



Sun Fire™ X2200 M2 Server Installation Guide

Sun Microsystems, Inc.
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Contents

- 1. Setting Up the Sun Fire X2200 M2 Server Hardware 1**
 - Safety and Compliance Information 1
 - Planning the Installation Process 2
 - Package Contents Inventory 3
 - Installing the Server Into a Rack With Optional Slide Rails 4
 - Connecting the Cables 5
 - Powering On and Off the Server 6
 - Setup Troubleshooting and Support 9
 - Troubleshooting the Sun Fire X2200 M2 Server Setup 9
 - Contacting Support 11
 - Sun Fire X2200 M2 Server Documentation 12

- 2. Setting Up the Sun Fire X2200 M2 Server Software 13**
 - About the Embedded LOM Service Processor Software 13
 - Performing Initial Configuration of the Embedded LOM Service Processor 15
 - Configuring the Embedded LOM SP Using an Ethernet Connection 17
 - Changing Serial Output to Display the System Information 23
 - Configuring or Installing System Software 26
 - Additional Preinstalled Software 26
 - Installing Other Operating Systems and Drivers 27

3. Configuring the Preinstalled Solaris 10 Operating System	29
Before You Begin	29
Installation Worksheet	29
Configuring the Preinstalled Solaris 10 Operating System	33
Solaris 10 Operating System User Information	38
Accessing Solaris 10 User Documentation	38
Downloading Solaris 10 OS Software	38
Solaris 10 OS Training	38

Setting Up the Sun Fire X2200 M2 Server Hardware

This chapter describes how to set up the Sun Fire X2200 M2 server hardware. It includes the following topics:

- “Safety and Compliance Information” on page 1
- “Planning the Installation Process” on page 2
- “Package Contents Inventory” on page 3
- “Installing the Server Into a Rack With Optional Slide Rails” on page 4
- “Connecting the Cables” on page 5
- “Powering On and Off the Server” on page 6
- “Setup Troubleshooting and Support” on page 9

Safety and Compliance Information

Refer to the following documents for safety information regarding the Sun Fire X2200 M2 server:

- *Important Safety Information for Sun Hardware Systems*, 816-7190: hard copy document included in the ship kit.
- *Sun Fire X2200 M2 Server Safety and Compliance Guide*, 819-6600: available online by navigating to the Sun Fire X2200 M2 server document page from the following URL:

<http://www.sun.com/documentation>

Planning the Installation Process

Use the flowchart in [FIGURE 1-1](#) to assist you with the server installation process.

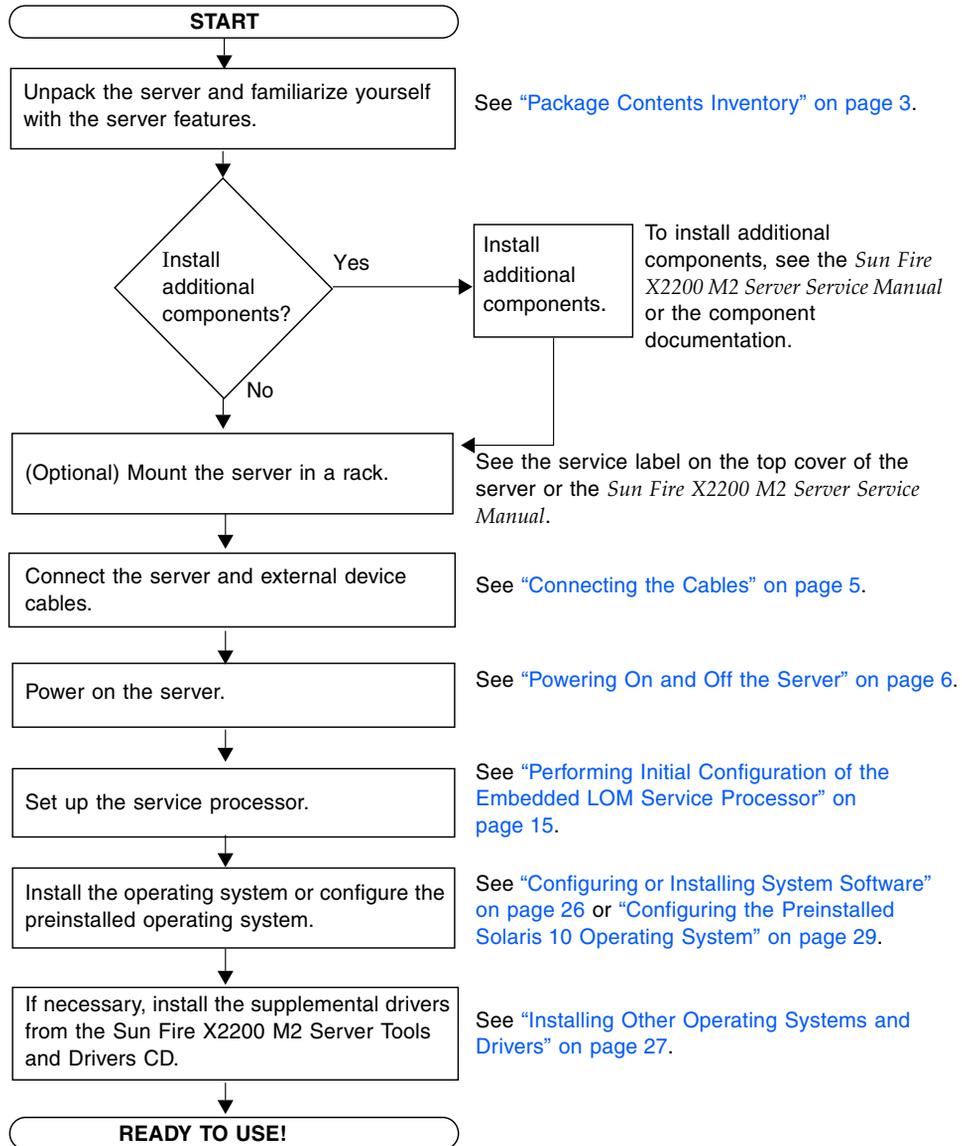


FIGURE 1-1 Sun Fire X2200 M2 Server Installation Process

Package Contents Inventory

Carefully unpack all server components from the packing cartons. The following items should be packaged with the Sun Fire X2200 M2 server:

- Sun Fire X2200 M2 server
- Sun Fire X2200 M2 server accessory kit, including the following:
 - Welcome Letter
 - *Sun Fire X2200 M2 Server Installation Guide*
 - *Where to Find Sun Fire X2200 M2 Server Documentation*
 - Additional license, safety, and registration documentation
 - Sun Fire X2200 M2 Server Tools and Drivers CD (includes drivers and additional software)
- Optional rackmount and/or cable management kit

The optional power cable, keyboard, and mouse are packaged separately from the other items.

