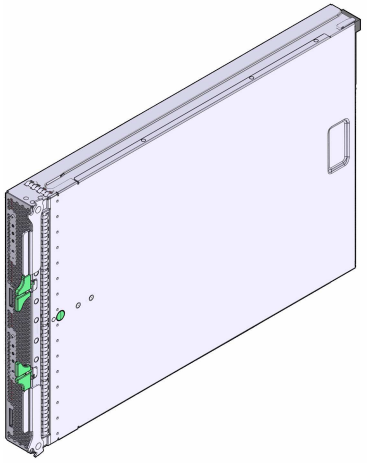
Sun Integrated Lights Out Manager 2.0 Supplement for the Sun Blade™ X6275 Server Module



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Preface

The *Sun Integrated Lights Out Manager 2.0 Supplement for Sun Blade X6275 Server Module* provides supplemental, platform-specific documentation for Integrated Lights Out Manager (ILOM) firmware on the Sun Blade X6275 Server Module.

This document supplements the common ILOM documentation described in the *Sun Integrated Lights Out Manager 2.0 User's Guide*.

Related Documents

To see a list of the Sun Blade™ X6275 server module documentation, refer to the *Getting Started Guide* that is packed with your system and also posted at the product's documentation site.

Translated versions of some of these documents are available at the web product documentation page in Simplified Chinese, French, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation. See TABLE P-1 for more information.

Sun Online

TABLE P-1 Sun Web Sites Related to the Sun Blade X6275 Server Module

Sun Function	URL	Description
Sun Documentation	http://docs.sun.com	You can navigate to the Sun Blade X6275 server module document page and then download PDF and view HTML documents.
Support	http://www.sun.com/support/	Obtain technical support and download patches.
Training	http://www.sun.com/training/	Learn about Sun courses.
Warranty	http://www.sun.com/service/support/warranty/index.html	Obtain specific details regarding your warranty.
Feedback	http://www.sun.com/hwdocs/feedback/	Submit your comments. Please include the title and part number of your document with your feedback: *Sun Integrated Lights Out Manager 2.0 Supplement for the Sun Blade 6275 Server Module*, part number 820-6851-10
Product Updates	http://www.sun.com/download/	Find the Hardware Drivers section and click x64 Servers & Workstations. The Sun Blade X6275 server module site contains updates for firmware, drivers, and DVD/CD-ROM ISO images.

CHAPTER 1

Introduction

This manual describes the differences between the common ILOM and the ILOM as implemented for the Sun Blade X6275 server module.

This chapter consists of the following sections.

- "Overview of the ILOM on the Sun Blade X6275 Server Module" on page 1
- "ILOM Features Not Supported" on page 2
- "Platform-Specific ILOM Features" on page 2

Additional information is provided in the following chapters:

- Chapter 2, Using the ILOM Preboot Menu
- Chapter 3, Updating the Firmware
- Chapter 4, Sensors and Indicators

Overview of the ILOM on the Sun Blade X6275 Server Module

The Integrated Lights Out Manager (ILOM) is system management firmware that allows you to manage your Sun server when the host system is powered down. This is possible because the ILOM runs on a separate Service Processor (SP) that is powered by the host system's standby power.

The following interfaces provide network access to the ILOM: command-line interface (CLI), web interface, SNMP, and IPMI.

Note – In order to establish a serial connection to the ILOM, you must connect a dongle to a management connector on the front of the module. Refer to the *Sun Blade X6275 Server Module Service Manual* for more information.

The ILOM also supports remote access to the host's system console through a network remote keyboard video and mouse (RKVM). The host's I/O to optical and floppy drives can be redirected to real and virtual drives on the network. This allows a remote user to perform most maintenance operations, including installing an operating system.

The server module's ILOM can also be accessed through the chassis ILOM, which is called the Chassis Management Module (CMM). Refer to the Chassis ILOM documentation for more information.

Note – To support the Sun Blade X6275 server module, the CMM must be configured with firmware version 2.0.3.13 or later.

ILOM Features Not Supported

Not all common ILOM features are supported on every platform. On the Sun Blade X6275 Server Module,the following features are not supported:

- Intrusion Detection – Intrusion detection is applicable for rack-mounted systems but not for blade server modules.

All other features are supported. However, some features have been enhanced, and others have been added. These are described in "Platform-Specific ILOM Features" on page 2.

Platform-Specific ILOM Features

The Sun Blade X6275 server module has some unique features, and the ILOM has been modified to support them.

The following sections and chapters describe the features that are modified or added to the ILOM for the Sun Blade X6275 server module:

- Features to support dual nodes – See "Dual-Node Identification" on page 3.
- Web interface – See "Web Interface" on page 4.

- Fault management – See "Clearing Server Faults" on page 5.
- Power management – See "Power Management Metrics" on page 5.
- Serial port sharing – See "Switching Serial Port Output Between SP and Host Console" on page 8.
- CMM policy for cooling door – See "Enabling and Disabling the Sun Cooling Door" on page 10.
- Preboot menu – See Chapter 2.
- Sensors and indicators -– See Chapter 4.

Dual-Node Identification

Note – Some of the features described in this section require that the chassis's CMM be running ILOM 2.0.3.13 or later.

A single Sun Blade X6275 server module contains two complete systems, each referred to as a node. Each node has its own SP running its own ILOM.

To handle this, the CMM ILOM displays slot addresses as if there are two separate server modules.

- Node 0 is addressed by the actual slot number.
- Node 1 is addressed by the slot number plus 12. For example, for a server module in slot 6:
  - Node 0 is addressed by the actual slot number, 6.
  - Node 1 is addressed by slot 18 (the actual slot number plus 12).

This convention is reflected in the following CMM ILOM features:

- The `/SYS/SLOTID` target is different for the two blade ILOMs.
- The chassis' CMM ILOM provides separate targets for each blade. For example, if the blade is in slot 6, then the CMM ILOM provides `/CH/BL6` and `/CH/BL18`.
- The CMM ILOM web interface provides separate management displays for the two blade ILOMs, using the two slot IDs. For more information, see Chapter 2.

Note – The slot addressing described above is used by the CMM ILOM only. The server module ILOM displays the actual slot number in all instances, for both nodes.

