Sun Fire X4640 Server Solaris OS Installation Guide

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Contents

Preface

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

Product Information Web Site

For information about the Sun Fire X4640 server, go to the following web site:

`http://www.oracle.com/goto/x86`

Click "Previous Products" from the left nav menu.

At that site, you can find links to the documentation, parts lists and downloads.

Related Books

The following is a list of documents related to your Oracle Sun Fire X4640 server. These and additional support documents are available on the web at:

`http://docs.sun.com/app/docs/prod/server.x64#hic`

Document Group	Document	Description
Sun Fire X4640 Server-Specific Documentation	Sun Fire X4640 Server Product Documentation	Integrated HTML version of all starred (*) documents, including Search and Index.
	Sun Fire X4640 Server Getting Started Guide	Pictorial setup quick reference.

Document Group	Document	Description
	"Installation Overview" in *Sun Fire X4640 Server Installation Guide**	How to install, rack, and configure the server up to initial power-on.
	"Overview of the Sun Fire X4640 Server Product Notes" in *Sun Fire X4640 Server Product Notes**	Important late-breaking information about the Sun Fire X4640 server.
	"Introduction to Sun Installation Assistant" in *Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers**	A Sun tool used to perform an assisted installation of a supported Windows or Linux OS, upgrade firmware (regardless of OS), and other tasks.
	"Introduction to Solaris OS and OpenSolaris Installation" on page 9*	How to install the Solaris OS on your server.
	"Introduction to Linux Installation" in *Sun Fire X4640 Server Linux Installation Guide**	How to install a supported Linux OS on your server.
	"Introduction to Windows Installation" in *Sun Fire X4640 Server Windows Installation Guide**	How to install supported versions of Microsoft Windows on your server.
	"Introduction to ESX Installation" in *Sun Fire X4640 Server ESX Installation Guide**	How to install supported versions of the ESX OS on your server.
	*Sun ILOM 3.0 Supplement for the Sun Fire X4640 Server**	Version-specific supplemental information for your server's *Integrated Lights Out Manager*.
	*Sun Fire X4640 Server Diagnostics Guide**	How to diagnose problems with your server.
	"Sun Fire X4640 Server Service Manual Overview" in *Sun Fire X4640 Server Service Manual**	How to service and maintain your server.
	Sun Fire X4640 Server Safety and Compliance Guide	Safety and compliance information about your server.
	4U Express Rail Rackmounting Kit Label	Pictorial label on racking your server
	Sun Fire X4640 System Overview Label	Pictorial label on servicing your server
	Sun Fire X4640 Top Cover Label	Pictorial label on removing components

Document Group	Document	Description
	Sun Fire X4640 CPU Matrix Label	Pictorial label on CPU module and fillers
Sun Integrated Controller Disk Management	*Sun x64 Server Disk Management Overview*	Information about managing your server's storage.
	Sun LSI 106x RAID Users Guide	Information about LSI RAID features
x64 Servers Applications and Utilities Reference Documentation	*Sun x64 Server Utilities Reference Manual*	How to use the available utilities included with your server.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes*	Information about new ILOM features
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide	Overview of ILOM 3.0
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide	Conceptual information on ILOM 3.0
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide	How to use ILOM through the web interface
	Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide	How to use ILOM through commands
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide	Information on management protocols

About This Documentation (PDF and HTML)

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

We Welcome Your Comments

Oracle is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to `http://docs.sun.com` and click Feedback.

Change History

The following changes have been made to the documentation set.

- October 2009, initial publication
- January 2010, two documents revised
  - Service Manual - Revised DIMM population rules and addressed illustration issues
  - Product Notes - Revised software information and fixed bugs
- April 2010, one document revised
  - Installation Guide - Revised power specifications
- December 2010, two documents revised
  - Service Manual - Revised motherboard FRUID update instructions
  - Product Notes - Revised software information and fixed bugs

Introduction to Solaris OS and OpenSolaris Installation

This document provides information for installing the Solaris OS and OpenSolaris on Oracle's Sun Fire X4640 server.