Installing the Server Into a Rack With Optional Slide Rails

The service label on the top cover of the Sun Fire X2200 M2 server contains instructions for installing your server into a four-post rack using the orderable slide-rail and cable management arm options. Detailed instructions can also be found online in the *Sun Fire X2200 M2 Server Service Manual*, 819-6597 at the following URL:

<http://www.sun.com/documentation>

The slide rails for the Sun Fire X2200 M2 server are compatible with a wide range of equipment racks that meet the following standards:

- Four-post structure (mounting at both front and rear). Two-post racks are not compatible.
- Rack horizontal opening and unit vertical pitch conforming to ANSI/EIA 310-D-1992 or IEC 60927 standards.
- Distance between front and rear mounting planes of 610 mm and 915 mm (24 inches to 36 inches).
- Clearance depth (to front cabinet door) in front of front rack mounting plane at least 25.4 mm (1 inch).
- Clearance depth (to rear cabinet door) behind front rack mounting plane at least 800 mm (31.5 inches) with the cable management arm, or 700 mm (27.5 inches), without the cable management arm.
- Clearance width (between structural supports and cable troughs) between front and rear mounting planes at least 456 mm (18 inches).



Caution – Always load equipment into a rack from the bottom up so that it will not become top-heavy and tip over. Deploy your rack’s anti-tilt bar to prevent the rack from tipping during equipment installation.



Caution – Ensure that the temperature in the rack does not exceed the server’s maximum ambient rated temperatures. Consider the total airflow requirements of all equipment installed in the rack, to ensure that the equipment is operated within its specified temperature range.

Connecting the Cables

See [FIGURE 1-2](#) and [TABLE 1-1](#) for the locations of the connectors.

▼ To Connect the Cables

Connect the server and external devices as follows:

1. **Connect the server power cord to a grounded electrical outlet.**
2. **Connect a serial null modem cable to the serial port.**

The default serial port speed is 9600 with no flow control.

Note – See [“Changing Serial Output to Display the System Information”](#) on page 23 for more information on viewing system output from a serial console.

3. **Connect Ethernet cables to the RJ-45 LAN Gigabit Ethernet connectors as needed (see [FIGURE 1-2](#)).**

Note the following guidelines regarding the Ethernet (LAN) ports:

- The Broadcom LAN-1 NET MGT port can be used for server management and network access.

See [“Setting Up the Sun Fire X2200 M2 Server Software”](#) on page 13 for additional information about setting up the service processor for remote system management.

- The LAN-0 and LAN-1 ports are Broadcom Ethernet ports. The LAN-2 and LAN-3 ports are NVIDIA Ethernet ports.
- The two Broadcom NICs (LAN-0 and LAN-1) are the primary network interface controllers (NICs) and should be used for network installation of the operating system and drivers.

4. **Connect any additional external devices to the server’s other connectors.**

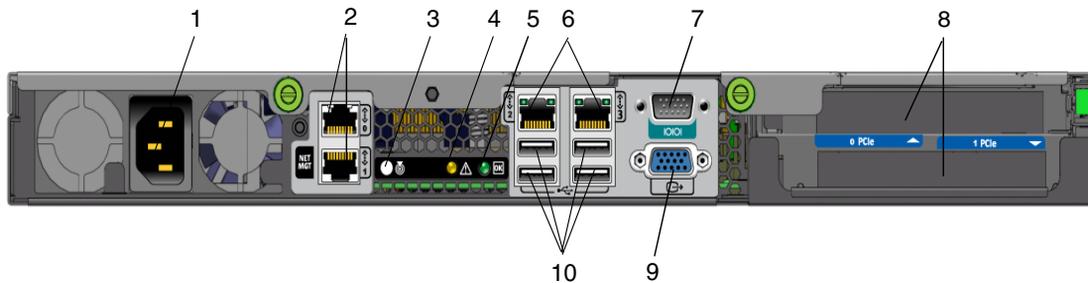


FIGURE 1-2 Back Panel

TABLE 1-1 Back Panel

Label	Connector/Slot	Label	Connector/Slot
1	Power connector	6	NVIDIA Ethernet connectors (LAN-2 left, LAN-3 right)
2	Broadcom Ethernet connectors (LAN-0 top, LAN-1 NET MGT bottom)	7	Serial management/DB9 RS-232 serial port
3	System identification button/LED	8	PCI-Express slots
4	Fault LED	9	Onboard HD15 video connector
5	Power LED	10	USB 2.0 connectors (4)

Powering On and Off the Server

You only need to apply standby power to the server at this point so that you can perform initial configuration of the service processor. Procedures for powering on to main power mode and for shutting down from main power mode are also included in this section.

▼ To Apply Standby Power for Initial Service Processor Configuration

Use this procedure to apply standby power to the service processor (SP) before initial configuration.



Caution – Do not operate the server without all fans, component heatsinks, air baffles, and the cover installed. Severe damage to server components can occur if operated without adequate cooling mechanisms.

1. **Connect a grounded AC power cord to the AC power connector on the back panel of the server and to a grounded AC power outlet.**

In standby power mode, the Power/OK LED on the front panel flashes, indicating that the SP is working. See [FIGURE 1-3](#) and [TABLE 1-2](#).

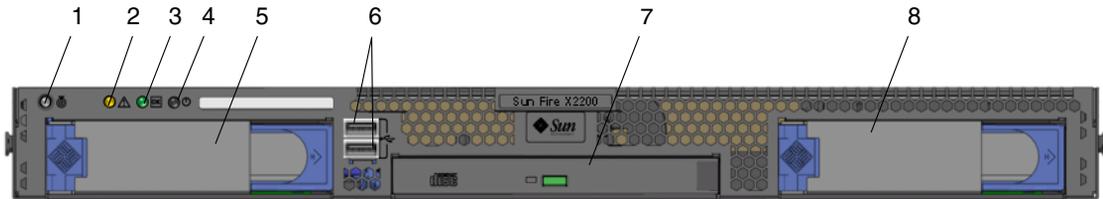


FIGURE 1-3 Front Panel

TABLE 1-2 Front Panel

Label	Button/LED/Port	Label	Button/LED/port
1	System identification button/LED	5	Optional hard disk drive 0
2	Fault LED	6	USB 2.0 connectors (2)
3	Power/OK LED	7	Optional DVD drive
4	Power button	8	Optional hard disk drive 1

2. **Continue with initial software setup tasks, as described in Chapter 2.**

Note – At this point, standby power is supplied only to the service processor and power supply fans. You can proceed to Chapter 2 of this guide to begin initial configuration. Do not apply main power to the rest of the server until you are ready to install a platform operating system.