Web Interface

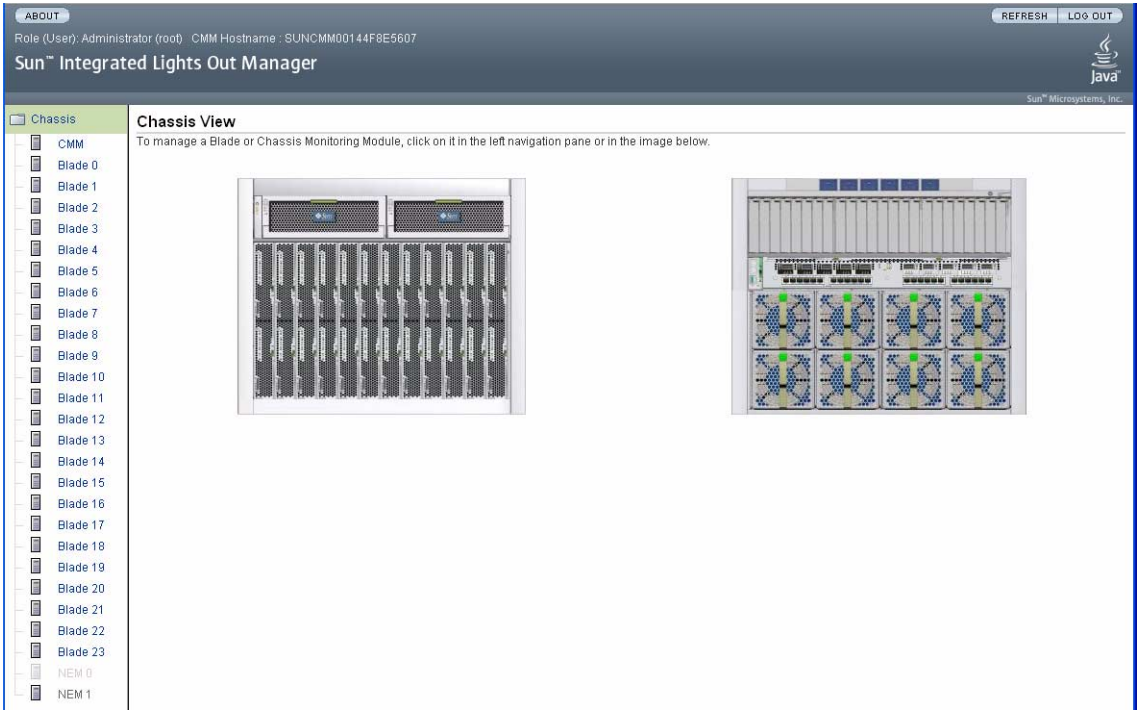
You can access the web interface for either ILOM by entering the Service Processor's network address in a browser address bar. Alternately, you can use the CMM network address to access the CMM ILOM, which also provides access to individual blade ILOM web interfaces.

FIGURE 1-1 shows the web interface of a CMM ILOM provisioned with Sun Blade X6275 server modules.

- Slots 0 through 11 each show node 0 of their respective server modules.
- Slots 12 through 23 show node 1 of the server modules in slots 0 through 11.

To access the web interface for an individual server module ILOM, click on the server module name in the left-hand frame, or click on the graphic representing the server module in the right-hand frame. In the case of a Sun Blade X6275 server module, click on the upper half of the graphic to access node 0, and click on the lower half of the graphic to access node 1.

FIGURE 1-1 CMM ILOM Web Interface Showing 2-Node Blades



Clearing Server Faults

The Sun Blade X6275 server module handles faults slightly differently from the common ILOM. The details are provided in the *Sun Blade X6275 Server Module Diagnostics Guide*.

Power Management Metrics

This section describes the differences between power management metrics in the common ILOM and in the Sun Blade X6275 server module ILOM.

Power Management Metrics in the Common ILOM

The power management function in ILOM 2.0 enables you to monitor power consumption metrics from the command-line interface (CLI) or web interface. The following power management metrics are common to all Sun servers:

- **Available power** – The available power metric shown in ILOM for a server module represents the maximum amount of power guaranteed to be available to the server module by the system chassis.
- **Actual power** – The actual power metric shown in ILOM for a server module represents the amount of power consumed by the server.
- **Permitted power** – The permitted power metric shown in ILOM for a server module represents the maximum power the server guarantees it will consume at any instant.

For examples of these common power management metrics provided in ILOM 2.0, see the web interface example shown in FIGURE 1-2 "Power Management Metrics - ILOM Web Interface" on page 6 or the command-line output shown in Step 2 of the "To Monitor Advanced Power Metrics From the CLI" on page 7.

For additional information about the common power management metrics provided for all Sun servers, see the *Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide* or the *Sun Integrated Lights Out Manager 2.0 User's Guide*.

Specific Power Consumption Metrics for the Sun Blade X6275 Server Module

In addition to the common power consumption metrics provided in ILOM 2.0 for all Sun servers, the power management function in ILOM 2.0 provides the following advanced power consumption metrics for the Sun Blade X6275 Server Module.

- **Power budget** – The power budget metric shown in ILOM identifies the maximum power value that the server guarantees it will consume at any instant.
- **Power policy** – The power policy metric shown in ILOM enables you to determine whether permission was granted by the system chassis to power on the server host. This decision is granted by the system chassis after comparing the amount of power available on the chassis to the amount of power currently being consumed by all components (server modules, NEMs, fans, and so forth) in the system chassis.

For information about how to view these advanced power consumption metrics in ILOM 2.0, see these topics:

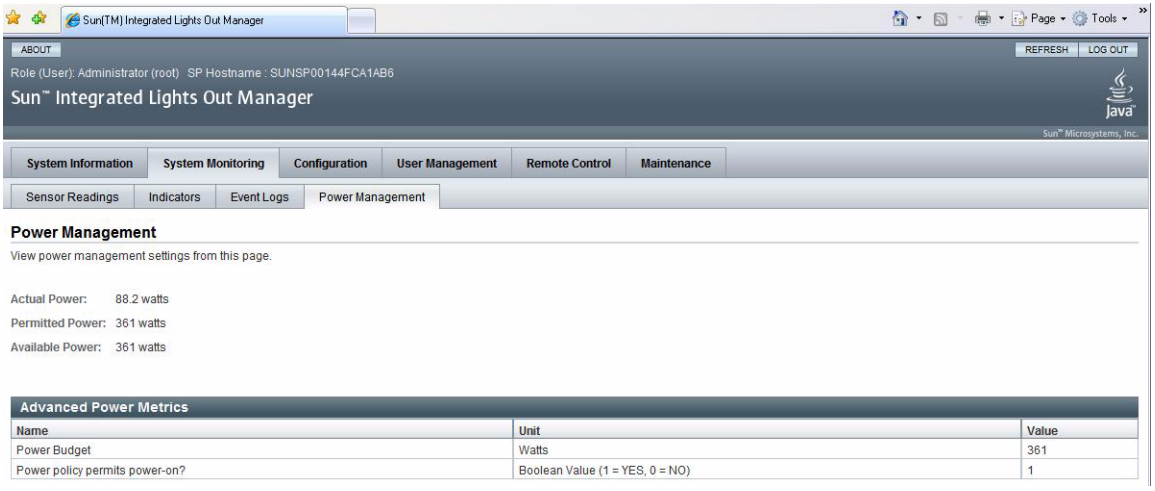
- "To Monitor Advanced Power Metrics From the Web Interface" on page 6
- "To Monitor Advanced Power Metrics From the CLI" on page 7

▼ To Monitor Advanced Power Metrics From the Web Interface

1. **Log in to the ILOM web interface.**
2. **Select System Monitoring --> Power Management.**

   The common power consumption metrics and advanced power consumption metrics for the Sun Blade X6275 Server Module appear.

FIGURE 1-2 Power Management Metrics - ILOM Web Interface



▼ To Monitor Advanced Power Metrics From the CLI

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

2. **To display the actual power, permitted power, and available power, use the** `show` **command. For example:**

```
-> show /SP/powermgmt
   /SP/powermgmt
   Targets:
       advanced
   Properties:
      actual_power = 88.2
      permitted power = 366
      available power = 366
   Commands:
      cd
      show
```

3. **To display the advanced power metric properties for power budget and power policy use the** `show /SP/powermgmt/advanced/`*n* **command:**

   where:

   n = 1 for power budget

   n = 2 for power policy

   For example:

```
-> show /SP/powermgmt/advanced/1
/SP/powermgmt/advanced/1
    Targets:
   Properties:
      name = Power Budget
      unit = Watts
      value = 361
   Commands:
      cd
      show
```

```
-> show /SP/powermgmt/advanced/2
/SP/powermgmt/advanced/2
    Targets:
   Properties:
      name = Power policy permits power-on?
      unit = Boolean Value (1 = Yes, 0 = NO)
      value = 1
   Commands:
      cd
      show
```

Switching Serial Port Output Between SP and Host Console

You can switch the serial port output of the server module between the SP console and the host console. By default, the SP console is connected to the system serial port. This feature allows you to view non-ASCII character traffic from the host console.