- *Solaris OS* – "Installing the Solaris 10 Operating System" on page 11 provides some of the information you need to install the Solaris Operating System (Solaris OS) on your server and directs you to the Solaris OS documentation for more detailed information. It supports installations from the network or from media. This information is designed for experienced system administrators who are familiar with using the Solaris OS on an x86/x64 platform.

  Your server supports Solaris 10 05/09.

- *OpenSolaris* – "Installing the OpenSolaris Operating System" on page 15 provides instructions for installing OpenSolaris on your server.

  Your server supports OpenSolaris 2009.06.

For a complete list of supported operating systems, see `http://www.sun.com/servers/x64/x4640/os.jsp`.

This document includes the following topics.

Description	Link
Instructions for installing the Solaris OS on your server, and pointers to additional Solaris OS documentation.	"Installing the Solaris 10 Operating System" on page 11
Instructions for installing OpenSolaris on your server.	"Installing the OpenSolaris Operating System" on page 15
Instructions for identifying the logical and physical names of the network interfaces.	"Identifying Logical and Physical Network Interface Names for Solaris OS Installation" on page 25
Instructions for booting from distribution media (CD or DVD) or for booting from an equivalent ISO file. This includes instructions for connecting remotely using the ILOM javaRconsole application.	"Booting From OS Distribution Media" on page 21

Description	Link
Tasks you might need to complete before installing an OS, including removing a previously-installed OS from your boot hard drive, and configuring your console display.	"Preliminary Tasks Before Installing An OS" on page 29

Note – If you are configuring the preinstalled Solaris 10 5/09 operating system that is shipped with the server, refer to the *Sun Fire X4640 Server Installation Guide*.

Installing the Solaris 10 Operating System

This section provides instructions for installing the Solaris 10 OS on your server. It provides the following topics.

Solaris OS Installation Overview

The Solaris 10 OS box contains the CD and DVD media and documentation that you will need to install the Solaris OS software for both SPARC and x86/x64 platforms. For your server, use the media for x86/x64 platforms.

The minimum Solaris OS for your server is Solaris 10 5/09 for the x86/x64 family of 64-bit and 32-bit AMD processors.

Note the following conditions:

- If you are going to install your OS on a disk that is part of a RAID array, you must configure the RAID array before installing your OS. See your disk management documentation collection for details.
- During the OS installation, you need to provide the logical names (assigned by the OS) and the physical name (MAC address) of each network interface. See "Identifying Logical and Physical Network Interface Names for Solaris OS Installation" on page 25 for details.

Your server supports the following Solaris OS installation methods:

- Boot from the preinstalled Solaris 10 5/09 OS image on the hard drive as described in the *Sun Fire X4640 Server Installation Guide*.
- Install on one server from DVD or CD-ROM media interactively with the Solaris installation program.
- Install on one server or several servers over the network with Preboot Execution Environment (PXE) technology and the following installation methods:
  - Solaris installation program over the network from remote DVD or CD images
  - JumpStart installation
  - Diskless boot

- Installation using a serial console

The Solaris Installation Program on the Solaris 10 OS DVD or CD can be run with a graphical user interface (GUI) or as an interactive text installer in a remote console. The Solaris Device Configuration Assistant is included in the Solaris Installation Program.

Use Table 1 to identify the tasks you need to perform to install the Solaris OS.

TABLE 1 Task Map for Initial Solaris OS Installation

Task	Description	Instructions
Set up your server.	Install your server hardware and configure the service processor.	*Sun Fire X4640 Server Installation Guide*
Review the *Sun Fire X4640 Server Product Notes*.	The Product Notes contain late-breaking news about the Solaris OS software and patches.	*Sun Fire X4640 Server Product Notes*
Gather the information you need to install the Solaris OS.	The type of information you need to collect depends on your environment and the method you choose to install the Solaris OS.	
Locate the Solaris OS documentation.	The Solaris OS documentation included with your software contains most of what you need to know about installation.	"Where to Find Solaris 10 Information" on page 13
Install the Solaris OS.	Choose an installation method and locate the installation instructions.	Table 2

Note – The Solaris OS provides additional programs for installation, such as booting over a wide area network (WAN), but your server supports only those methods listed in this document.