▼ To Power On Main Power Mode

To power on main power for all server components:

a. Verify that the power cord has been connected and that standby power is on.

In standby power mode, the Power/OK LED on the front panel flashes. See [FIGURE 1-3](#).

b. Use a ballpoint pen or other stylus to press and release the recessed Power button on the server front panel.

When main power is applied to the full server, the Power/OK LED next to the Power button lights and remains lit.

Note – The first time the server powers on, the power on self-test (POST) can take up to a minute.

▼ To Power Off Main Power Mode

To power off the server from main power mode, use one of the following two methods:

- **Graceful shutdown:** Use a ballpoint pen or other stylus to press and release the Power button on the front panel. This causes Advanced Configuration and Power Interface (ACPI) enabled operating systems to perform an orderly shutdown of the operating system. Servers not running ACPI-enabled operating systems will shut down to standby power mode immediately.
- **Emergency shutdown:** Press and hold the Power button for four seconds to force main power off and enter standby power mode. When the main power is off, the Power/OK LED on the front panel will begin flashing, indicating that the server is in standby power mode.



Caution – To completely power off the server, you must disconnect the AC power cords from the back panel of the server.

Setup Troubleshooting and Support

This section contains information to help you troubleshoot minor server problems. It includes the following topics:

- [“Troubleshooting the Sun Fire X2200 M2 Server Setup” on page 9.](#)
- [“Contacting Support” on page 11](#)
- [“Sun Fire X2200 M2 Server Documentation” on page 12](#)

Troubleshooting the Sun Fire X2200 M2 Server Setup

If you experience problems while setting up your server, refer to the troubleshooting information in [TABLE 1-3](#).

TABLE 1-3 Troubleshooting Procedures

Problem	Possible solution
Server powers on, but the monitor does not.	<ul style="list-style-type: none">• Is the Power button for the monitor turned on?• Is the monitor power cord connected to a wall outlet?• Does the wall outlet have power? Test by plugging in another device.
CD or DVD does not eject from the media tray when you press the Eject button.	<ul style="list-style-type: none">• Move the mouse or press any key on the keyboard. The drive might be in low power mode.• Use the utility software installed on your server to eject the CD.• Make sure that the media in the device is not in use and is not mounted by the operating system.
No video displays on the monitor screen.	<ul style="list-style-type: none">• Is the monitor cable attached to the video connector?• Does the monitor work when connected to another system?• If you have another monitor, does it work when connected to the original system?• If, after POST and BIOS complete, you no longer see video output on your monitor and only see a flashing cursor, check the configuration of the operating system to determine if it is configured to redirect its output exclusively over the serial line.

TABLE 1-3 Troubleshooting Procedures (*Continued*)

Problem	Possible solution
Server does not power on when the front panel Power button is pressed.	Keep notes on the following situations in case you need to call service: <ul style="list-style-type: none">• Is the Power button LED illuminated on the front of the system? (Ensure that the power cord is connected to the system and to a grounded power receptacle.)• Does the wall outlet have power? Test by plugging in another device.• Does the monitor sync within five minutes after power on? (The green LED on the monitor stops flashing and remains illuminated.)
Keyboard or mouse does not respond to actions.	<ul style="list-style-type: none">• Verify that the mouse and keyboard cables are connected to the on-board USB 2.0 connectors on the server.• Verify that the server is powered on and the front power LED is illuminated.
Server appears to be in low power mode, but the Power button LED does not blink.	The power LED only blinks when all server components are in low power mode. A tape drive might be connected to your server. Because tape drives do not enter low power mode, the power LED does not blink.
Hung or frozen server: No response from mouse or keyboard or any application.	Try to access your system from a different server on the network: <ol style="list-style-type: none">1. On another system, type ping <i>IP_address_of_X2200</i>2. If a response is returned, then try logging into the Sun Fire X2200 M2 server using either telnet, ssh or rlogin.3. If you successfully log in, list the running processes using the ps command.4. Kill any processes that appear unresponsive or should not be running, by using the kill <i>process_ID</i> command.5. Check the responsiveness of the Sun Fire X2200 M2 server after each process is killed. If the above procedure does not work, power cycle the server: <ol style="list-style-type: none">1. Press the power button to power off the server and wait 20-30 seconds.2. Press the power button again to power system back on.

Note – For additional troubleshooting information, see the *Sun Fire X2200 M2 Server Service Manual*, 819-6597.

Contacting Support

If the troubleshooting procedures in this chapter fail to solve your problem, use [TABLE 1-4](#) to collect information that you might need to communicate to the support personnel. [TABLE 1-5](#) lists the Sun web sites and telephone numbers for additional technical support.

TABLE 1-4 System Information Needed for Support

System Configuration Information Needed	Your Information
Sun service contract number	
System model	
Operating environment	
System serial number	
Peripherals attached to the system	
Email address and phone number for you and a secondary contact Street address where the system is located	
Superuser password	
Summary of the problem and the work being done when the problem occurred	
Other Useful Information	
IP address	
Server name (system host name)	
Network or internet domain name	
Proxy server configuration	

TABLE 1-5 Sun Technical Support Contacts

Server Documents and Support Resources	URL or Telephone Number
PDF files for all the current Sun Fire X2200 M2 server documents.	http://www.sun.com/documentation/
Solaris™ 10 and other software documents. This web site has full search capabilities.	http://docs.sun.com/documentation/
Discussion and troubleshooting forums.	http://supportforum.sun.com/

TABLE 1-5 Sun Technical Support Contacts (Continued)

Server Documents and Support Resources	URL or Telephone Number
Support, diagnostic tools, and alerts for all Sun products.	http://www.sun.com/bigadmin/
SunSolve SM web site. Contains links to software patches. Lists some system specifications, troubleshooting and maintenance information, and other tools.	http://www.sunsolve.sun.com/handbook_pub/
SunService SM support phone numbers.	1-800-872-4786 (1-800-USA-4Sun), select Option 1
Lists international telephone numbers for SunService support.	http://www.sun.com/service/contacting/solution.html
Warranty and contract support contacts. Links to other service tools.	http://www.sun.com/service/warrantiescontracts/
Warranties for every Sun product.	http://www.sun.com/service/support/warranty

