_+1V5	Sensor ID
Entity ID		10.0
Sensor Type (Analog)		Voltage
States Reading		5.122 (+/- 0) Volts
Status		ok
Lower Non-Recoverable		na
Lower Critical		3.978
Lower Non-Critical		4.498
Upper Non-Critical		5.486
Upper Critical		5.980
Upper Non-Recoverable		na
Assertions Enabled		lnc- lcr- unc+ ucr+
Deassertions Enabled		lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/V_+3V3_STBY	Sensor ID	MB/V_+3V3_STBY (0x12)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	3.251 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	2.597
	Lower Non-Critical	2.993
	Upper Non-Critical	3.595
	Upper Critical	3.887
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
MB/V_+3V3	Sensor ID	MB/V_+3V3 (0x13)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	3.371 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	2.597
	Lower Non-Critical	2.993
	Upper Non-Critical	3.595
	Upper Critical	3.887
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/V_+3V3_VBAT	Sensor ID	MB/V_+3V3_VBAT (0x14)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	2.198 (+/- 0) Volts
	Status	Lower Critical
	Lower Non-Recoverable	na
	Lower Critical	2.591
	Lower Non-Critical	2.999
	Upper Non-Critical	3.595
	Upper Critical	3.89
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
MB/V_+1V5	Sensor ID	MB/V_+1V5 (0x15)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.499 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	1.192
	Lower Non-Critical	1.345
	Upper Non-Critical	1.640
	Upper Critical	1.794
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/P0/V_+1V8	Sensor ID	MB/P0/V_+1V8 (0x16)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.823 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	1.431
	Lower Non-Critical	1.617
	Upper Non-Critical	1.980
	Upper Critical	2.156
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
MB/P1/V_+1V8	Sensor ID	MB/P1/V_+1V8 (0x17)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.823 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	1.431
	Lower Non-Critical	1.617
	Upper Non-Critical	1.980
	Upper Critical	2.156
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/P0/V_VTT	Sensor ID	MB/P0/V_VTT (0x18)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.109 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	0.873
	Lower Non-Critical	0.979
	Upper Non-Critical	1.204
	Upper Critical	1.310
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
	MB/P1/V_VTT	Sensor ID
Entity ID		10.0
Sensor Type (Analog)		Voltage
States Reading		1.109 (+/- 0) Volts
Status		ok
Lower Non-Recoverable		na
Lower Critical		0.873
Lower Non-Critical		0.979
Upper Non-Critical		1.204
Upper Critical		1.310
Upper Non-Recoverable		na
Assertions Enabled		lnc- lcr- unc+ ucr+
Deassertions Enabled		lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/P0/V_+1V5_DDR	Sensor ID	MB/P0/V_+1V5_DDR (0x1a)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.510 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	1.192
	Lower Non-Critical	1.345
	Upper Non-Critical	1.640
	Upper Critical	1.794
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
MB/P1/V_+1V5_DDR	Sensor ID	MB/P1/V_+1V5_DDR (0x1b)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.510 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	1.192
	Lower Non-Critical	1.345
	Upper Non-Critical	1.640
	Upper Critical	1.794
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
MB/P0/V_VCCP	Sensor ID	MB/P0/V_VCCP (0x1c)
	Entity ID	10.0
	Sensor Type (Analog)	Voltage
	States Reading	1.086 (+/- 0) Volts
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	0.791
	Lower Non-Critical	0.897
	Upper Non-Critical	1.097
	Upper Critical	1.192
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lcr- unc+ ucr+
	Deassertions Enabled	lnc- lcr- unc+ ucr+
	MB/P1/V_VCCP	Sensor ID
Entity ID		10.0
Sensor Type (Analog)		Voltage
States Reading		1.086 (+/- 0) Volts
Status		ok
Lower Non-Recoverable		na
Lower Critical		0.791
Lower Non-Critical		0.897
Upper Non-Critical		1.097
Upper Critical		1.192
Upper Non-Recoverable		na
Assertions Enabled		lnc- lcr- unc+ ucr+
Deassertions Enabled		lnc- lcr- unc+ ucr+