You can switch serial port output using either the web interface or the CLI. For instructions, see the following sections:

- "To Switch Serial Port Output Using the Web Interface" on page 8
- "To Switch Serial Port Output Using the CLI" on page 10

Caution – 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 interface 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" on page 19.

▼ To Switch Serial Port Output Using the Web Interface

1. **Open a browser and enter the IP address of the server.**

   The ILOM web interface login page appears.

2. **Log in to ILOM using the `root` account.**

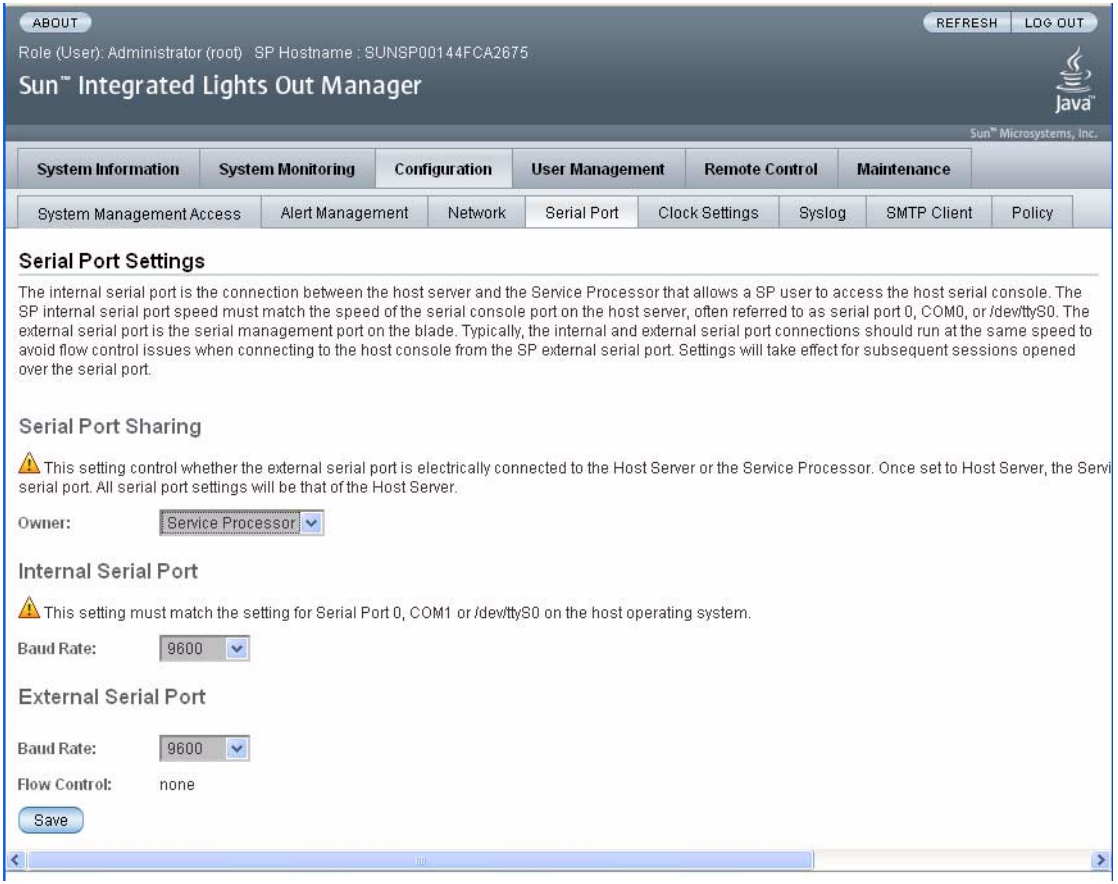
   The default password for the `root` account is `changeme`.

   The ILOM web interface appears.

3. **Select Configuration → Serial Port.**

   The Serial Port Settings page appears.

FIGURE 1-3 Serial Port Settings Page



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

5. **Click Save.**

▼ To Switch Serial Port Output Using the CLI

1. **Log in to ILOM. Open a terminal window and type:**

   `$` **`ssh root@`***`serveripaddress`*

   `Password:` *password*

   The default password for the `root` account is `changeme`.

   The ILOM CLI prompt appears (`->`).

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

   `->` **`set /SP/serial/portsharing/owner=`***`selection`*

   where *selection* is:

   `host` for the host server

   `SP` for the service processor

   By default, `owner=SP`.

Enabling and Disabling the Sun Cooling Door

A policy has been added to the CMM to support the Sun Cooling Door that might be used with your chassis.

Sun supports two types of cooling doors, Sun Cooling Door 5200, and Sun Cooling Door 5600. This section applies to both.

- If your chassis has a Sun Cooling Door installed, you must enable the cooling door policy in the CMM.
- If your chassis does not have a Sun Cooling Door, you must disable the cooling door policy in the CMM. This is the default.

To configure the Sun Cooling Door policy using the web interface, see "To Configure the Sun Cooling Door Policy Using the Web Interface" on page 10.

To configure the Sun Cooling Door policy using the CLI, see "To Configure the Sun Cooling Door Policy Using the CLI" on page 12.

▼ To Configure the Sun Cooling Door Policy Using the Web Interface

1. **Open a browser and enter the IP address of the server.**

   The ILOM web interface login page appears.

2. **Log in to ILOM using the `root` account.**

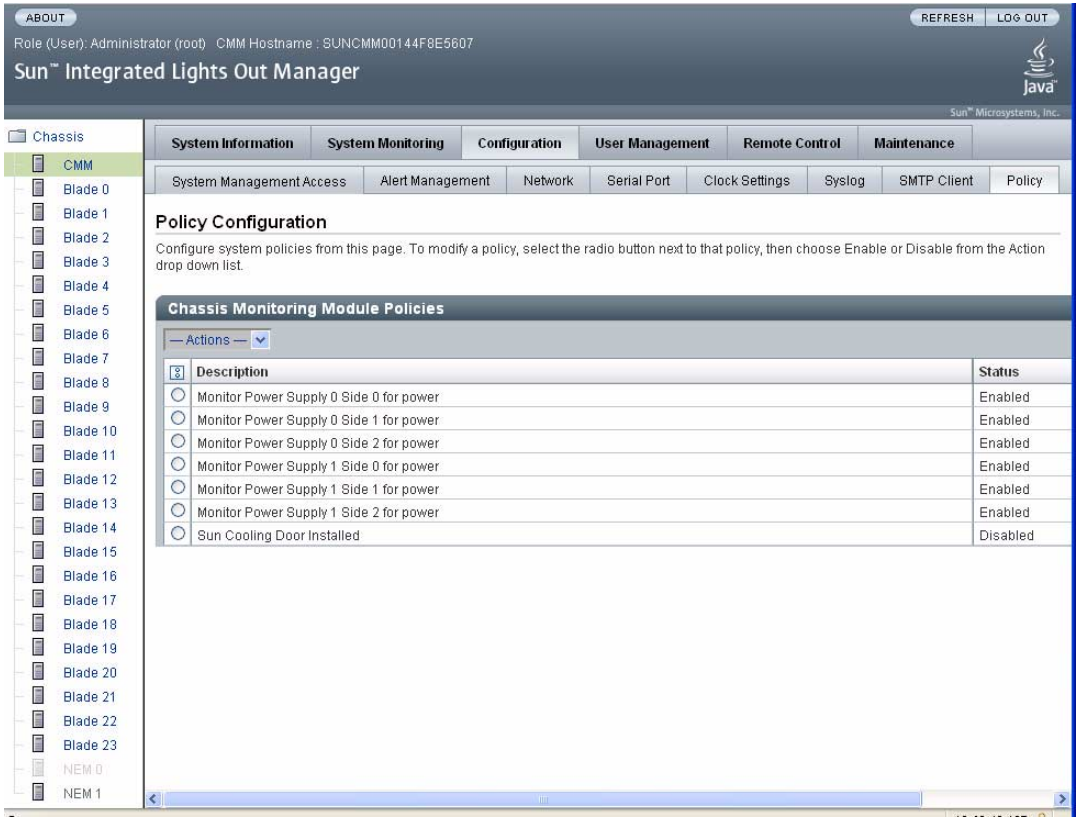
   The default password for the `root` account is `changeme`.