Sun Fire X2200 M2 Server Documentation

For a description of the document set for the Sun Fire X2200 M2 server, see the *Where To Find Documentation* sheet that is packed with your system and also posted at the product's documentation site. Go to the following URL and navigate to the documentation site for the Sun Fire X2200 M2 server:

<http://www.sun.com/documentation>

Translated versions of some of these documents are available on the web site described above in French, Simplified Chinese, Traditional Chinese, Korean, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

For all Sun hardware documentation, go to the following URL:

<http://www.sun.com/documentation>

For Solaris and other software documentation, go to the following URL:

<http://docs.sun.com>

Setting Up the Sun Fire X2200 M2 Server Software

This chapter describes how to set up the Embedded Lights Out Manager (LOM) service processor (SP). It includes information on the following topics:

- [“About the Embedded LOM Service Processor Software” on page 13](#)
- [“Performing Initial Configuration of the Embedded LOM Service Processor” on page 15](#)
- [“Changing Serial Output to Display the System Information” on page 23](#)
- [“Configuring or Installing System Software” on page 26](#)

About the Embedded LOM Service Processor Software

The Sun Fire X2200 M2 server Embedded LOM SP provides powerful tools for managing your server. It consists of four components, three of which are on your host server and one that is on the client system that accesses your host server. The four components are as follows:

- **Embedded LOM hardware.** The Embedded LOM hardware includes the following components:
 - An embedded service processor chipset that monitors the status and configuration of field-replaceable components of your server, such as fans, disk drives, and power supplies.
 - Ethernet or serial connection through the server’s on-board LAN 1 or COM port.

- **Embedded LOM firmware.** Preinstalled on the service processor chipset is a library of system management firmware applications. This service processor firmware is operating system independent. These firmware applications provide the following system management interfaces into your server:
 - A web-based graphical interface
 - A Secure Shell (SSH) command-line interface
 - An IPMI v2.0 command interface (CLI)
 - A Simple Network Management Protocol (SNMP) v3 interface
- These interfaces call the same underlying system management functions on your service processor, so you can choose to work with one or more of these interfaces to integrate with the other management interfaces running in your data center.
- **Remote Console application.** The Remote Console application is a piece of layered software that allows remote clients to view the graphical console of your host server as though they were directly attached its video connector. The Remote Console mirrors the video display from the X2200 VGA device (up to 1600 x 1200 resolution) locally on the remote management system. The remote keyboard, mouse, CD drive, or diskette drive will appear as standard USB devices.

Note – The Remote Console does not require any special applications to be installed on client systems. Client systems require only a web browser with Sun Java™ runtime environment version 5.0 or later plugins correctly installed. Java is available for free download at <http://java.sun.com>.

- **Client-side Secure Shell application.** To access the Embedded LOM through a remote Secure Shell (SSH), you must install a Secure Shell communications application on the remote client system (server, workstation, or laptop). Many Secure Shell communications applications are available from commercial or open source distribution. Refer to <http://www.openssh.org> for information about open source client-side SSH applications.
- **Serial Redirection.** The BIOS contains two options for serial redirection. You can either set the serial redirection to display the system output or the Embedded LOM output. A console can also be started to display system output. By default, the Embedded LOM output will be displayed. See [“Changing Serial Output to Display the System Information” on page 23](#) for more information.

Sun Microsystems™ has configured the service processor hardware and firmware on your server to reflect the most common default settings used in the field. It is unlikely that you will need to change most of these defaults.

Performing Initial Configuration of the Embedded LOM Service Processor

This section describes two methods for connecting to your Embedded LOM SP to perform initial setup and configuration. Use the procedure that you prefer.

Note – If you do not have a DHCP server available, you will need to configure the Embedded LOM using a serial connection.

- [“To Configure the Embedded LOM SP Using a Serial Connection” on page 15](#)
- [“Configuring the Embedded LOM SP Using an Ethernet Connection” on page 17](#)

▼ To Configure the Embedded LOM SP Using a Serial Connection

You can configure the Embedded LOM SP at any time by connecting a terminal or PC running terminal emulation software to the server serial port. Use this procedure to establish a serial connection to the Embedded LOM SP and to perform initial configuration of Embedded LOM firmware.

Note – This procedure assumes that you have already completed the hardware setup and power-on for your server, as described in Chapter 1 of this guide.

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:**
 - 8N1: 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 null serial modem cable from the DB9 serial port on the server’s back panel to a terminal device.**

See [FIGURE 1-2](#) for the position of the serial port on the back panel.
4. **Press Enter on the terminal device to establish a connection between the terminal device and the Embedded LOM SP.**

Note – If you connect to the serial port on the Embedded LOM before it has been powered on or during its power-on sequence, boot up messages display.

The Embedded LOM eventually displays a login prompt.

login:

5. **Log in to the Embedded LOM SP and type the default user name, *root*, with the default password, *changeme*.**

Once you have successfully logged in, the Embedded LOM displays its default command prompt:

SP - >

6. **Do one of the following, depending on whether or not the DHCP server is present:**

Note – The SP IP address defaults to DHCP. If a DHCP address is not found, the SP will default to a static IP address.

- If no DHCP server is present, run the following commands to assign an IP address to the Embedded LOM. Fill in the appropriate values for *netmask*, *gateway* and *ipaddress*.

```
set /SP/AgentInfo DhcpConfigured=disable
set /SP/AgentInfo NetMask=netmask
set /SP/AgentInfo Gateway=gateway
set /SP/AgentInfo IpAddress=ipaddress
```

- If a DHCP server is present, the IP information can be obtained running the following command:

```
show /SP/AgentInfo
```

Note – Be sure to record the IP address assigned to the Embedded LOM.

7. **When you apply standby power to the server, the Embedded LOM SP output is displayed. To launch a console to view the system output, type the following command:**

```
start /SP/AgentInfo/console
```

Note – You can switch back to the Embedded LOM command-line interface (CLI) from the serial console by entering the following key sequence: Esc + Shift + 9. While logged in to the Embedded LOM, you can type the CLI command `show /SP/network` to view the current Embedded LOM network configuration. For instructions on configuring static network settings using the CLI, see [“To Configure the Embedded LOM SP Using a Static IP Address” on page 20.](#)

8. Proceed to [“Configuring or Installing System Software” on page 26.](#)

Configuring the Embedded LOM SP Using an Ethernet Connection

The Embedded LOM SP offers several interfaces to support system management on your server. Before you take advantage of those interfaces over your Ethernet local area network (LAN), you need to do the following:

- Establish an Ethernet connection between your server and your Ethernet LAN.
- Determine the IP address assigned to your SP by your DHCP server or by following the instructions in [“To Configure the Embedded LOM SP Using a Serial Connection” on page 15.](#)

Note – As an alternative to having your DHCP server assign an IP address to your SP, you can also assign a static IP address to it. For this procedure, see [“To Configure the Embedded LOM SP Using a Static IP Address” on page 20.](#)

- Once you have determined the IP address of the SP, you can access its firmware applications through a secure command shell (SSH) or a web browser.