Sensor Name	Information	Data
T_AMB	Sensor ID	T_AMB (0xa5)
	Entity ID	7.0+
	Sensor Type (Analog)	Temperature
	States Reading	25 (+/- 0) degrees C
	Status	ok
	Lower Non-Recoverable	na
	Lower Critical	na
	Lower Non-Critical	na
	Upper Non-Critical	na
	Upper Critical	45.000
	Upper Non-Recoverable	50.000
	Assertions Enabled	ucr+ unr+
	Deassertions Enabled	ucr+ unr+
F0/TACH	Sensor ID	F0/TACH (0x1e)
	Entity ID	29.0
	Sensor Type (Analog)	Fan
	States Reading	2900 (+/- 0) RPM
	Status	ok
	Lower Non-Recoverable	200.000
	Lower Critical	na
	Lower Non-Critical	500.000
	Upper Non-Critical	na
	Upper Critical	na
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lnr
	Deassertions Enabled	lnc- lnr-

Sensor Name	Information	Data
F1/TACH	Sensor ID	F1/TACH (0x1f)
	Entity ID	29.0
	Sensor Type (Analog)	Fan
	States Reading	5800 (+/- 0) RPM
	Status	ok
	Lower Non-Recoverable	200.000
	Lower Critical	na
	Lower Non-Critical	500.000
	Upper Non-Critical	na
	Upper Critical	na
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lnr-
	Deassertions Enabled	lnc- lnr-
F2/TACH	Sensor ID	F2/TACH (0x20)
	Entity ID	29.0
	Sensor Type (Analog)	Fan
	States Reading	6000 (+/- 0) RPM
	Status	ok
	Lower Non-Recoverable	200.000
	Lower Critical	na
	Lower Non-Critical	500.000
	Upper Non-Critical	na
	Upper Critical	na
	Upper Non-Recoverable	na
	Assertions Enabled	lnc- lnr-
	Deassertions Enabled	lnc- lnr-

▼ How to View the Sensors From the System BIOS

You also can view sensor errors by accessing the system event log from the system BIOS. Sensor errors that are recorded include those for voltage, temperature, fans, and DIMMs. For a list of system BIOS sensor types and IDs, see “[BIOS System Event Log Sensor Error List](#)” on page 50.

- 1 **During system boot, press F2 to enter the system BIOS.**
Wait until you see the prompt instructing you to press F2.
- 2 **Select Advanced > Event Log Configuration > View Event Log.**

Note – Alternatively, if you want to view sensor information that is updated in real time, select Advanced > Event Log Configuration > Hardware Health Configuration.

BIOS System Event Log Sensor Error List

Sensor Type	Sensor ID
Voltage	3.3 V Standby
	3.3 V Main
	+5 V
	VCCP
	+12 V
	-12 V
	A-in0
	A-in1
	A-in2
	A-in3
	A-in4
	A-in5
	A-in6
	A-in7
VBAT	
Temperature	Temperature

Sensor Type	Sensor ID
Fans	CPU Fan Speed
	SYS Fan Speed
	AUX Fan Speed
	CPU Fan Speed
	SYS Fan Speed
	AUX Fan Speed
DIMM Errors	Correctable
	Uncorrectable

Using ILOM to Monitor the Host

This section describes the sensors and indicators that you can access through the ILOM.

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

Note – All sensors and indicators are IPMI-compliant.

This section contains the following topics:

- [“System ILOM Sensors” on page 53](#)
- [“System ILOM Indicators” on page 54](#)

System ILOM Sensors

Name	Description
/SYS/DBP/HDDX/FAIL	HDDX Predictive Failure
/SYS/DBP/PRSNT	Disk Backplane Present
/SYS/FP/PRSNT	Front Panel Indicator Module Present
/SYS/FTX/FMY/FZ/SPEED	Front Fan Board X Fan Module Y Fan Z Speed in RPMs
/SYS/FTX/FMY/PRSNT	Front Fan Board X Fan Module Y Present
/SYS/INTSW	Intrusion Switch Tripped
/SYS/MB/T_AMBX	Motherboard Sensor X Ambient Temperature in Degrees Celsius
/SYS/MB/V_+12V	Motherboard 12V Main Input
/SYS/MB/V_+1V2	Motherboard 1.2V Core Input for Motherboard
/SYS/MB/V_+1V5	Motherboard 1.5V Core Input
/SYS/MB/V_+2V5	Motherboard 2.5V Core Input