   The ILOM web interface appears.

3. **Select Configuration → Policy.**

   The Policy Configuration page appears.

FIGURE 1-4 Policy Configuration Page



4. **Click the radio button next to Sun Cooling Door Installed.**

   - Select it if your chassis has a cooling door.
   - Deselect it if your chassis does not have a cooling door.

   The status changes to indicate your selection.

▼ To Configure the Sun Cooling Door Policy Using the CLI

1. **Log in to ILOM. Open a terminal window and type:**

   `$` **`ssh root@`***`serveripaddress`*

   `Password:` *password*

   The default password for the `root` account is `changeme`.

   The ILOM CLI prompt appears (`->`).

2. **Enter the command:**

   `->` **`set /CMM/policy/COOLING_DOOR_INSTALLED=`***`selection`*

   where *selection*:

   `enabled` if your chassis has a cooling door

   `disabled` if your chassis does not have a cooling door

The following display shows the policy settings with the cooling door disabled:

```
-> cd /CMM/policy
/CMM/policy
-> show
 /CMM/policy
    Targets:

    Properties:
        COOLING_DOOR_INSTALLED = disabled
        MONITOR_PS0_SIDE0 = enabled
        MONITOR_PS0_SIDE1 = enabled
        MONITOR_PS0_SIDE2 = enabled
        MONITOR_PS1_SIDE0 = enabled
        MONITOR_PS1_SIDE1 = enabled
        MONITOR_PS1_SIDE2 = enabled

    Commands:
        cd
        set
        show
->
```

CHAPTER 2

Using the ILOM Preboot Menu

The ILOM preboot menu is a utility that can be used to fix problems with the ILOM that cannot be fixed while it is running. It allows you to interrupt the ILOM boot process, configure settings, then continue booting the ILOM. Among other things, it allows you to reset the ILOM root password to factory defaults, restore access to the serial port, and update the SP firmware.

This chapter contains the following sections:

- "Accessing the Preboot Menu" on page 13
- "Using the edit Command and Configuring the Preboot Menu For Remote Access" on page 15
- "Resetting the Root Password to the Factory Default" on page 18
- "Restoring ILOM Access to the Serial Console" on page 19
- "Recovering the SP Firmware Image" on page 20
- "Preboot Menu Command Summary" on page 22

Accessing the Preboot Menu

To access the preboot menu, you must boot the SP and interrupt the boot process.

There are two ways to interrupt the ILOM boot process: manually using the Locate button, or by typing **`xyzzy`** during a pause in the bootstrap process.

The first method requires you to have physical access to the server module. The second method can be done remotely. However:

- You must use a terminal or a terminal emulator. You cannot use an SSH, or an RKVMS session.
- Some preboot menu settings must be configured first, and until they are, you must use the Locate button.

Because the settings must be configured before you can access the preboot menu remotely, the first time you access the preboot menu, you must use the locate button to access the preboot menu, and configure the settings. This is described in"Using the edit Command and Configuring the Preboot Menu For Remote Access" on page 15.

▼ To Access the Preboot Menu

1. **Connect a terminal or a computer running terminal emulation software to the dongle.**
2. **Reboot the ILOM using one of these methods:**
   - From the server module ILOM, enter the command:

     -> **reset /SP**
   - From the CMM ILOM, enter the command:

     -> **reset /CH/BL*x*/SP**

     where *x* is the slot number of the node.
   - Temporarily remove power from the server module by removing it partway from its slot and then reseating it. For details, see the *Sun Blade X6275 Server Module Service Manual*.

Note – If you are unable to access the ILOM, you can reboot the ILOM by using the CMM ILOM or by removing power from the server module.

   The ILOM reboots, and messages begin scrolling on the screen.

3. **Interrupt the ILOM boot process using one of these methods:**
   - Press and hold the Locate button on the server module front panel, until the preboot menu appears.
   - Type in **xyzzy** when you see the message:

     Booting linux in *n* seconds...

Note – You cannot interrupt the ILOM boot process by typing **xyzzy** until you have configured the settings as described in "Using the edit Command and Configuring the Preboot Menu For Remote Access" on page 15.

One of these settings sets the value of *n*, which is the amount of time in seconds that the system waits for your input.

The ILOM preboot menu appears as shown here.

```
Booting linux in 10 seconds...

                          ILOM Pre-boot Menu
                          ------------------
Type "h" and [Enter] for a list of commands, or "?" [Enter] for
command-line key bindings.  Type "h cmd" for summary of 'cmd'
command.

Warning: SP will warm-reset after 300 seconds of idle time.
  Set 'bootretry' to -1 to disable the time-out.

Preboot>
```

4. When you are done, type `boot` to exit the preboot menu and start the ILOM.

Using the `edit` Command and Configuring the Preboot Menu For Remote Access

This section shows how to use the `edit` command to change preboot menu settings. As an example, it also shows how to set the `bootdelay` and `check_physical_presence` settings so that you can interrupt the ILOM boot process using the **xyzzy** command.

Until the `bootdelay` and `check_physical_presence` settings are set to the values shown in this procedure, the only way to interrupt the ILOM boot process is to hold the Locate button down while the ILOM is booting.

- `bootdelay` is optional, but setting it to a larger value gives you more time to enter the required command
- `check_physical_presence` must be set to **no**.

TABLE 2-1 shows the settings that can be configured using the `edit` command.

▼ To Use the `edit` Command and To Configure The Preboot Menu for Remote Access

1. **Access the preboot menu as described in** "Accessing the Preboot Menu" on page 13**.**
2. **Type `edit`.**

   The preboot menu enters edit mode.

   In edit mode, the preboot menu displays its selections one-by-one, offering you a chance to change each one.

   - To change a setting, type the new value, then press Enter.
   - To skip to the next setting, press Enter.
3. **Press Enter to move through the settings until the `bootdelay` setting appears.**
4. **To change the `bootdelay` setting, type 3, 10, or 30, and press Enter.**

   This specifies the number of seconds the SP boot process waits for your input.

   The preboot menu redisplays the `bootdelay` setting with the new value.
5. **Press Enter.**

   The next setting appears.
6. **Press Enter to move through the settings until the `check_physical_presence` setting appears.**

   To change the `check_physical_presence` setting, type **`no`**, and then press Enter.

   The preboot menu redisplays the `check_physical_presence` setting with the new value.
7. **Press Enter.**

   The preboot menu ask you to confirm your changes.

   ```
   Enter 'y[es]' to commit changes: [no]
   ```

8. **Type `y` to exit the edit session and save your changes.**

   If you want to exit without saving your changes, type **`n`**.