TABLE 2 Installation Methods

Method	Description	Instructions
Boot from the preinstalled image.	Depending on your configuration, a Solaris OS image might be preinstalled on a hard drive.	*Sun Fire X4640 Server Installation Guide*
Install from DVD or CD-ROM media.	Use the Solaris Installation Program on the CD or DVD media to install one server interactively.	Follow the instructions for x86 installation in the *Solaris 10 5/09 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.

TABLE 2 Installation Methods *(Continued)*

Method	Description	Instructions
Install from the network by using PXE.	You need to use PXE to install the Solaris OS over the network from remote DVD or CD images or to automate the installation process and install several systems with a JumpStart installation. To boot over the network by using PXE, you need to set up an installation server and a DHCP server, and configure the BIOS on each server to boot from the network.	Follow the instructions for an x86 PXE installation in the *Solaris 10 5/09 Installation Guide: Custom JumpStart and Advanced Installations*.
	Use a serial console to install the Solaris OS in a PXE-based network installation.	Follow the instructions for an x86 PXE installation in *Solaris 10 5/09 Installation Guide: Network-Based Installations*.
	Boot the Solaris OS on your server without a hard drive. Use this method with a PXE-based network installation.	Follow the instructions for an x86 PXE installation in *Solaris 10 5/09 Installation Guide: Network-Based Installations*.

Where to Find Solaris 10 Information

Solaris 10 OS documentation is available from the web at: `http://docs.sun.com/`

Select `Solaris 10` to display the list of documents in the Solaris 10 Documentation Collection. Make sure to follow instructions specific to x86 systems, where they are specified.

- For the Solaris 10 installation guides, see `http://docs.sun.com/app/docs/coll/1236.1`.
- For the Solaris 10 administration guides, see http://docs.sun.com/app/docs/coll/47.16.
- For information about upgrading your system, see *Solaris 10 5/09 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.
- For troubleshooting information, see Appendix A at *Solaris 10 5/09 Installation Guide: Custom JumpStart and Advanced Installations*.
- See the *Sun Fire X4640 Server Product Notes* for patch and other late-breaking information. Patches and instructions are available from the SunSolve Patch Portal at `http://www.sunsolve.sun.com`.

Solaris 10 documentation is also available on the Solaris Documentation DVD included with your Solaris OS software.

Installing the OpenSolaris Operating System

This section provides instructions for installing OpenSolaris on your server. It provides the following topics.

OpenSolaris OS Installation Overview

Installing OpenSolaris requires the following procedures.

TABLE 3 Task Map for OpenSolaris Installation

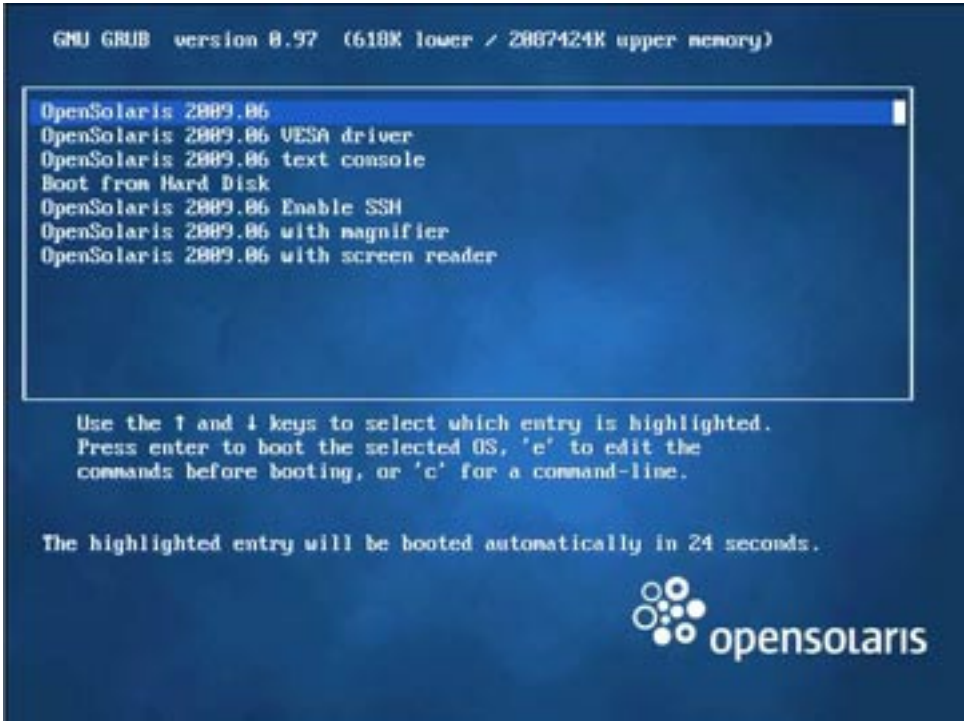
Description	For More Information
Install server hardware and configure the service processor.	*Sun Fire X4640 Server Installation Guide*
Configure the console output and if necessary, erase the boot disk.	"Preliminary Tasks Before Installing An OS" on page 29
If you are going to install the OS on a RAID array, configure it before installing the OS.	See your disk management documentation collection
Prepare to boot your OpenSolaris media. You can boot locally from a CD or DVD, or remotely from a CD or DVD, or equivalent ISO file.	"Booting From OS Distribution Media" on page 21
Review the Product Notes for late-breaking news about OpenSolaris OS software and patches.	*Sun Fire X4640 Server Product Notes*
Install patches if necessary	"How to Install Support Repository Updates" on page 20