▼ To Configure the Embedded LOM SP Using a DHCP Server

Establishing an Ethernet management connection involves assigning a static or dynamic IP address to the RJ-45 Ethernet Management port. Use this procedure to configure the SP and the DHCP server in your data center to support DHCP connections.

Note – This procedure assumes that you have already completed the hardware setup and have applied standby power for your server, as described in Chapter 1 of this guide.

1. Verify that your DHCP server is configured to accept new media access control (MAC) addresses.

MAC addresses are 12-digit hexadecimal strings in the format xx:xx:xx:xx:xx:xx where x represents a single hexadecimal letter (0-9, A-F, a-f).

2. Connect an Ethernet cable to the RJ-45 NET MGT Ethernet port on your server. See [FIGURE 1-2](#).

If the SP is *not* using static IP addresses, it broadcasts a DHCPDISCOVER packet with the ID of its MAC address. A DHCP server on your LAN returns a DHCPOFFER packet containing an IP address and other information. The SP then manages its “lease” of that IP address assigned to it by the DHCP server.

3. Obtain the SP MAC address from one of the following locations. Write down that address for future reference.

- CLI commands. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and enter the CLI command **show /SP/network**, the SP displays the current MAC address.
- The Customer Information Sheet shipped with your server.
- The system BIOS setup screen. Choose Advanced -> IPMI 2.0 Configuration -> Set LAN Configuration -> MAC address.

4. Obtain the SP IP address from one of the following locations. Record the IP address for future reference.

- CLI commands. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and enter the CLI command **show /SP/AgentInfo**, the SP displays the current IP address.
- The system BIOS setup screen. Choose Advanced -> IPMI 2.0 Configuration -> Set LAN Configuration -> IP address.
- DHCP server log files. If you use this method, follow [Step a](#) and [Step b](#) below. Otherwise, skip to [Step 5](#).

a. Log in to your DHCP server and view its DHCP log file.

Note – Different DHCP server applications running on different operating systems store these log files in different locations. Consult your DHCP system administrator to locate the correct path to the log file.

b. Identify the IP address in the log file that corresponds to the MAC address of your SP.

Typically, DHCP log file entries are individual lines with the following comma-separated fields:

ID, Date, Time, Description, IP Address, Host Name, MAC Address

Locate the MAC address of your SP in the MAC Address (seventh) field of the correct DHCP file entry and record the corresponding value of the IP Address (fifth) field. This is the IP address that you must use to access the system management firmware applications on your SP.

5. Open a session to the SP using the IP address that you obtained in Step 4.

Each SP firmware application requires a different browser or shell.

- To establish a Secure Shell (SSH) connection to the SP command-line interface (CLI), type the appropriate connection command in the SSH application. 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
```

Once you have entered the default password for the SP, **changeme**, you can enter commands to manage user accounts or to monitor the status of devices on your server.

- To establish a connection to the Embedded LOM SP web GUI, type the IP address of the SP in the browser locator box and press Enter. For example, assume that the IP address for your SP is 129.144.02.20. See the example in [FIGURE 2-1](#).

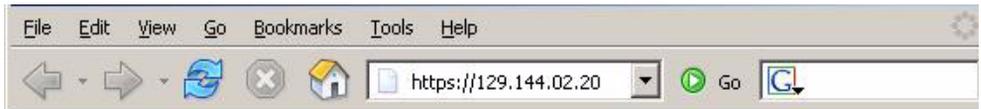


FIGURE 2-1 Opening a Session With a Web GUI

6. Enter the default user name, **root, with the default password, **changeme**, at the CLI or GUI prompt to log in to the Embedded LOM SP.**



FIGURE 2-2 Embedded LOM Login Screen

7. Type Embedded LOM SP commands in the CLI or navigate to Embedded LOM web GUI pages to configure your Embedded LOM SP. See the *Embedded Lights Out Manager Administration Guide* for more details on how to use the Embedded LOM GUI for server management.
8. Continue with [“Configuring or Installing System Software” on page 26.](#)

▼ To Configure the Embedded LOM SP Using a Static IP Address

As an alternative to having your DHCP server assign an IP address to your SP, you can also assign a static IP address to it. You can do this using the web GUI, or using the CLI over the network or serial port. Use the procedure that you prefer:

- [“To Configure Static IP Addresses Using the Web GUI” on page 20](#)
- [“To Configure Static IP Addresses Using the CLI” on page 23](#)

▼ To Configure Static IP Addresses Using the Web GUI

The following procedure describes how to configure static IP addresses using the web GUI.

1. Determine the current IP address of the SP from one of the following locations:
 - CLI command. The SP has a serial port to which you can attach a terminal device. If you log in to the SP and enter the CLI command **show /SP/AgentInfo**, the SP displays the current IP address.
 - The system BIOS setup screen. Choose Advanced → IPMI 2.0 Configuration → Set LAN Configuration → IP address.

2. Connect to the SP through a web browser running on a remote system.
3. Log in to the web GUI using the default user name, **root**, and the default password, **changeme**.

The initial Embedded LOM screen displays.

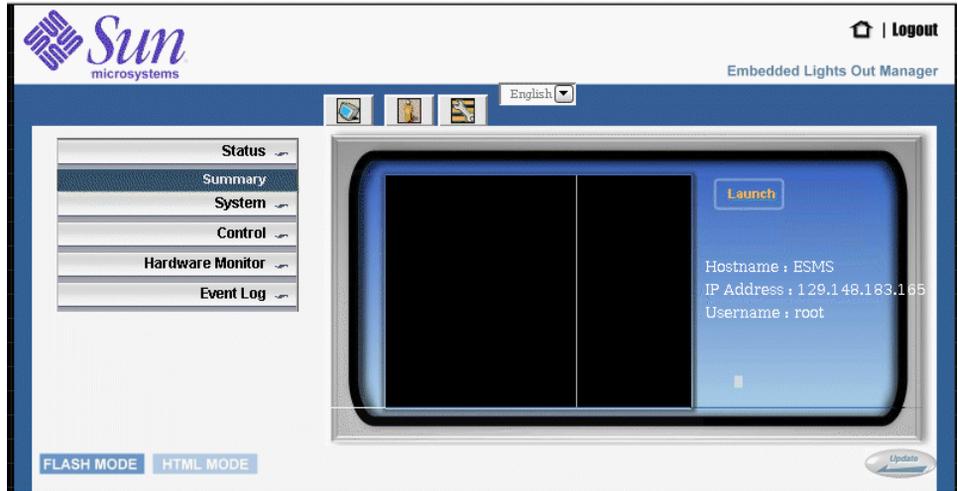


FIGURE 2-3 Initial Embedded LOM Screen

4. Click the **Control** button to display the drop-down menu.

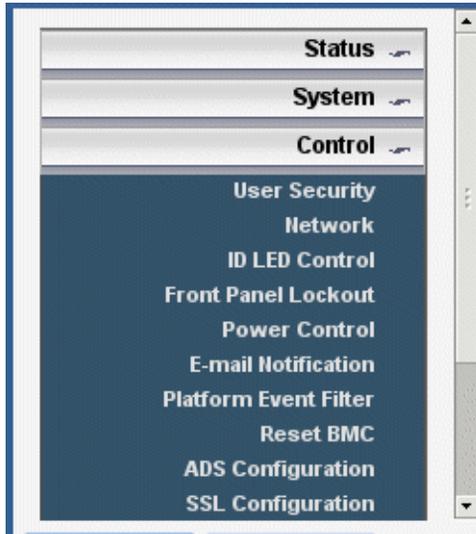


FIGURE 2-4 Embedded LOM Control Menu

5. Select **Network** from the drop-down menu to display information about the current network configuration of your Embedded LOM SP.

The Network Settings Page displays.

Network	
<input checked="" type="checkbox"/> Enable DHCP	
IP :	129 . 148 . 183 . 239
Net Mask :	255 . 255 . 255 . 0
Gateway :	129 . 148 . 183 . 248
Set DNS	
DNS server :	129 . 148 . 9 . 49
Mac Address:	00 . 16 . 36 . 3E . 98 . B7
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

FIGURE 2-5 Embedded LOM Network Settings Page

6. Select the **Enable DHCP** box to disable it, and enter your static IP address information.

▼ To Configure Static IP Addresses Using the CLI

1. Log into the CLI using SSH or by connecting to the serial port.

To establish a SSH connection to the Embedded LOM SP CLI, type the appropriate connection command in the SSH application. 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
```