   The following display shows an edit session where the `bootdelay` and `check_physical_presence` settings are changed. See TABLE 2-1 for `edit` command settings:

```
Preboot> edit

Press Enter by itself to reach the next question.
  Press control-C to discard changes and quit.

 Values for baudrate are {[ 9600 ]| 19200 | 38400 | 57600 | 115200
}.
  Set baudrate?                [9600]
 Values for serial_is_host are {[ 0 ]| 1 }.
  Set serial_is_host?          [0]
 Values for bootdelay are { -1 | 3 | 10 | 30 }.
  Set bootdelay?               [30] 10
  Set bootdelay?               [10]
 Values for bootretry are { -1 | 30 | 300 | 3000 }.
  Set bootretry?               [<not set>]
 Values for preferred are {[ 0 ]| 1 }.
  Set preferred?               [<not set>]
 Values for preserve_conf are {[ yes ]| no }.
  Set preserve_conf?           [yes]
 Values for preserve_users are {[ yes ]| no }.
  Set preserve_users?          [no]
 Values for preserve_password are {[ yes ]| no }.
  Set preserve_password?       [yes]
 Values for check_physical_presence are {[ yes ]| no }.
  Set check_physical_presence? [no] no
  Set check_physical_presence? [no]
 Enter 'y[es]' to commit changes: [no] y
Summary: Changed 2 settings.
Preboot>
```

TABLE 2-1 `edit` Command Settings

Setting	Description
`baudrate`	Sets the baud rate of the serial port. Selections include 9600,19200, 38400, 57600, and 115200.
`serial_is_host`	If this is set to 0, the serial port connects to the ILOM. If this is set to 1, the serial port connects to the host. For more details, see "Restoring ILOM Access to the Serial Console" on page 19.
`bootdelay`	The number of seconds the bootstrap process waits for the user to enter **`xyzzy`** before booting the SP.
`bootretry`	The number of seconds the preboot menu waits for user input before timing out and starting the SP. Set to -1 to disable the timeout.
`preferred`	Unused.
`preserve_conf`	Setting this to `no` duplicates the function of the `unconfig ilom_conf` command, which resets many ILOM configuration settings, but preserves SP network, `baudrate`, and `check_physical_presence` the next time the SP is booted.
`preserve_users`	Setting this to `no` duplicates the function of the `unconfig users` command, which resets user information to the default value next time the SP is booted.
`preserve_password`	Setting this to `no` duplicates the function of the `unconfig password` command, which resets the root password to the default next time the SP is booted.
`check_physical_presence`	If this is set to `Yes`, you must press and hold the Locate button to interrupt the SP boot process. If it is set to `No`, the boot process prompts you to interrupt it. See "Using the edit Command and Configuring the Preboot Menu For Remote Access" on page 15 for details.

Resetting the Root Password to the Factory Default

If you forget the root password, you can use the preboot menu to reset it to the factory default, `changeme`.

▼ To Reset the Root Password to the Factory Default

1. **Access the preboot menu as described in** "Accessing the Preboot Menu" on page 13**.**

2. **Type the command:**

```
Preboot> unconfig password
Setting 'preserve_password' to 'no' for the next boot of
ILOM.
```

3. **Reboot the SP. Type the command:**

```
Preboot> boot
```

   The preboot menu exits and the SP boots. The root password is set to `changeme` when the SP is finished booting.

Restoring ILOM Access to the Serial Console

This section describes how to use the preboot menu to restore access to the ILOM serial console. This is necessary if the serial console is configured to connect to the host, and a network connection to the ILOM is unavailable.

The serial port can be configured to connect to the ILOM or to the host. The ILOM is the default.

You can change this setting using the ILOM or the preboot menu

- If a network connection is available, use the procedure in "Switching Serial Port Output Between SP and Host Console" on page 8 to restore ILOM access to the serial console.
- If a network connection is unavailable, use the procedure in "To Use the Preboot Menu to Restore Access to the Serial Console" on page 20 to restore ILOM access to the serial console.

▼ To Use the Preboot Menu to Restore Access to the Serial Console

1. **Access the preboot menu as described in** "Accessing the Preboot Menu" on page 13**.**
2. **Type** `edit`**.**

   The preboot menu enters edit mode.

   In edit mode, the preboot menu displays its selections one-by-one, offering you a chance to change each one.

   - To change a setting, type the new value, then press Enter.
   - To skip to the next setting, press Enter.
3. **Press Enter to move through the settings until the** `serial_is_host` **setting appears.**

   To change the `serial_is_host` setting, type **`0`**, and then press Enter.

   The preboot menu redisplays the `serial_is_host` setting with the new value.
4. **Press Enter.**

   The next setting appears.
5. **Press Enter to scroll through the settings until the preboot menu asks you to confirm your changes.**

   ```
   Enter 'y[es]' to commit changes: [no]
   ```
6. **Type `y` to confirm your change.**

   The preboot menu displays this message:

```
Summary: Changed 1 settings.
Preboot>
```

Recovering the SP Firmware Image

The preboot menu provides the ability to recover the ILOM firmware image by updating (flashing) the SP firmware.

Normally, you can update the SP using the ILOM CLI or the web interface. See the *Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide* or the *Sun Integrated Lights Out Manager 2.0 User's Guide* for details.

If you are unable to access the ILOM to update the firmware, you can use this procedure to update it using the preboot menu.

Prerequisites

You must have a valid `.flash` firmware image file on a tftp server. This file is available on the tools and drivers DVD, and on the Sun download site:

`http://www.sun.com/servers/blades/downloads.jsp`

Note – Updating the SP firmware using the preboot menu requires a `.flash` file instead of the `.pkg` file used to update the SP from the ILOM.

▼ To Recover the SP Firmware Image

1. **Access the preboot menu as described in** "Accessing the Preboot Menu" on page 13**.**

2. **Enter the command:**

   `net flash` *IPaddress path/name*`.flash`

   where:

   IPaddress is the IP address of a tftp server

   path is the path to the file relative to `/tftpboot`

   name is the first part of the `.flash` file filename

   For example:

   ```
   Preboot> net flash 10.8.173.25 images/system-rom.flash
   ```

   After a series of messages, the preboot prompt appears.

   ```
   Preboot>
   ```

3. **Use the reset command to restart the SP.**

   ```
   Preboot> reset
   ```

   The preboot menu exits and the ILOM boots.

Preboot Menu Command Summary

The preboot menu includes the following commands.

TABLE 2-2 Preboot Menu Commands

Command	Description
`boot`	Boots the ILOM. The preboot menu exits and the ILOM boots. **Note -** This command executes a modified boot sequence that does not offer the choice to select the diagnostic level, or to interrupt the boot sequence and return to the preboot menu. To execute the normal boot sequence, use the `reset warm` command instead.
`vers`	Displays version information including the hardware type, board rev, ILOM rev, revisions of PBSW and recovery U-Boot. Shows the checksum integrity of the images, and the preference between redundant images.
`help`	Displays a list of commands and parameters.
`show`	Displays a list of SP settings.
`edit`	Starts an interactive dialog that prompts and changes settings one-by-one. See "Using the edit Command and Configuring the Preboot Menu For Remote Access" on page 15 for details.
`diag`	Runs the U-boot diagnostic tests in manual mode. See the *Sun Blade X6275 Diagnostics Guide* for more on U-boot diagnostic tests.
`host`	Initiates various activities related to the host. • `clearcmos` – Clears CMOS and BIOS passwords. • `console` – Connects SP console to host serial console. **Note -** Type `Ctrl \ q` to quit. • `show` – Shows information about the host state. • `enable-on` – Enables the front-panel power button, which is usually disabled unless the ILOM is running. **Caution -** If you start the host when the ILOM is off, the BIOS does not send error events, or power messages to the SP. This can cause all server modules to lose power. • `hard-off` – Turns the host off.