▼ How to Install OpenSolaris

Before You Begin If necessary, configure your console display and erase your boot hard drive. See "Preliminary Tasks Before Installing An OS" on page 29 for details.

1 Boot the OpenSolaris media as described in "Booting From OS Distribution Media" on page 21.

The OpenSolaris installation script starts and the GRUB menu appears.



Note – In the GRUB menu, if you want to redirect the installation output to a serial console, press "e" to edit the GRUB menu to support a serial console, then type **`-B console=ttya`**. See "How to Configure the Serial Port" on page 30 for more details.

The system discovers and configures devices and interfaces, then it loads the OpenSolaris disk image into memory. This can take several minutes.

If the system discovers a keyboard, the Configure Keyboard layout menu appears.

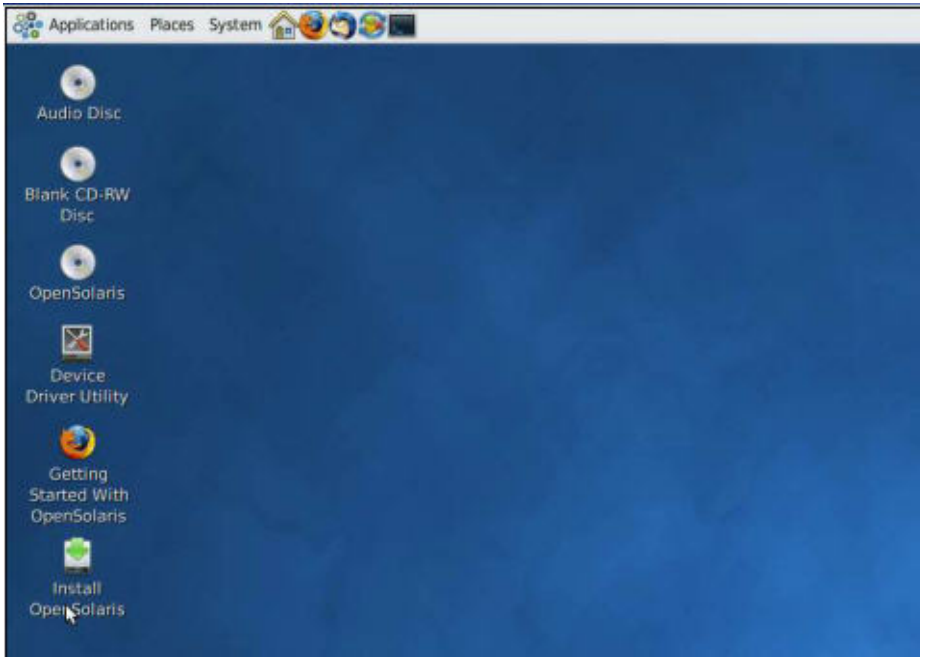
2 Select the desired language from the Configure Keyboard Layout menu, then press Enter.