Name	Description
/SYS/MB/V_+3V3	Motherboard 3.3V Main Input
/SYS/MB/V_+3V3AUX_R	Motherboard Standby Devices 3.3V Auxiliary Input
/SYS/MB/V_+5V	Motherboard 5V Main Input
/SYS/MB/V_-12V	Motherboard -12V Main Input
/SYS/MB/V_BAT	Motherboard Battery Voltage
/SYS/PSX/PRSNT	Power Supply X Present
/SYS/PSX/PWROK	Power Supply X Supplying Power
/SYS/PSX/VINOK	Power Supply X AC Input Available
/SYS/PX/CARDFAIL	CPU Module X Failure
/SYS/PX/PROCHOT	CPU Module X Overheating (split-plane modules only)
/SYS/PX/PRSNT	CPU Module X Present
/SYS/PX/T_AMB	CPU Module X Ambient Temperature in Degrees Celsius
/SYS/PX/T_CORE	CPU Module X Core Temperature in Degrees Celsius
/SYS/PX/V_+0V9VTT	CPU Module X 0.9V VTT Input
/SYS/PX/V_+12V	CPU Module X !2V Main Input
/SYS/PX/V_+1V2	CPU Module X 1.2V Core Input
/SYS/PX/V_+1V8	CPU Module X 1.8V Core Input
/SYS/PX/V_+2V5	CPU Module X 2.5V Core Input
/SYS/PX/V_+3V3AUX_R	CPU Module X 3.3V Auxiliary Input
/SYS/PX/V_CORE	CPU Module X Core Voltage
/SYS/PX/V_NB	CPU Module X 5V Main Input (split-plane modules only)

System ILOM Indicators

Name	Description
/SYS/DBP/HDDX/SERVICE	Service LED for HDD X is lit.
/SYS/FTX/FMY/SERVICE	Service LED for Front Fan Board X Fan Module Y is lit
/SYS/PX/CARD/SERVICE	Service LED for CPU Module X is lit

Name	Description
/SYS/PX/DY/SERVICE	Service LED for CPU Module X DIMM Y is lit
/SYS/PX/SERVICE	Service LED for CPU on CPU Module X is lit
/SYS/FAN_FAULT	Fan Fault LED on Front Panel is lit
/SYS/LOCATE	Locate LEDs are lit
/SYS/POWER	Power LED is lit
/SYS/PSU_FAULT	PSU Fault Detected
/SYS/SERVICE	Front Panel Service LED is lit
/SYS/TEMP_FAULT	Temperature Fault Detected

Updating Firmware

Updates to the firmware for ILOM and system BIOS are periodically available on the server download site. The updates provide additional features and resolve server issues. When performing an update, you must update all of the firmware components at the same time. You can use the [“Firmware Versions Worksheet” on page 57](#) to keep track of the firmware versions needed for the 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	Record the ILOM and BIOS firmware versions.	“Firmware Versions Worksheet” on page 57
2	Verify the firmware versions that are currently running on the server.	“Determining Current Firmware Versions” on page 58
3	Determine the target firmware versions and download the firmware.	“Preparing for a Firmware Update” on page 62
4	Update the ILOM and system BIOS.	“Updating the ILOM and System BIOS” on page 64

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			

Determining Current Firmware Versions

This section describes how to determine current the ILOM and BIOS firmware versions.