2. Type the following commands, using your own addresses in place of the examples below:

(The addresses shown in the commands below are examples.)

```
set /SP/AgentInfo DhcpConfigured=disable
set /SP/AgentInfo NetMask=255.255.255.0
set /SP/AgentInfo Gateway=129.144.82.254
set /SP/AgentInfo IpAddress=129.144.82.26
```

Changing Serial Output to Display the System Information

The BIOS has two options for serial redirection after the Embedded LOM SP has been configured:

- SP (default). Serial output displays the SP output (SP booting and CLI) and the system console can be accessed by issuing a CLI command.
- System. Serial output displays system information (that is. POST information)

By default, the BIOS is set to redirect its serial output to the SP. If you would rather not have to issue an SP CLI command to access the BIOS redirected serial stream, you can change the BIOS configuration option to make the default serial redirection be from the BIOS rather than the SP.

▼ To Change to System Output

To change the BIOS to display system information to the serial console:

1. Reboot the system by typing the following command from the SP CLI:

```
set /SP/SystemInfo/CtrlInfo PowerCtrl=reset
```

2. Launch the console from the SP using the following command:

```
start /SP/AgentInfo/console
```

Make sure to watch the output carefully, so you won't miss the initial BIOS screens.

Note – Refer to [TABLE 2-1](#) for information on Esc sequences for the serial terminal to replace the function keystrokes in the following steps.

3. Press F2 to enter the BIOS on the console.

4. Change the following BIOS option under IPMI 2.0 configuration from SP to System.

5. Press F10 to save your changes and reboot.

The serial redirection will now always display the system output.

You will be able to view and interact with a character-based representation of the BIOS screens as displayed on the video port. See [TABLE 2-1](#) for a list of keystrokes that are remapped for use over a serial terminal.

TABLE 2-1 Serial Terminal Key Remapping

Key	ANSI Escape Sequence	Windows Equivalent
F1	Esc+Shift-o+Shift-p	Esc+1
F2	Esc+Shift-o+Shift-q	Esc+2
F3	Esc+Shift-o+Shift-r	Esc+3
F4	Esc+Shift-o+Shift-s	Esc+4
F5	Esc+Shift-o+Shift-t	Esc+5
F6	Esc+Shift-o+Shift-u	Esc+6
F7	Esc+Shift-o+Shift-v	Esc+7
F8	Esc+Shift-o+Shift-w	Esc+8
F9	Esc+Shift-o+Shift-x	Esc+9
F10	Esc+Shift-o+Shift-y	Esc+0
F11	Esc+Shift-o+Shift-z	Esc+!
F12	Esc+Shift-o+Shift-a	Esc+@
Home	Esc+Shift-h	Esc+h
End	Esc+Shift-k	Esc+k
Insert	Esc+Shift-[+Shift--2	Esc++

TABLE 2-1 Serial Terminal Key Remapping *(Continued)*

Key	ANSI Escape Sequence	Windows Equivalent
Delete	Esc+Shift-[+Shift--3	Esc+-
Page Up	Esc+Shift-[+Shift--5	Esc+?
Page Down	Esc+[+6	Esc+/ Esc+o
Up Arrow	Esc+[+Shift-a	Esc+w
Down Arrow	Esc+[+Shift-b	Esc+x
Right Arrow	Esc+[+Shift-c	Esc+d
Left Arrow	Esc+[+Shift-d	Esc+a
Reset	no equivalent	Esc+R+Esc+r+Esc+R

Configuring or Installing System Software

If your server has at least one hard drive installed, the server might have the Solaris™ 10 Operating System and additional software preinstalled.

- To configure the preinstalled Solaris 10 Operating System on your server, see [Chapter 3](#).
- For information on additional preinstalled software, see [“Additional Preinstalled Software” on page 26](#).
- If you plan to install a different operating system see [“Installing Other Operating Systems and Drivers” on page 27](#).

Additional Preinstalled Software

Additional software will be preinstalled on the Sun Fire X2200 M2 server, including Sun Java™ Enterprise System (JES) and Sun™ Studio. See the following table for where to find information and downloads for these software products.

