Sun Netra X4270 Server

Operating System Installation Guide

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Using This Documentation

This installation guide describes how to install an operating system on the Sun Netra X4270 server from Oracle. This guide is written for system administrators who have experience installing and configuring software in an enterprise environment.

This preface contains the following topics:

- "Related Documentation" on page vii
- "Documentation, Support, and Training" on page ix
- "Documentation Feedback" on page ix

Related Documentation

The following tables list the Sun Netra X4270 server documentation and related documentation.

The documents listed as online are available at:

(http://docs.sun.com/app/docs/prod/nt4270.srvr#hic)

TABLE: Sun Netra X4270 Server Documentation

Application	Title	Part Number	Location
Late-breaking news	*Sun Netra X4270 Server Product Notes*	821-0577-*xx*	Online
Site planning	*Sun Netra X4270 Server Site Planning Guide*	821-0571-*xx*	Online
Getting started	*Sun Netra Rack Server Getting Started Guide*	820-3016-*xx*	Included in shipping kit
Installation	*Sun Netra X4270 Server Installation Guide*	821-0572-*xx*	Online
Service	*Sun Netra X4270 Server Service Manual*	821-0573-*xx*	Online
Remote management	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Netra X4270 Server*	821-0574-*xx*	Online

TABLE: Sun Netra X4270 Server Documentation *(Continued)*

Application	Title	Part Number	Location
Operating system installation	*Sun Netra X4270 Server Operating System Installation Guide*	821-0576-*xx*	Online
Safety and compliance	*Sun Netra X4270 Server Safety and Compliance Guide*	821-0575-*xx*	Online
Safety information	*Important Safety Information for Sun Hardware Systems*	816-7190-*xx*	Included in shipping kit

TABLE: ILOM 3.0 Documentation

Application	Title	Part Number	Location
Late-breaking news and issues	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes*	820-7329-*xx*	Online
Installation and configuration	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide*	820-5523-*xx*	Online
Conceptual information	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*	820-6410-*xx*	Online
Browser interface procedures	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*	820-6411-*xx*	Online
CLI procedures	*Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*	820-6412-*xx*	Online
SNMP and IPMI procedures	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide*	820-6413-*xx*	Online

TABLE: SAS Controller HBA and LSI 106x RAID Documentation

Application	Title	Part Number	Location
Disk management overview	*Sun Disk Management Overview*	820-6350-*xx*	Online
RAID management	*Sun LSI 106x RAID User's Guide*	820-4933-*xx*	Online
SAS HBA installation	*Sun StorageTek PCI Express SAS 8-Channel Internal HBA Installation Guide*	820-4932-*xx*	Online

TABLE: Diagnostics for x64 Servers

Application	Title	Part Number	Location
Diagnostics available for x64 servers	*Sun x64 Servers Diagnostics Guide*	820-6750-*xx*	Online

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation (http://docs.sun.com)
- Support (http://www.sun.com/support)
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Sun Netra X4270 Server Operating System Installation Guide, part number 821-0576-10.

Preparing to Install an Operating System

These topics contain an overview for installing a new OS on your Sun Netra X4270 server. These topics also provide the OS installation preparation procedures.

- "Supported Operating Systems" on page 1
- "OS Installation Task Map" on page 2
- "Console Display Options During Installation" on page 3
- "Preinstalled Diagnostic Partition" on page 3
- "RAID Configuration Options" on page 4
- "RAID Support Using the LSI SAS3081E-R Card" on page 4

Related Information

- "Installing the Solaris Operating System" on page 9
- "Installing the Linux Operating System" on page 21
- "Installing the Windows Operating System" on page 29

Supported Operating Systems

The Solaris 10 OS might be preinstalled on your server. If you do not plan to use the preinstalled Solaris OS, you can install one of the following supported minimum OS versions listed below:

- Solaris 10 10/09 OS
- Oracle Enterprise Linux – OEL 5 U4 64-bit
- Red Hat Enterprise Linux – RHEL 5 U4 64-bit
- Red Hat Enterprise Linux – RHEL 5.4, 32-bit and 64-bit
- SuSE Linux Enterprise Server – SLES 10 SP3, 64-bit
- Vmware ESX 4.0 U1 and ESXi 4.0 U1

- Oracle OVM 2.2
- Windows Server 2008 Standard, Enterprise and Datacenter R2 64-bit

Support for additional operating systems is available after the initial release of the server. See the latest version of the *Sun Netra X4270 Server Product Notes* for the most up-to-date information.