The system configures the keyboard layout, then searches for configuration files.

The Select Desktop Language menu appears.

3 Select a desktop language, then press Enter.

After a few moments, the OpenSolaris 2009.06 desktop appears.



4 **Double-click the Install OpenSolaris icon in the OpenSolaris desktop.**

The OpenSolaris Installer Welcome screen appears.

5 **Follow the on-screen instructions to complete the installation.**

See Also "How To Install Device Drivers" on page 19

▼ How To Install Device Drivers

- **Click the Device Driver Utility icon on the OpenSolaris desktop.**

See Also "How to Install Support Repository Updates" on page 20

▼ How to Install Support Repository Updates

1. **Navigate to the OpenSolaris support site:**
   `http://sunsolve.sun.com/show.do?target=opensolaris`
2. **Find your OpenSolaris release.**
3. **Follow the directions for accessing and installing SRUs.**

Booting From OS Distribution Media

This topic describes how to boot from an OS distribution media (CD or DVD) or an equivalent ISO file. It contains the following topics.

When you are done, control passes from the BIOS to the OS installation procedures. Follow the steps in your OS installation guide.

▼ How to Boot From OS Media Locally

1 **Connect to the console.**

For more information, see "Connecting to the System Console" described the *Sun Fire X4640 Server Installation Guide*.

2 **Power on or reset the server.**

BIOS messages appear on the console.

3 **Insert the distribution media.**

Additional BIOS messages appear on the console.

4 **When you see a message offering a series of selections, press F8.**

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

After a delay, a menu offers a selection of boot devices.

```
    Please select boot device:
--------------------------------
USB CD/DVD
PXE:IBA GE Slot 1000 v1331
PXE:IBA GE Slot 1001 v1331
PXE:IBA GE Slot 4100 v1331
PXE:IBA GE Slot 4101 v1331
PXE:IBA GE Slot 8100 v1331
```

```
PXE:IBA GE Slot 8101 v1331
PXE:IBA GE Slot C100 v1331
PXE:IBA GE Slot C101 v1331

------------------------------
```

5. **Select CD/DVD from the list.**

   Control passes to the OS installation program on the media.

6. **Follow the steps in your vendor's OS Installation guide.**

▼ How to Boot From OS Distribution Media or ISO File Remotely

You can boot from the physical media (CD or DVD) or from an equivalent ISO image.

1. **If you are using a CD or DVD, insert it in the CD/DVD drive.**

2. **Start and configure a remote console session.**

   For more information, see "Communicating With the ILOM and the System Console" in the *Sun Fire X4640 Server Installation Guide*.

   a. **Connect to the console.**

   b. **When the Remote Console window appears, open the Devices menu and select:**

      - **CD-ROM if you are using physical media.**
      - **CD-ROM Image if you are using an ISO file.**

   c. **If Keyboard and Mouse are not selected, select them as well.**

   Your remote console session is configured.

3. **Power on or reset the server.**

   BIOS messages appear on the console.

4. **When you see a message offering a series of selections, press F8.**

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

After a delay, a menu offers a selection of boot devices.

```
    Please select boot device:
--------------------------------
Virtual CD/DVD
PXE:IBA GE Slot 1000 v1331
PXE:IBA GE Slot 1001 v1331
PXE:IBA GE Slot 4100 v1331
PXE:IBA GE Slot 4101 v1331
PXE:IBA GE Slot 8100 v1331
PXE:IBA GE Slot 8101 v1331
PXE:IBA GE Slot C100 v1331
PXE:IBA GE Slot C101 v1331

--------------------------------
```

5 **Select a boot device from the list.**

To boot from a physical CD/DVD or from an ISO image, select CD/DVD.

Control passes to the OS installation program on the media.

6 **Follow the steps in your vendor's OS installation guide.**

Identifying Logical and Physical Network Interface Names for Solaris OS Installation

When you are configuring an operating system for a networked server, you might need to provide the logical name (assigned by the OS) and the physical name (MAC address) of each network interface. This topic shows you how to get this information.