TABLE 2-2 Preboot Menu Commands *(Continued)*

Command	Description
`net`	`{ config | dhcp | ping | flash }` • `config` - Starts a dialog that allows you to change the ILOM's network settings. • `dhcp` - Changes the network addressing from static to dhcp. **Note -** You must set `ipdiscovery = dhcp` using the `net config` command first. • `ping` - Sends a ping. • `flash` - Downloads an ILOM firmware image. See "Recovering the SP Firmware Image" on page 20 for details. Type **`help net`** *command* for more details on these commands.
`reset`	{[`warm`]| `cold` }. Resets the SP and the host. • `warm` - Resets the SP without affecting a running host. • `cold` - Resets the SP and the host. It has the effect of powering off the server module.
`unconfig`	`{ users | ilom_conf | most | all }` Causes the ILOM to erase any configuration information and return the values to defaults the next time it boots. • `users` - Resets all configured user information. • `password` - Resets the ILOM root password to the default. See "Resetting the Root Password to the Factory Default" on page 18 for more details. • `ilom_conf` - Resets configuration settings but preserves SP network and `baudrate`, `preferred`, and `check_physical_presence`. • `most` resets the SP data storage, but preserves network and baudrate, preferred, and check_physical_presence settings. • `all` - Resets all SP data storage and settings. Booting the ILOM restores other defaults. **Note -** None of these options erases the dynamic FRU PROMs.

CHAPTER 3

Updating the Firmware

The Sun Blade X6275 Server Module contains two instances of customer-updatable firmware: the system BIOS and the ILOM. The ILOM itself is used to update both firmware instances from a single package file. This chapter provides procedures for firmware update and recovery.

Overview of Firmware Update Procedures

A firmware update consists of the following steps:

1. Determine the software release you have and the one you intend to install.

   To determine your current software release, check the ILOM and system BIOS version strings, as documented in "Determining Current Firmware Versions" on page 26. Compare these version strings with the version strings for each software release, as documented in the *Product Notes*.

2. Review the *Product Notes* for any issues that might affect the update process.

   In some cases you will need to work around problems with the firmware. These workarounds may include additional update steps or updating to an intermediate software version before you update to the version you want.

3. Update the new firmware images.

   Use the ILOM to update both the new BIOS and the new ILOM. You can use any of the ILOM user interfaces, as documented in the *Sun Integrated Lights Out Manager 2.0 User Guide*. See "Updating the New Firmware" on page 28.

4. Verify that the update was successful.

   As in Step 1, determine the ILOM and system BIOS version strings and compare them with the version strings documented in the *Product Notes.*

5. If the ILOM is corrupted, you need to use the preboot menu to update the ILOM firmware. See "Recovering the ILOM Firmware" on page 33 for details.

Determining Current Firmware Versions

This section covers the following topics:

- "Firmware Version Conventions" on page 26
- "Identifying Firmware Versions From the ILOM Command Line" on page 26
- "Identifying Firmware Versions From the ILOM Web Interface" on page 27

Firmware Version Conventions

The ILOM version is identified by two numbers: a version number and a build number. Example: ILOM 2.0.3.13 build 41535. Both numbers are required to identify a specific ILOM version.

A BIOS version can take any of the following forms:

- A set of four numbers separated by dots:

  10.01.21.00
  10.01.103.00

  The third number can be two or three digits long. The other numbers are always two digits.

- The same four numbers with the separating dots omitted:

  10012100
  100110300

- A two- or three-digit number that is the same as the third number in the dotted version. It is often referred to as the BIOS number:

  BIOS 21
  BIOS 103

Identifying Firmware Versions From the ILOM Command Line

Use the `version` command to obtain the ILOM version and build numbers:

```
-> version
SP firmware 2.0.3.13
SP firmware build number: 41535
SP firmware date: Mon Jan 26 01:07:35 PST 2009
SP filesystem version: 0.1.17
```

Use the `show` command to obtain the system BIOS version:

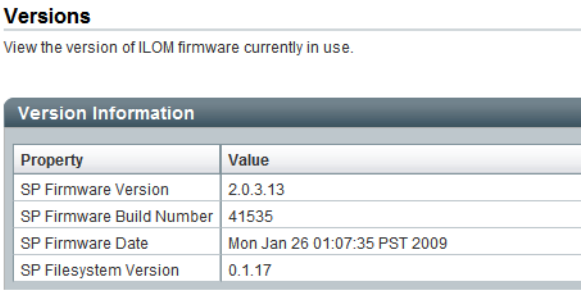
```
-> show /SYS/MB/BIOS

 /SYS/MB/BIOS
    Targets:

    Properties:
        type = BIOS
        fru_name = SYSTEM BIOS
        fru_manufacturer = AMERICAN MEGATRENDS
        fru_version = 10012100
        fru_part_number = AMIBIOS8
```

The `fru_version` property of the `/SYS/MB/BIOS` target is the long non-dot-separated version of the system BIOS version number.

Identifying Firmware Versions From the ILOM Web Interface

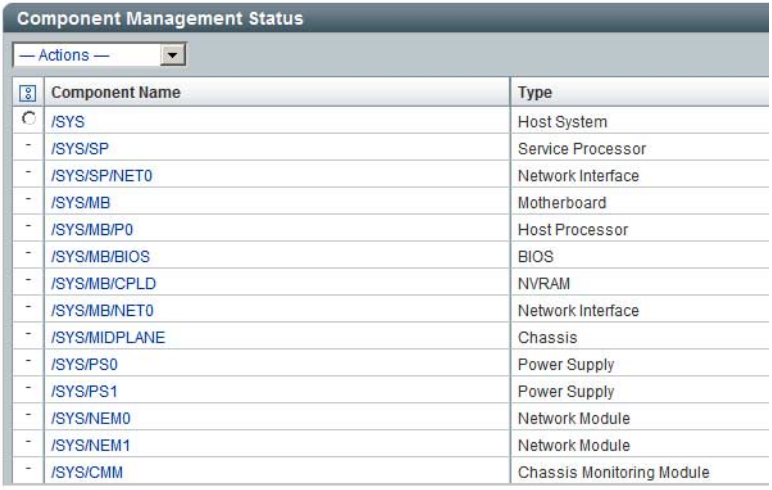
To identify the ILOM version from the ILOM web interface, click System Information -> Versions. (This is the screen that appears when you first log in to the ILOM web interface.) A table similar to FIGURE 3-5 appears.

FIGURE 3-5 ILOM Version Display in ILOM Web Interface



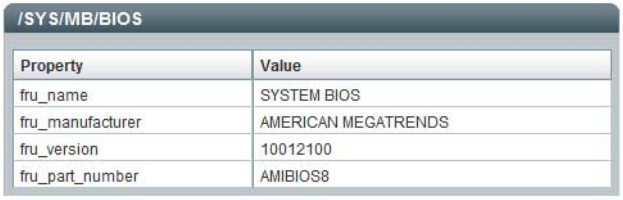
To identify the system BIOS version, select System Information -> Components. A table similar to FIGURE 3-6 appears.

FIGURE 3-6 ILOM Component Display in ILOM Web Interface



Click on the component name /SYS/MB/BIOS. A popup window similar to FIGURE 3-7 appears.

FIGURE 3-7 BIOS Properties Display in ILOM Web Interface



Updating the New Firmware

This section provides instructions for obtaining the firmware images and updating the firmware.