The developer software, software updates, documentation, and more, are now freely available at the following sites.

Software Package	Download Site
Sun Java Enterprise System	http://www.sun.com/software/javaenterprisesystem/
Sun Studio	http://developers.sun.com/sunstudio

Installing Other Operating Systems and Drivers

If you do not plan to use an operating system (OS) that is preinstalled on your Sun Fire X2200 M2 server, install your preferred OS at this time. If the Solaris 10 OS is preinstalled on the primary boot drive, you will need to remove the OS using the Erase Primary Boot Disk utility on the Tools and Drivers CD.

See the *Sun Fire X2200 M2 Server Operating System Installation Guide*, 819-6599, for more information on erasing the primary boot disk and installing an operating system onto the server.

Note – Sun Fire X2200 M2 server documentation does not provide information for doing the actual operating system installation. You will need to refer to the product-specific documentation for your operating system for details on the OS installation.

The following sources can help you with Sun Fire X2200 M2 server-specific information for installing an operating system on the Sun Fire X2200 M2 server:

- Information on removing the existing operating system, installing additional drivers, and installing another operating system is in the *Sun Fire X2200 M2 Server Operating System Installation Guide*, 819-6599. To access this document, navigate to the Sun Fire X2200 M2 documentation page from the following URL:
<http://www.sun.com/documentation>
- Drivers for supported operating systems are available on the Sun Fire X2200 M2 Server Tools and Drivers CD included with your system and can also be downloaded from:
<http://www.sun.com/servers/x64/x2200/downloads.jsp>
- The most recent list of operating systems supported for Sun Fire X2200 M2 server can be found on the product web site at:
<http://www.sun.com/x2200/>

Configuring the Preinstalled Solaris 10 Operating System

This chapter walks you through the steps for configuring the Solaris 10 Operating System (OS) that might be preinstalled on your Sun Fire X2200 M2 server, depending on your hard drive configuration. Solaris 10 6/06 is the earliest supported version.

Note – Unlike with SPARC® systems, you will *not* see the output of the preinstalled Solaris 10 image through a monitor when you power on the server. The output of the pre-installed image is directed to a *serial console* instead of a monitor that is attached to the server.

Before You Begin

Before you begin configuring the preinstalled OS, be sure to do the following:

1. Perform initial configuration of the service processor and determine the server's network settings, as described in [Chapter 2](#).
2. Gather the information that you will need for the configuration, as listed in the “[Installation Worksheet](#)” on [page 29](#).

Installation Worksheet

Use the worksheet in [TABLE 3-1](#) to gather the information that you need to configure the pre-installed Solaris 10 OS. You only need to collect the information that applies to your application of the system.

TABLE 3-1 Installation Worksheet

Information for Installation		Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Language		Choose from the list of available languages for the Solaris 10 software.	English*
Locale		Choose your geographic region from the list of available locales.	English (C - 7-bit ASCII)*
Terminal		Choose the type of terminal that you are using from the list of available terminal types.	
Network connection		Is the system connected to a network?	<ul style="list-style-type: none"> • Networked • Non-networked*
DHCP		Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces?	<ul style="list-style-type: none"> • Yes • No*
If you are not using DHCP, note the network address.	IP address	If you are not using DHCP, supply the IP address for the system. Example: 129.200.9.1	
	Subnet	If you are not using DHCP, is the system part of a subnet? If yes, what is the netmask of the subnet? Example: 255.255.0.0	255.255.0.0*
	IPv6	Do you want to enable IPv6 on this machine?	<ul style="list-style-type: none"> • Yes • No*

TABLE 3-1 Installation Worksheet (Continued)

Information for Installation		Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Host name		A host name that you choose for the system.	
Kerberos		Do you want to configure Kerberos security on this machine? If yes, gather the following information: Default Realm: Administration Server: First KDC: (Optional) Additional KDCs:	<ul style="list-style-type: none"> • Yes • No*
Name service: if the system uses a name service, provide the following information.	Name service	Which name service should this system use?	<ul style="list-style-type: none"> • NIS+ • NIS • DNS • LDAP • None*
	Domain name	Provide the name of the domain in which the system resides.	
	NIS+ and NIS	Do you want to specify a name server or let the installation program find one?	<ul style="list-style-type: none"> • Specify One • Find One*
	DNS	Provide IP addresses for the DNS server. You must enter at least one IP address, but you can enter up to three addresses. You can also enter a list of domains to search when a DNS query is made. Search Domain: Search Domain: Search Domain:	
	LDAP	Provide the following information about your LDAP profile: Profile name: Profile server: If you specify a proxy credential level in your LDAP profile, gather the following information: Proxy-Bind Distinguished Name: Proxy-Bind Password:	

TABLE 3-1 Installation Worksheet (Continued)

Information for Installation	Description or Example	Your Answers: Defaults are noted with an asterisk. (*)
Default route	<p>Do you want to specify a default route IP address or let the Solaris installation program find one?</p> <p>The default route provides a bridge that forwards traffic between two physical networks. An IP address is a unique number that identifies each host on a network.</p> <p>You have the following choices:</p> <ul style="list-style-type: none"> • You can specify the IP address. An <code>/etc/defaultrouter</code> file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route. • You can let the Solaris installation program detect an IP address. However, the system must be on a subnet that has a router that advertises itself by using the ICMP router discovery protocol. If you are using the command-line interface, the software detects an IP address when the system is booted. • You can choose None if you do not have a router or do not want the software to detect an IP address at this time. The software automatically tries to detect an IP address on reboot. 	<ul style="list-style-type: none"> • Specify One • Detect One • None*
Time zone	How do you want to specify your default time zone?	<ul style="list-style-type: none"> • Geographic region* • Offset from GM • Time zone file
Root password	Choose a root password for the system.	

Configuring the Preinstalled Solaris 10 Operating System

Note – Before you perform this procedure, you need to set up the service processor if you have not done so. See [Chapter 2](#).

Use the information that you gathered in the [“Installation Worksheet” on page 29](#) as you perform the configuration.

Note – The Solaris 10 preinstall image has been configured by default to send output to the serial port. If a monitor is attached or KVM over IP is to be used for display, Solaris 10 will need to be reinstalled or the serial output will need to be redirected to the video port. See [“To Redirect the Console Output to the Video Port \(Optional\)” on page 35](#).