See "How to Identify Logical and Physical Network Interface Names" on page 25.

▼ How to Identify Logical and Physical Network Interface Names

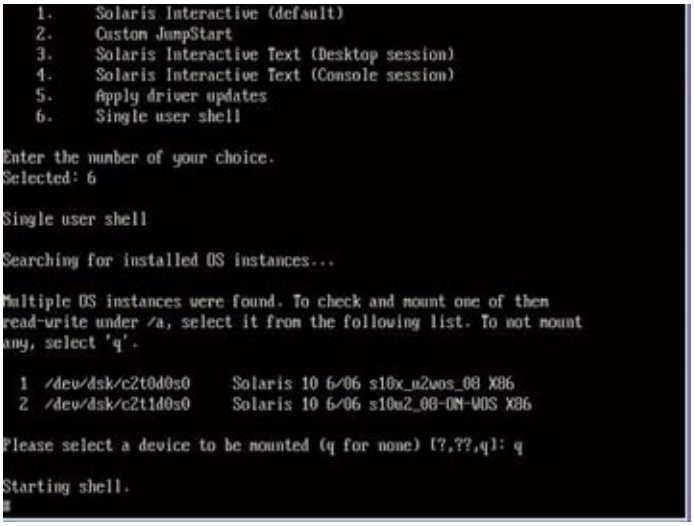
Use this procedure to display information about MAC addresses and network interfaces, including their logical and physical names (MAC addresses).

1 **In the Install Type menu, select Option (6) Single User Shell and press Enter.**

Note – Alternatively, you can run these commands from a command shell.

If a message appears about mounting an OS instance, select **q**. You should not mount any OS instance.

The message "`Starting Shell`" appears. See the following figure.



2 At the command prompt (#), type the following command to plumb all network interfaces.

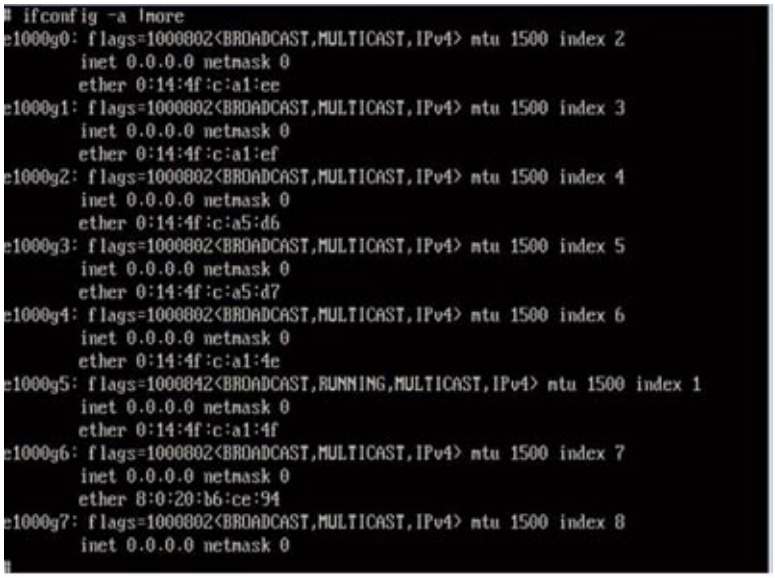
```
# ifconfig -a plumb
```

The plumb process might take some time.

3 At the command prompt, type the following command.

```
# ifconfig -a
```

The output of Solaris named interfaces and MAC addresses appears. For example:



In the sample output above:

- The `el000g#` entry in the first column refers to the Solaris logical named interface. This first column in the output identifies the logical names assigned by Solaris to the network interfaces.
- The `ether #:#:#:#:#:#` entry in second column (third row) refers to the physical MAC address name of the network port.

  For example:

  The physical MAC address for the Solaris named network interface is `e1000g0` is `0:14:4f:c:a1:ee`.

4 **Save this information to a file, or write it down.**

5 **When you are done, to start the system configuration script, type `sys-unconfig(1M)` at the command line.**

This command restores the system configuration to the factory defaults.

Caution – The `sys-unconfig(1M)` command halts the system and restores the factory settings. Do not run this command unless you are ready to reconfigure your system.