It provides the following sections:

- "Downloading the Firmware File" on page 29
- "Updating the ILOM/BIOS Firmware" on page 29
- "Resetting the Service Processor" on page 32
- "Clearing CMOS Settings (Optional)" on page 32

Downloading the Firmware File

Use this procedure to download the firmware file from the Sun firmware download site.

▼ To Download the Firmware File

1. **Browse to** `http://www.sun.com/download/`
2. **Click View by Category.**
3. **Click X64 Servers and Workstations in the Hardware Drivers area.**
4. **Click the link for the desired server module and software release.**
5. **Click Download.**
6. **Enter your username and password.**

   If you do not have a username and password, you can register free of charge by clicking **Register Now**.
7. **Click Accept License Agreement.**
8. **Click the appropriate firmware image file name:**

   `ilom.`*`firmware`*`.pkg`

   For example:

   `ILOM-2_0_3_13_r42414-Sun_Blade_X6275.pkg`

Updating the ILOM/BIOS Firmware

This procedure updates the firmware, replacing the existing images with the new images from the `.pkg` file you downloaded previously.

During the firmware loading process, the OK to Remove LED remains OFF.

This section describes two methods of updating the ILOM/BIOS firmware:

- Use the ILOM Web interface
- Use the ILOM CLI `load` command

Alternate Updating Methods

Sun xVM Ops Center – You can also use the Sun xVM Ops Center if it is available. Online documentation for Sun xVM Ops Center can be found at: `http://wikis.sun.com/display/xvmOC1dot1/Home`

ILOM Preboot Menu – If the ILOM is unavailable for example, because the firmware image is corrupted, you can use the preboot menu, as described in "Recovering the SP Firmware Image" on page 20.

IPMItool – If the ILOM is unavailable, for example, because the firmware image is corrupted, you can also use the `ipmiflash` command, as described in "Recovering the ILOM Firmware" on page 33.

Caution – ILOM enters a special mode to load new firmware. Note the following requirements. 1) The host power must remain off. 2) No other tasks can be performed in ILOM until the firmware upgrade is complete and the ILOM is reset. To ensure a successful update, do *not* attempt to modify the ILOM configuration, or use other ILOM Web, CLI, SNMP, or IPMI interfaces, during the update process. Wait until after the update succeeds before making further ILOM configuration changes. The update requires a system server and takes about 20 minutes.

Note – Due to increased memory use during web interface operations, you might find that using the web interface, which is the easiest procedure, does not work satisfactorily. In such a case, you need to use the CLI `load` command or the Sun xVM Ops Center to update the firmware.

▼ To Update the Firmware With the ILOM Interface

1. **Log in to the ILOM web interface by pointing your browser at the IP address of the Service Processor. Use `https://`. For example:**

   `https://10.6.78.144`

2. **Select the Maintenance tab.**
3. **Select the Firmware Upgrade tab.**
4. **Click the Enter Upgrade Mode button. See FIGURE 3-8.**

5. **Browse for the firmware image file.**

Caution – Power off the host before proceeding. If the host is powered on when you click the Upload button, the ILOM shuts down the host, and any open files might be corrupted.

6. **Click the Upload button.**

   The firmware update process begins. When it is done, the ILOM resets itself.

FIGURE 3-8 Firmware Upgrade Screen

▼ To Update the Firmware With the ILOM CLI

1. **Log in to the ILOM CLI through the Management Ethernet Port or the serial port.**

2. **From the ILOM CLI, use the following command:**

   `load -source tftp://`*tftpserver*`/ilom.`*firmware*`.pkg`

   where *tftpserver* is the trivial file-transfer protocol (TFTP) server that contains the update and `ilom.`*firmware*`.pkg` is the firmware image file, for example:

   `ILOM-2_0_3_13_r42414-Sun_Blade_X6275.pkg`

3. **Reset the SP. Enter the command:**

   ```
   reset /SP
   ```

   The SP is reset.

Resetting the Service Processor

After updating the ILOM/BIOS firmware, you must reset the ILOM SP.

To reset the ILOM SP, you can do any of the following:

- If you use the web interface, this happens automatically.
- From the ILOM CLI, use the following command:

  ```
  reset /SP
  ```

- Using IPMItool, use the following command:

  ```
  ipmitool -U root -P password -H SP-IP bmc reset cold
  ```

  where *SP-IP* is the IP address of the service processor.
- Reset the ILOM SP by shutting down the host, then removing and restoring AC power cords to the system.

For complete details, see the *Sun Integrated Lights Out Manager 2.0 User's Guide*.

Clearing CMOS Settings (Optional)

If you cannot get output to your serial console after the firmware update, you might have to clear CMOS settings. This is because your default CMOS settings might have been changed by the new BIOS upgrade.

To clear CMOS settings, use the following commands (in this example, the default username, `root`, and the default password, `changeme`, are used):

```
ipmitool -U root -P changeme -H SP-IP chassis power off
ipmitool -U root -P changeme -H SP-IP chassis bootdev disk clear-cmos=yes
```

where *SP-IP* is the IP address of the service processor.

Note – The -P option might not be available on the Windows and Solaris versions of IPMItool. Instead, IPMItool prompts for a password.

Recovering the ILOM Firmware

If the upgrade fails, or if the firmware image becomes corrupt, you can recover it using one of the following methods:

- Use the preboot menu, as described in "Recovering the SP Firmware Image" on page 20.
- Use IPMIflash, as described in "To Update ILOM Firmware Using IPMI" on page 33.

▼ To Update ILOM Firmware Using IPMI

Caution – The server might be powered off during the final stages of firmware update, when the BIOS is updated.

- **To upgrade ILOM firmware using IPMI, type:**

ipmiflash -H *SP_IP* **-U root -P** *root_password* **write** *name***.pkg** *config*

where:

- *root_password* – The ILOM root password.
- **-H** *SP_IP* – The IP address of the ILOM. It defaults to the local ILOM, so if you are on the host updating the local ILOM, you can omit it.
- *name* – The `.pkg` file. For example:

  `ILOM-2_0_3_13_r42414-Sun_Blade_X6275.pkg`

- *config* (optional) – Use `config` to save configuration data, and use `noconfig` to overwrite the configuration data. The default is `config`.

CHAPTER 4

Sensors and Indicators

This chapter describes the sensors and indicators that can be accessed 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.

All sensors and indicators are IPMI-compliant.

Entity Presence

These sensors report the presence or absence of system components.

- P0 and P1 represent CPU 0 and CPU 1
- D0 through D5 represent DIMMs 1 through 6.

TABLE 4-3 Entities Present

Name	Type	Reading
/SYS/SLOTID	Slot ID of server module	0
/SYS/CMM/PRSNT	CMM Presence	Present
/SYS/PEM/PRSNT	PEM Presence	Absent
/SYS/MB/P0/PRSNT	Processor 0 Presence	Present
/SYS/MB/P1/PRSNT	Processor 1 Presence	Absent
/SYS/MB/P0/D0/PRSNT	DIMM Presence	Absent
/SYS/MB/P0/D1/PRSNT	DIMM Presence	Present
/SYS/MB/P0/D2/PRSNT	DIMM Presence	Absent
/SYS/MB/P0/D3/PRSNT	DIMM Presence	Present

TABLE 4-3 Entities Present *(Continued)*

Name	Type	Reading
/SYS/MB/P0/D4/PRSNT	DIMM Presence	Absent
/SYS/MB/P0/D5/PRSNT	DIMM Presence	Present
/SYS/MB/P1/D0/PRSNT	DIMM Presence	Absent
/SYS/MB/P1/D1/PRSNT	DIMM Presence	Absent
/SYS/MB/P1/D2/PRSNT	DIMM Presence	Absent
/SYS/MB/P1/D3/PRSNT	DIMM Presence	Absent
/SYS/MB/P1/D4/PRSNT	DIMM Presence	Absent
/SYS/MB/P1/D5/PRSNT	DIMM Presence	Absent

Temperature and Power

These sensors report on the temperature sensors and the power consumption.