ILOM and BIOS firmware

Use one of the following methods:

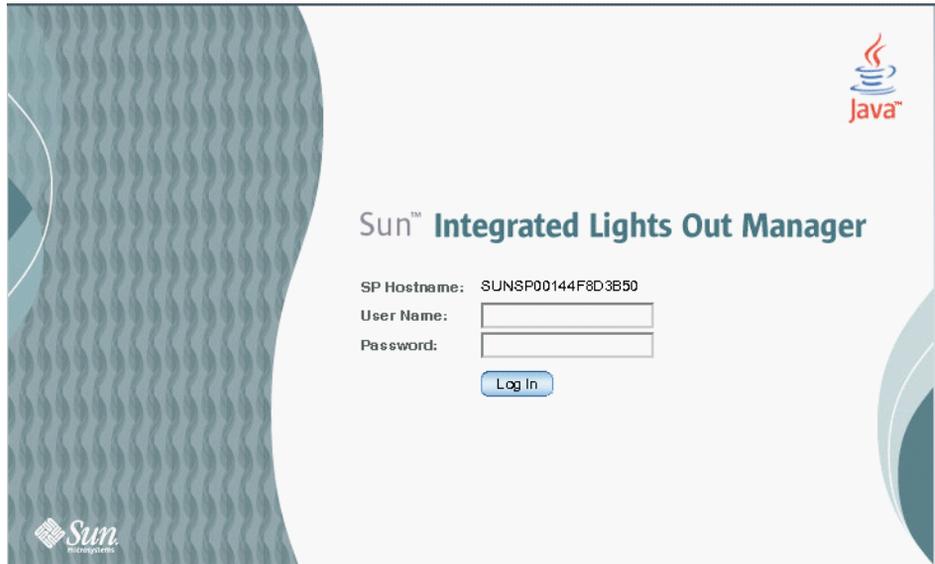
- “How to Determine the ILOM and BIOS Firmware Versions Using the Web Interface” on page 58
 - “How to Determine the ILOM and BIOS Firmware Versions Using the Command-Line Interface Through the Serial Port” on page 60
 - “How to Verify the ILOM and BIOS Firmware Versions Using the Command-Line Interface Through the Management Ethernet Port” on page 61
-

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

Note – The screen shots presented in this topic are for informational purposes only and might differ slightly from the screens you see.

- 1 Connect to the ILOM web interface by typing the IP address of the server's SP into your browser's address field.

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 screen presented is the System Information > Versions screen, which includes the ILOM version and build number.

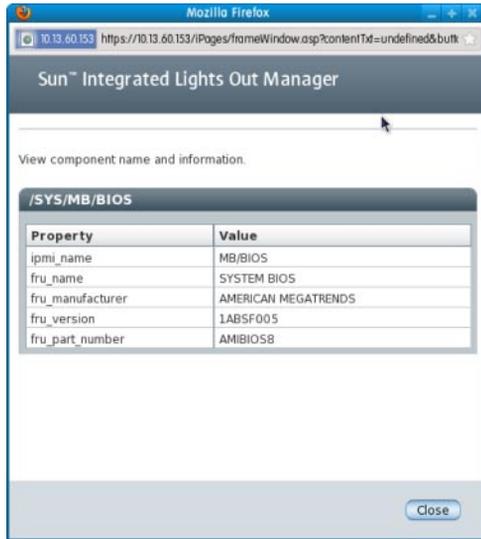
Property	Value
SP Firmware Version	2.0.2.16
SP Firmware Build Number	42063
SP Firmware Date	Mon Feb 9 22:45:34 PST 2009
SP Filesystem Version	0.1.16

- 3 Select System Information > Components.

4 Select /SYS/MB/BIOS in the Component Name field.

The View Component name and information dialog box appears.

The fru_version field shows the BIOS version number.



5 Note the ILOM and BIOS versions on the “Firmware Versions Worksheet” on page 57.

▼ How to Determine 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:

- 8, N, 1 (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 login prompt appears:

SUNproduct-serial_number login:

where *product-serial_number* 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 command prompt appears:

->

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/MB/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 57.

▼ 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 when you are prompted:

```
# ssh -l root sp_ip_address
```

changeme

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

->

3 To view the ILOM version information, type: version

This command returns input 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/MB/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 57.

Preparing for a Firmware Update

This section contains the following topics:

- “[How to Plan the Firmware Update](#)” on page 62
- “[How to Download Firmware Updates](#)” on page 63

▼ How to Plan the Firmware Update

You must update the firmware for the ILOM and BIOS together. Use the “[Firmware Versions Worksheet](#)” on page 57 to record intermediate and target firmware version identified in this procedure.