For example:

```
# sys-unconfig
WARNING
This program will unconfigure your system.  It will cause it
to revert to a "blank" system - it will not have a name or know
about other systems or networks.
This program will also halt the system.
Do you want to continue (y/n) ?
```

The system reboots and the configuration script starts.

Preliminary Tasks Before Installing An OS

Certain tasks must be done before you can install an operating system, depending on how you are going to access the system console, and whether there is an OS already on your boot drive.

These tasks include:

Accessing the Server Output During Installation

Installing the OS requires you to view the system console output. This can appear on both the serial port and the video port.

Note – This topic describes the default video and serial port outputs. Other settings, including console commands and GRUB menu selections, can change this behavior.

Your server is equipped with a serial port and a video port.

- Serial Port – From the moment you start the SP until the OS assumes control of the display, all output appears on the serial port.

  There are two ways to connect to the serial port:

  - Physically, by connecting a cable to the serial port. See "How to Configure the Serial Port" on page 30.
  - Virtually, by configuring an SSH connection to the SP, then by issuing the `start /SP/console` command. See "Communicating With the ILOM and the System Console" in *Sun Fire X4640 Server Installation Guide* for more details.
- Video Port – After the SP startup is complete, the system begins POST/BIOS, and displays all output on the video port. This continues until the OS assumes control of the display. Most OS configurations continue to display information on the video port.

There are two ways to connect to the video port:

- Physically, by connecting a DB9 cable to the video port on the server. See "Installing the Server Hardware" in *Sun Fire X4640 Server Installation Guide*.
- Virtually, by starting a JavaRConsole session. See "Communicating With the ILOM and the System Console" in *Sun Fire X4640 Server Installation Guide*.

Other settings can affect this behavior. They include console commands, ILOM settings, and GRUB settings for operating systems that include a GRUB.

How to Configure the Serial Port

1. **Connect either a terminal or a laptop running terminal emulation software directly to the serial port.**

   Use the following terminal settings:

   8,n,1: eight data bits, no parity, one stop bit

   9600 baud rate

   Disable software flow control (XON/XOFF)

2. **Power on the server.**

   Console output appears on the serial port.

   If the output does not appear, it might be necessary to configure the output in the BIOS. Use the following step to configure the output in the BIOS.

3. **If necessary, check the BIOS settings.**

   a. **During POST, press F2 (F4 on a remote keyboard) during the boot process to enter the BIOS.**

   b. **Use the Right Arrow key to navigate to the Server tab.**

      The left and right arrow keys allow you to access the BIOS Setup Utility menu tabs.

   c. **Use the Down Arrow key to highlight the Remote Access Configuration option, and press Enter.**

      The Configure Remote Access type and parameters submenu screen appears.

   d. **Use the Down arrow to highlight the External Serial Port option.**

   e. **Use the - and + key to change the External Serial Port setting from SP to System.**

   f. **To save the change and exit BIOS, press the F10 key.**

4. **If the OS includes GRUB, it might be necessary to configure it as well.**

   a. **When the GRUB menu appears, press "e" to edit it.**

   b. **Type `-B console = ttya` to direct output to the serial console.**

How to Erase Your Boot Hard Disk

Your server might have the Solaris OS preinstalled on the hard drive. If so, you must erase it before installing OpenSolaris.

Before You Begin Obtain a copy of the Tools and Drivers CD before starting this procedure.

Caution – This procedure erases all data from the hard drive. Back up any data you wish to save before starting this procedure.

1. **Back up any data on the hard drive that you want to save.**

2. **Insert the Tools and Drivers CD into the server's CD/DVD drive.**

   If your server does not have a CD/DVD drive, use the remote console (JavaRConsole). See "How to Connect Remotely Using the ILOM Web Interface" in *Sun Fire X4640 Server Installation Guide*.

3. **Boot the system from the Tools and Drivers CD.**

   The tools and drivers main menu appears.

4. **Select Erase Primary Boot Hard Disk from the main menu.**

   This erases all partitions currently on the primary hard drive except for the diagnostic partition. If the diagnostic partition is present, it is not erased.

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