TABLE 4-4 Temperature and Power Sensors

Name	Type	Reading
/SYS/MB/T_AMB_FRONT	Temperature	24.000 degrees C
/SYS/MB/T_AMB_REAR	Temperature	55.000 degrees C
/SYS/VPS	System power (watts)	88.200 Watts
/SYS/HOT	OEM	State Asserted

Fan Failure

These sensors assert predictive failure when a fan is expected to fail. Normally, they should read “Predictive Failure Deasserted.”

TABLE 4-5 Fan Failure Sensors

Name	Type	Reading
/SYS/FM0/ERR	Fan	Predictive Failure Asserted
/SYS/FM1/ERR	Fan	Predictive Failure Deasserted
/SYS/FM2/ERR	Fan	Predictive Failure Deasserted

TABLE 4-5 Fan Failure Sensors *(Continued)*

Name	Type	Reading
/SYS/FM3/ERR	Fan	Predictive Failure Asserted
/SYS/FM4/ERR	Fan	Predictive Failure Asserted
/SYS/FM5/ERR	Fan	Predictive Failure Deasserted
/SYS/FM6/ERR	Fan	Predictive Failure Deasserted
/SYS/FM7/ERR	Fan	Predictive Failure Asserted

Chassis Fan Speed

These sensors indicate the speed of the chassis fans. The chassis fans are divided into eight modules (FM0 through FM7) with two fans each (F0 and F1).

TABLE 4-6 Chassis Fan Speed Measurements

Name	Type	Reading
/SYS/FM0/F0/TACH	Fan	0.000 RPM
/SYS/FM0/F1/TACH	Fan	0.000 RPM
/SYS/FM1/F0/TACH	Fan	5600.000 RPM
/SYS/FM1/F1/TACH	Fan	5400.000 RPM
/SYS/FM2/F0/TACH	Fan	5400.000 RPM
/SYS/FM2/F1/TACH	Fan	5400.000 RPM
/SYS/FM3/F0/TACH	Fan	0.000 RPM
/SYS/FM3/F1/TACH	Fan	0.000 RPM
/SYS/FM4/F0/TACH	Fan	0.000 RPM
/SYS/FM4/F1/TACH	Fan	0.000 RPM
/SYS/FM5/F0/TACH	Fan	5300.000 RPM
/SYS/FM5/F1/TACH	Fan	5600.000 RPM
/SYS/FM6/F0/TACH	Fan	5300.000 RPM
/SYS/FM6/F1/TACH	Fan	5400.000 RPM
/SYS/FM7/F0/TACH	Fan	0.000 RPM
/SYS/FM7/F1/TACH	Fan	0.000 RPM

NEM and Blade Presence

These sensors indicate whether there are NEMs in NEM slots 0 and 1, and whether any blades are in slots 0 through 11.

The X6275 server module has two nodes, 0 and 1.

- Node 0 appears in the actual physical slot.
- Node 1 appears in the physical slot + 12.

For example, for an X6275 server module in slot 6, node 0 appears to be in slot 6, and node 1 appears to be in slot 18.

TABLE 4-7 NEM and Blade Presence

Name	Type	Reading
/SYS/NEM0/PRSNT	Entity Presence	Present
/SYS/NEM1/PRSNT	Entity Presence	Present
/SYS/BL0/PRSNT	Entity Presence	Present
/SYS/BL1/PRSNT	Entity Presence	Absent
/SYS/BL2/PRSNT	Entity Presence	Present
/SYS/BL3/PRSNT	Entity Presence	Present
/SYS/BL4/PRSNT	Entity Presence	Absent
/SYS/BL5/PRSNT	Entity Presence	Absent
/SYS/BL6/PRSNT	Entity Presence	Absent
/SYS/BL7/PRSNT	Entity Presence	Absent
/SYS/BL8/PRSNT	Entity Presence	Absent
/SYS/BL9/PRSNT	Entity Presence	Absent
/SYS/BL10/PRSNT	Entity Presence	Absent
/SYS/BL11/PRSNT	Entity Presence	Absent
/SYS/BL12/PRSNT	Entity Presence	Present
/SYS/BL13/PRSNT	Entity Presence	Absent
/SYS/BL14/PRSNT	Entity Presence	Present
/SYS/BL15/PRSNT	Entity Presence	Present
/SYS/BL16/PRSNT	Entity Presence	Absent
/SYS/BL17/PRSNT	Entity Presence	Absent
/SYS/BL18/PRSNT	Entity Presence	Absent
/SYS/BL19/PRSNT	Entity Presence	Absent

TABLE 4-7 NEM and Blade Presence *(Continued)*

Name	Type	Reading
/SYS/BL20/PRSNT	Entity Presence	Absent
/SYS/BL21/PRSNT	Entity Presence	Absent
/SYS/BL22/PRSNT	Entity Presence	Absent
/SYS/BL23/PRSNT	Entity Presence	Absent

Power Supplies

These readings show the state of the power supplies, which are located on the chassis.

Power Supply Present

This sensor indicates whether the power signal is present.

TABLE 4-8 Power Supply Present

Name	Type	Reading
/SYS/PS0/PRSNT	Entity Presence	Absent
/SYS/PS1/PRSNT	Entity Presence	Present

Power Supply OK

These readings are asserted when the power supply is OK and deasserted when the designated power supply generates a fault.

TABLE 4-9 Power Supply OK

Name	Type	Reading
/SYS/PS0/PWROK0	Power Supply	Disabled
/SYS/PS0/PWROK1	Power Supply	Disabled
/SYS/PS0/PWROK2	Power Supply	Disabled
/SYS/PS1/PWROK0	Power Supply	State Asserted
/SYS/PS1/PWROK1	Power Supply	State Asserted
/SYS/PS1/PWROK2	Power Supply	State Deasserted

Power Supply Error

Each power supply has three AC inputs. These readings are deasserted when the AC input is OK, and asserted when there is a problem with the corresponding AC input.

TABLE 4-10 Error Indication Sensors

Name	Type	Reading
/SYS/PS0/AC0_ERR	Power Supply	Disabled
/SYS/PS0/AC1_ERR	Power Supply	Disabled
/SYS/PS0/AC2_ERR	Power Supply	Disabled
/SYS/PS1/AC0_ERR	Power Supply	State Deasserted
/SYS/PS1/AC1_ERR	Power Supply	State Deasserted
/SYS/PS1/AC2_ERR	Power Supply	Not Readable

Indicators

These report the state of the system indicators, including LEDs.

See the *Sun Blade X6275 Installation Guide* for descriptions of the LEDs and indicators.

TABLE 4-11 Indicators

Path	Indicator	Description
/SYS/OK	Green OK LED	Slow Blink
/SYS/OK2RM	Blue OK to Remove LED	Off
/SYS/SERVICE	Amber Service LED	Off
/SYS/LOCATE	White Locate LED	Off
/SYS/MB/P0/SERVICE	CPU error condition	Off
/SYS/MB/P0/D1/SERVICE	DIMM error condition	Off
/SYS/MB/P0/D3/SERVICE	DIMM error condition	Off
/SYS/MB/P0/D5/SERVICE	DIMM error condition	Off

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