- 1 View the *Sun Fire X2270 M2 Server Product Notes* for information about 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 are described in the product notes.

- 2 Record the intermediate and target firmware versions in the **“Firmware Versions Worksheet”** on page 57.
- 3 Navigate to the downloads page for the server to access the available software download versions:

[http://wikis.sun.com/
display/SystemsComm/Sun+Fire+X2270+M2+Server#tab:Downloads](http://wikis.sun.com/display/SystemsComm/Sun+Fire+X2270+M2+Server#tab:Downloads)

▼ How to Download Firmware Updates

- 1 Determine which software update corresponds to the firmware that you want to download. See **“Preparing for a Firmware Update”** on page 62.
- 2 Select Download in the row for the correct firmware update.
- 3 Select Firmware from the Platform drop-down list.
- 4 Select the checkbox to agree to the software license agreement.
- 5 Enter your Oracle Sun Download Center user name and password.
If you do not have a user name and password, you can register free of charge by clicking Register Now.
- 6 Click the appropriate image file name: **ILOM-firmware_version.ima**.
For example: ILOM-3_0_3_31-r42822.ima-Sun_Fire_X2270m2.ima
- 7 Select the files you want, and then click the **“Download Selected with Sun Download Manager” (SDM) button to automatically install and use SDM**.
Additional instructions for using SDM are available on the download site.

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 64
- “How to Update the ILOM and System BIOS Using the Command-Line Interface” on page 67

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

Note – The screen shots presented in this topic are for informational purposes only and might differ slightly from the screens you see.

- Before You Begin**
- Identify the version of ILOM that is currently running on your system. See “[Determining Current Firmware Versions](#)” on page 58.
 - Download the firmware image for your server from the product web site. See “[How to Download Firmware Updates](#)” on page 63.
 - 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.
-

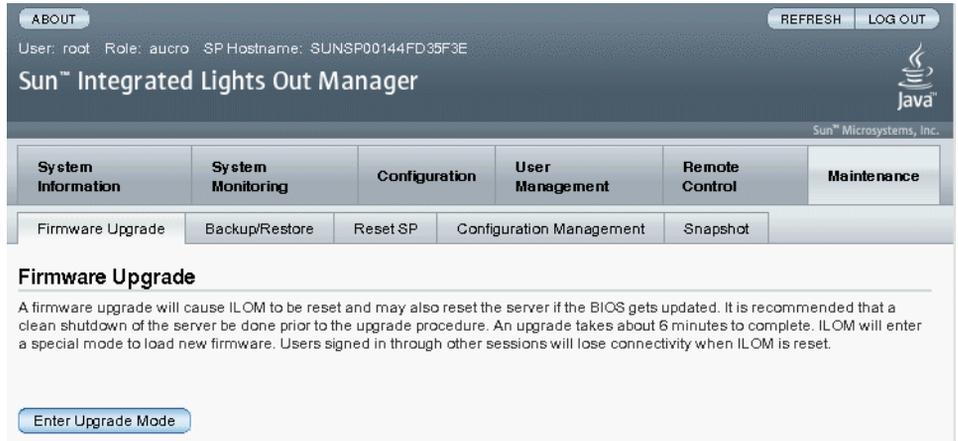
Note – The firmware update process takes about six minutes to complete. During this time, do not perform other ILOM tasks. When the firmware update is complete, the system reboots.

1 Log in to the ILOM web interface.

See “[How to Connect to the ILOM Web Interface](#)” on page 20.

2 Select Maintenance > Firmware Upgrade.

The Firmware Upgrade screen appears.



3 In the Firmware Upgrade screen, click Enter Upgrade Mode.

An Upgrade Verification dialog box 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 the URL for the firmware image in the text box.**
 - b. Click the Upload button to upload and validate the file.**

Wait for the file to upload and validate.

The Firmware Verification screen appears.
- 6 In the Firmware Verification screen, 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 screen 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 screen 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 > Versions** to verify that the firmware version on the SP corresponds to the firmware image you installed.