Instructions for installing the supported operating systems are provided in the media sets that are packaged with the OS software. Retain these installation instructions for use in these procedures.

You can order supported versions of Red Hat and SUSE operating systems at (http://www.sun.com/software/linux/index.jsp).

Related Information

- "Installing the Solaris Operating System" on page 9
- "Installing the Linux Operating System" on page 21
- "Installing the Windows Operating System" on page 29

OS Installation Task Map

This is an overview of the tasks and relevant procedures for installing a new OS. Perform the tasks in the order given.

Task Description	Section or Procedure
Set up the display environment.	"Console Display Options During Installation" on page 3
If you plan to configure the server for RAID operation, perform these setup tasks before installing the OS.	"RAID Configuration Options" on page 4
Install the OS, update the drivers, and run the OS updates, as necessary.	• "Installing the Solaris Operating System" on page 9 • "Installing the Linux Operating System" on page 21 • "Installing the Windows Operating System" on page 29

Console Display Options During Installation

If you are not using the local DVD drive and a monitor for the OS installation CD/DVD (or tasks related to the Tools and Drivers DVD), you have the following options for your display environment:

- View system output serially, through either the SP or the physical port. See the *Sun Netra X4270 Server Installation Guide* for instructions on viewing system output through the serial console using the Oracle ILOM SP.
- Use the Remote Console feature of the ILOM. *Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* for instructions on setting up the remote KVMS Over IP for virtual CD operation.

Related Information

- *Sun Netra X4270 Server Installation Guide*
- *Sun Netra X4270 Server Administration Guide*
- *Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*

Preinstalled Diagnostic Partition

A diagnostic partition is preinstalled on the server. If the diagnostic partition has been removed from the server, refer to the *Sun Netra X4270 Server Service Manual* for information about how to reinstall the partition from the Tools and Drivers DVD.

Related Information

- *Sun Netra X4270 Server Service Manual*

RAID Configuration Options

Your Sun Netra X4270 server supports the LSI SAS3081E-R RAID controller cards. The following table lists the RAID drive options. More information is available in "RAID Support Using the LSI SAS3081E-R Card" on page 4.

TABLE: RAID Drive Options Based on LSI SAS3081E-R Card

RAID Configuration Type	Required Number of Disks	Effect on Data
IM - Integrated Mirror	2-disk minimum, plus up to 2 hot-spare disks	Data on primary disk *might* be merged.
IME- Integrated Mirror Enhanced	3 to 10 disks, including up to 2 hot-spares	All data is deleted during creation.
IS - Integrated Striping	2 to 10 disks	All data is deleted during creation.

Related Information

- "RAID Support Using the LSI SAS3081E-R Card" on page 4
- "Preparing to Install an Operating System" on page 1

RAID Support Using the LSI SAS3081E-R Card

The LSI SAS3081E-R SAS card supports all operating systems for SAS hard disks. The card also supports several RAID levels. Refer to the *Sun Netra X4270 Server Service Manual* for instructions on installing and cabling the LSI PCIe card. For LSI RAID support, you must have installed the LSI SAS3081E-R card and cables.

See the topics that correspond to your OS for further details on configuring RAID.

OS	Section
Solaris	"Installing the Solaris Operating System" on page 9
Linux	"Installing the Linux Operating System" on page 21
Windows Server 2008	"Installing the Windows Operating System" on page 29

Related Information

- "RAID Configuration Options" on page 4
- "Configuring RAID" on page 7

Configuring RAID

These topics provide information about configuring RAID on the server, including instructions for configuring RAID on the LSI SAS3081E-R SAS controller card and for setting up a non-RAID configuration.