Note – Solaris 10 6/06 (and later) uses a grub boot loader. The grub menu allows you to select to direct output to either the either the serial port or the video port. Once the configuration is complete you can modify the Solaris 10 6/06 grub menu to direct output to the video port by default. See [“To Change the Default Output After Initial Configuration of the Preinstalled Solaris OS” on page 37](#)

After configuring the Embedded LOM SP, you can configure the preinstalled Solaris 10 operating system (OS) by using another system to connect to the server. There are two methods you can use. See the following topics:

- [“To Connect to the Server Using the Service Processor’s IP Address” on page 34](#)
 - If you use this method, you first need to determine the service processor’s IP address and the server must be connected to the network.
- [“To Connect to the Server Using a Serial Capture Program” on page 35](#)
 - If you use this method, you do *not* need to determine the service processor’s IP address, but you will need to have a cable connection from the server to the serial port of the serial capture host system.

▼ To Connect to the Server Using the Service Processor's IP Address

Note – This procedure assumes that you have connected the server to your network through an Ethernet cable, and that you have administrative privileges.

1. If you have not already done so, determine the service processor's IP address as follows:
 - a. **Power on main power to the platform by using a stylus to press the recessed Power button on the front panel.**

POST messages appear on your screen as the OS boots up.
 - b. **Initialize the BIOS Setup utility by pressing the F2 key when the Sun logo screen is displayed.**

The BIOS Setup Utility is displayed.
See ["Changing Serial Output to Display the System Information"](#) on page 23 if you are using serial direction and a monitor is not attached.
 - c. **Select Advanced.**

The Advanced screen is displayed.
 - d. **Select IPMI 2.0 Configuration.**

The IPMI 2.0 Configuration screen is displayed.
 - a. **Select the LAN Configuration menu item.**
 - b. **Select the IP Address menu item.**

The service processor's IP address is displayed using the following format:
Current IP address in BMC: xxx.xxx.xxx.xxx
2. **Using a client system, establish a Secure Shell (SSH) connection to the service processor's IP address by typing:**

```
ssh -l root sp_ip_address
```
3. **Log in to the service processor as an Administrator, for example:**

```
login: root
password: changeme
```
4. **Start the Embedded LOM console mode by typing the following command:**

```
start /SP/AgentInfo/console
```
5. **If you have changed the SP Serial Port default settings, make sure you reset them to the default settings.**

6. Follow the Solaris 10 preinstallation onscreen prompts.
7. Use the information gathered in “Installation Worksheet” on page 29 to help you enter the system and network information as you are prompted.

The screens that are displayed vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

After you have entered the system configuration information, the server completes the boot process and displays the Solaris login prompt.

▼ To Redirect the Console Output to the Video Port (Optional)

After completing the preceding steps and while logged in to the SP, if you wish to redirect the console output to the video port, type the `eeeprom` command at the prompt with the following arguments:



Caution – This procedure is intended for advanced users of Solaris only. You can seriously disrupt the proper functioning of the server or render the server unbootable if you introduce a problem in the `bootenv.rc` file.

1. Use a text editor to open the `/boot/solaris/bootenv.rc` file.
2. Modify the following line in the file to change the video output to the VGA monitor:

```
setprop console 'text'
```

1. Reboot the server.

▼ To Connect to the Server Using a Serial Capture Program

To connect to the server using a serial capture program:

1. Use a cable to connect the serial port of the server to the serial port of the serial capture host system.
2. Make sure that the communication properties of the serial port of the system are set to the default.

The defaults are 9600 baud, 8N1 (eight data bits, no parity, one stop bit), and disable flow control.

3. Start a terminal session to capture the serial port output.

- On a client running the Solaris OS, type:

```
$ tip -9600 /dev/ttya
```

- On a client running Windows, start a program such as Hyperterminal.
- On a client running Linux, start a program such as Minicom, a text-based serial communication program that is included in the Linux distributions. For more information, see the man pages included in the Linux distribution.

4. Log in to the service processor as an Administrator, for example:

login: **root**

password: **changeme**

5. Power on main power to the server by using a ball-point pen or other stylus to press the recessed Power button on the front panel or use the following command:

```
set /SP/SystemInfo/CtrlInfo PowerCtrl=on
```

POST messages appear on your screen as the OS boots up.

6. Start the Embedded LOM SP GUI by typing the following:

```
start /SP/AgentInfo/console
```

7. Follow the Solaris 10 pre-installation onscreen prompts.

8. Use the information gathered in the [“Installation Worksheet”](#) on page 29 to help you enter the system and network information as you are prompted.

The screens that are displayed will vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

After you have entered the system-configuration information, the server completes the boot process and displays the Solaris login prompt.

▼ To Change the Default Output After Initial Configuration of the Preinstalled Solaris OS

The Solaris 10 preinstall image is configured by default to direct the console output to the serial port. In Solaris 10 6/06 (and later versions), on start-up, the user is presented with a grub-level menu and can select to direct the output to either the serial port or the video port. If the user doesn't make a selection, the menu reaches a time-out and the system boots using the default output (serial port). You can modify the grub menu to change the default output to the video port. To make the video port the default output, use this procedure:



Caution – This procedure is intended for advanced users of Solaris only. You can seriously disrupt the proper functioning of the server or render the server unbootable if you introduce a problem in the `menu.lst` file.

1. **Open the `/boot/grub/menu.lst` file in a text editor.**
2. **Modify the following line in the file to change the default so that the console output goes to the video port:**

```
default 1
```

3. **Run the following command to add the Xserver startup scripts:**

```
/usr/dt/bin/dtconfig -e
```

4. **Reboot the server.**

When the system reboots, the console output goes to the video port by default.

Solaris 10 Operating System User Information

This section provides pointers to information about the Solaris 10 operating system.

Accessing Solaris 10 User Documentation

You can access the various collections of the Solaris 10 OS user documentation at:

<http://docs.sun.com/app/docs/prod/solaris.10>

Specifically, you can access the Solaris 10 OS Release and Installation collection at:

<http://docs.sun.com/app/docs/coll/1236.1>

Downloading Solaris 10 OS Software

If you need to install the Solaris 10 6/06 OS or re-install the OS after removing it, you can download the CD or DVD image from the following URL:

<http://www.sun.com/software/solaris/get.jsp>

Solaris 10 6/06 is the minimum supported version for the Sun Fire X2200 M2 server.

See the Sun Fire X2200 M2 Server Operating System Installation Guide for specific instructions on Solaris 10 installation.

Solaris 10 OS Training

Sun provides flexible training options that accommodate your personal schedule and learning style. The training options include instructor-led, web-based online, CD-ROM, and Live Virtual Class. For Solaris 10 Training and Certification options at a glance, please visit:

<http://www.sun.com/training/catalog/solaris10.html>