Versions

View the version of ILOM firmware currently in use.

Version Information	
Property	Value
SP Firmware Version	3.0.3.31
SP Firmware Build Number	46984
SP Firmware Date	Wed Jul 22 09:57:54 CST 2009
SP Filesystem Version	0.1.22

▼ 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 58.
 - Download the firmware image for your server from the server web site. See [“How to Download Firmware Updates”](#) on page 63.
 - 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 six minutes to complete. 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”](#) on page 18 for more info.

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

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

You can 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 using an SSH connection and using the same user name and password that you provided in Step 1 of this procedure.

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

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

-> **version**

Index

A

accessing

- BIOS Setup Utility, 17
- CLI using a serial connection, 17–18
- connecting to serial console, 22–26
- ILOM, 11, 18
 - CLI using SER MGT port, 19–20
 - CLI using SSH, 19
 - using web interface, 20–21
- serial console, 26–27
- serial port configuration, 31

B

- BIOS, updating, 64
- BIOS Setup Utility, accessing, 17

C

- cables, connecting, 16
- clearing server faults, 31–32
- CLI (command-line interface)
 - logging in to ILOM, 18
 - SER MGT port access, 19–20
 - SSH access, 19
 - updating ILOM and BIOS firmware, 67–68
- CMM (chassis monitoring module), 12
- configuring
 - serial port, 31

configuring (*Continued*)

- sideband management
 - using CLI, 33–35
 - using web interface, 33
- connecting, cables, 16
- connecting to
 - ILOM, 18
 - serial console, 21

D

- download page URL, 63
- downloading, firmware updates, 63

E

- error list, BIOS system event log, 50

F

- fault clearing, 31–32
- firmware
 - determining
 - ILOM and BIOS versions, 57
 - downloading, 63
 - preparing for an update, 62
 - supported versions, 12
 - updating, 57–68
 - updating ILOM and BIOS
 - using CLI, 67–68

firmware, updating ILOM and BIOS (*Continued*)
using web interface, 64–67

H

hardware information, 29

I

ILOM

- accessing, 18
- CMM, 12
- communicating with, 15–27
- connecting
 - using SER MGT port, 19–20
 - using SSH, 19
 - using web interface, 20–21, 58–60
- feature set, 11–13
- functionality and capability, 12
- host, monitoring, 53–55
- indicators list, 54
- logging in
 - using CLI, 17–18, 18, 19–20
 - using web interface, 20–21
- overview, 11
- sideband management, 32
 - configuring using CLI, 33–35
 - configuring using web interface, 33
- SP IP address, 16
- updating, 64
 - using IPMIflash, 36
- web interface, 58–60

Integrated Lights Out Manager, *See* ILOM

IPMITool, host-level operation, 35

L

LEDs

- back panel, 15
- front panel, 29

logging in to ILOM

- using CLI, 17–18, 18, 19–20

logging in to ILOM (*Continued*)
using web interface, 20–21

N

NET MGT port

- connecting to, 16
- location, 15

P

password and user name, default, 18

ports, server back panel, 15

S

sensors

- BIOS SEL error list, 50
- ILOM list, 37
- temperature and voltage thresholds, 37
- viewing
 - from BIOS, 50
 - from ILOM, 53

SER MGT port

- access to CLI, 19–20
- connecting to, 16
- location, 15

serial console, connecting

- locally, 21–22
- using the CLI, 26–27
- using the web interface, 22–26

serial port, switching output

- using CLI, 31
- using web interface, 31

server

- back panel LEDs and ports, 15
- front panel LEDs, 29
- port connections, 16
- sensors, 36

service processor, *See* SP

sideband management, 32

software download URL, 63

SP, 11
 accessing using serial port, 17–18
SP IP address, getting
 using BIOS Setup utility, 17
 using serial connection, 17–18
SSH, access to CLI, 19
switching serial output, 30

U

updating, firmware, 57–68
user name and password, default, 18

W

web interface
 connecting to serial console, 22–26
 ILOM and BIOS firmware versions, 58–60
 logging in, 20–21
 updating ILOM and BIOS firmware, 64–67