- "RAID Support Preparation" on page 7
- "Create a RAID for the LSI SAS3081E-R Controller Card" on page 8

RAID Support Preparation

The server supports the LSI SAS3081E-R 8-port internal SAS PCIe HBA card. RAID configuration is performed in the card's BIOS.

See "Create a RAID for the LSI SAS3081E-R Controller Card" on page 8 for instructions on configuring RAID on this card.

Before you begin to create a RAID for your server using the LSI SAS3081E-R controller card, you must do the following:

- Install the LSI SAS3081E-R controller card in the server. For SAS controller card installation instructions, see the *Sun Netra X4270 Server Service Manual*.
- Obtain the user guide for the installed LSI controller card. See the Sun LSI 106x RAID User's Guide (820-4933).
- *Sun Netra X4270 Server Tools and Drivers DVD*.
- Set up your display to access the server output (see "Console Display Options During Installation" on page 3).

Related Information

- "Create a RAID for the LSI SAS3081E-R Controller Card" on page 8
- "Console Display Options During Installation" on page 3

▼ Create a RAID for the LSI SAS3081E-R Controller Card

1. **Power on the server.**
2. **Watch the video output, and when the LSI SAS controller card is recognized, press Control-C to access the LSI controller card's BIOS setup utility.**
3. **Set up the RAID according to the instructions in the** *LSI Integrated RAID User's Guide***.**
4. **Exit the RAID utility.**
5. **Install the OS that you want to use.**
6. **Download the latest LSI utilities for managing RAID at or from the Tools and Drivers DVD under the** `/Linux` **directory.**

   Use the appropriate version of Linux you are installing. Look under the `Tools` directory for the MSM utility.

   For example:

   To download the utilites for Oracle Enterprise Linux – OEL 5 U4 64-bit, navigate to this directory:

```
# ls Linux/OEL/OEL5U4/Tools/64bit
MSM_linux_installer-6.80-00.tar.gz      ipmitool-1.8.10.3-3.rhel5.x86_64.rpm
ipmiflash-1.8.10.2-3.rhel5.x86_64.rpm   ipmitool-1.8.10.3.tar.gz
```

Related Information

- "RAID Support Preparation" on page 7

Installing the Solaris Operating System

These topics include information about installing the Solaris 10 OS and server-specific drivers on your Sun Netra X4270 server.

Note – Before installing the OS you must configure the BIOS for your controller card (see "RAID Support Preparation" on page 7).

- "Installing the Solaris OS" on page 9
- "Installing Solaris Drivers" on page 18
- "Redirect Solaris Output to the Serial Port" on page 20

Related Information

- "Preparing to Install an Operating System" on page 1
- "Configuring RAID" on page 7

Installing the Solaris OS

These topics provide guidelines for installing the Solaris 10 OS.

- "Solaris OS Installation Task Map" on page 10
- "Solaris OS Installation Methods" on page 11
- "Install Solaris OS With CD/DVD and Monitor" on page 11
- "Install Solaris OS With CD/DVD Media and the Serial Port" on page 12
- "Prepare Solaris JumpStart Server" on page 13
- "Configure Solaris Jumpstart Server to Use Serial Console" on page 14
- "Install Solaris OS Using a Local Console" on page 16
- "Install Solaris OS Using Remote Console With Virtual CD/DVD" on page 16

Related Information

- "Preparing to Install an Operating System" on page 1
- "Installing Solaris Drivers" on page 18

Solaris OS Installation Task Map

These procedures describe the installation of the Solaris OS and supported drivers for a new installation. Perform the tasks in the order given.

Step	Task	Description	Instructions
1.	Set up your server.	Install your server hardware and configure the service processor.	*Sun Netra X4270 Server Installation Guide*
2.	Prepare your server for OS installation.	Set the display environment. If necessary, erase the primary boot disk.	"Preparing to Install an Operating System" on page 1"
3.	Set up your system for a RAID or non-RAID configuration based on the SAS controller card.	The Sun Netra X4270 server supports the LSI SAS controller card.	"Configuring RAID" on page 7
4.	Review the *Sun Netra X4270 Server Product Notes.*	The product notes contain late-breaking news about the Solaris OS software and patches.	*Sun Netra X4270 Server Product Notes*
5.	Install the Solaris OS.	Choose an installation method and locate the installation instructions.	"Solaris OS Installation Methods" on page 11
6.	Install the server-specific drivers from the Tools and Drivers DVD.	Install the server-specific drivers needed to run the Solaris 10 OS on the Sun Netra X4270 server.	"Installing Solaris Drivers" on page 18
7.	Install patches, if necessary.	Patches are available from the SunSolve Patch Portal at `http://sunsolve.sun.com`	*Sun Netra X4270 Server Product Notes*

Related Information

- "Preparing to Install an Operating System" on page 1
- "Solaris OS Installation Methods" on page 11

Solaris OS Installation Methods

Use one of the following methods to install the Solaris OS on the server.

Method	Section or Procedure
Install from CD/DVD media.	• "Install Solaris OS With CD/DVD and Monitor" on page 11 • "Install Solaris OS With CD/DVD Media and the Serial Port" on page 12
Install from network using PXE.	"Prepare Solaris JumpStart Server" on page 13
Install from a serial console.	"Configure Solaris Jumpstart Server to Use Serial Console" on page 14
Install from a local console or RKVMS.	"Install Solaris OS Using a Local Console" on page 16
Install from KVMS over IP.	"Install Solaris OS Using Remote Console With Virtual CD/DVD" on page 16

Note – The Solaris OS provides additional programs for installation, such as booting over a wide area network, but the Sun Netra X4270 server supports only those methods listed in this document.

Additional Solaris 10 OS documentation is available at `http://docs.sun.com`.

Related Information

- "Solaris OS Installation Task Map" on page 10
- "Installing the Solaris OS" on page 9
- "Installing Solaris Drivers" on page 18

▼ Install Solaris OS With CD/DVD and Monitor

This procedure is for an installation using a CD/DVD and a monitor connected to the server video port.

1. **Insert the Solaris 10 OS CD/DVD media into the CD/DVD drive.**
2. **Power on the server.**

   The system boots from the Solaris 10 OS CD/DVD.

3. **Follow the installation wizard to complete the installation.**

Related Information

- "Install Solaris OS With CD/DVD Media and the Serial Port" on page 12

▼ Install Solaris OS With CD/DVD Media and the Serial Port

This procedure describes how to redirect the system output to the serial port and install the Solaris 10 10/09 OS using direct installation with CD/DVD media.

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

   For information about connecting to the ILOM using a serial connection, see the *Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*.

   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)

   Press Enter.

2. **Log in to the CLI.**

   The CLI prompt is displayed.

3. **Start the system.**

```
# start /SYS
```

4. **Start the console.**

```
# start /SP/console
```

5. **Insert the Solaris CD/DVD media.**

   The installation process begins, and the Solaris OS GRUB menu is displayed.

6. **To install the Solaris OS, select `ttya` at the GRUB menu.**

7. **If you need to use SSH to remotely access the SP and manage the Solaris OS, using the `start /SP/console` command, perform the following steps:**

   a. **After the Solaris OS is installed, log in to the server as `root` (superuser).**

b. **Edit the following lines in the** `/boot/solaris/bootenv.rc` **file to read as follows:**

```
setprop console 'ttya'
setprop ttya-mode 9600,8,n,1,-
```

c. **Edit the following line in the** `/boot/grub/menu.lst` **file to read as follows:**

```
kernel /platform/i86pc/multiboot -B console=ttya
```

8. **Reboot the system with the following command:**

```
# reboot -- -r
```

Related Information

- "Install Solaris OS With CD/DVD and Monitor" on page 11

▼ Prepare Solaris JumpStart Server

JumpStart is a Solaris OS installation tool that enables you to boot and install the OS over a network. The system that you use as an installation server must have a CD/DVD drive. The installation server must also be part of the site's network and name service. If you use a name service, the server must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this server by following your site's policies.

Note – For basic instructions on setup and configuration for network installations, see the Solaris OS documentation.

---

1. **On the system that is to become the installation server, log in as** `root` **(superuser).**
2. **Insert the Solaris 10 OS installation media in the server's CD/DVD drive.**
3. **Open a terminal window.**

   Type the commands in this procedure in the terminal window at the system prompt.

4. **Create a directory for the CD image:**

```
# mkdir -p install-dir-path
```

   where *install-dir-path* is the directory where the CD image is to be copied.

5. **Change to the Tools directory on the mounted disk:**

```
# cd /cdrom/cdrom0/Solaris_10/Tools
```

6. **Copy the image in the drive to the installation server's hard drive:**

```
# ./setup_install_server install-dir-path
```

where *install-dir-path* is the directory where the CD image is to be copied.

Note – Executing the `setup_install_server` command shows whether you have enough disk space available for the Solaris 10 software disc images. To determine available disk space, use the `df -kl` command.

---

7. **Change directories to `root` (`/`):**

```
# cd /
```

8. **Eject the Solaris 10 OS installation media.**

Related Information

- "Configure Solaris Jumpstart Server to Use Serial Console" on page 14
- "Install Solaris OS Using a Local Console" on page 16

▼ Configure Solaris Jumpstart Server to Use Serial Console

This procedure assumes that the Solaris 10 for x86 OS image is installed on the installation server. Use this procedure only if you want to force output to the serial port.

Note – These steps are only for the *installation output*. If you want the system output to be forced out the serial port *after* installation, you must either follow the steps in "Redirect Solaris Output to the Serial Port" on page 20, or create a finish script that performs those steps.

Your installation server must include a CD/DVD drive and be part of the network and name service. If you use a name service, the system must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this system by following your site's policies.

1. **On the installation server, log in as `root` (superuser).**
2. **Change to the `Tools` directory of the installation image:**

```
# cd install-server-path/install-dir-path/Solaris_10/Tools
```

   where *install-server-path* is the path to the install server system on your network (for example, `/net/installserver-1`) and *install-dir-path* is the directory where the CD image was copied.

3. **Create a new installation image and place that image on the system that is running the Solaris 10 for x86 release:**

```
# ./setup_install_server remote-install-dir-path
```

   where *remote-install-dir-path* is the path on the Solaris 10 x86 system in which to create the new installation image.

   This command creates a temporary installation image on the Solaris 10 x86 system to enable you to patch this image.

4. **Modify the server files to enable serial console redirection.**

   Edit the following lines in the */destination-dir*`/boot/solaris/bootenv.rc` file to read as follows:

```
setprop input-device ttya
setprop output-device ttya
setprop console ttya
setprop ttya-mode 9600,8,n,1,-
```

5. **Type:**

```
# add_install_client -B console=ttya, input-device=ttya,\
  output-device=ttya
```

   The output of the installation is pushed to the serial port.

6. **Install the Solaris 10 OS.**

   See your Solaris OS documentation for more information.

Related Information

- "Prepare Solaris JumpStart Server" on page 13
- "Install Solaris OS Using a Local Console" on page 16

▼ Install Solaris OS Using a Local Console

- **See the** *Solaris 10 Installation Guide: Network-Based Installations* **instructions at** `http://docs.sun.com/app/docs/doc/817-5504`**.**

  This installation method includes directing the server output to the local console or to a remote console (RVKM) when the local CD/DVD drive is used.

Note – Before performing a remote installation, use the ILOM GUI to disable the session timeout function. See the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

Related Information

- "Install Solaris OS Using Remote Console With Virtual CD/DVD" on page 16

▼ Install Solaris OS Using Remote Console With Virtual CD/DVD

This method uses the ILOM Remote Console application and a remote networked server to install the OS onto the server. The CD/DVD drive of the remote system is used to access the OS media as a *virtual CD/DVD*. The output of the server is displayed on the remote system (remote console).

For specific details on the ILOM Remote Console application, refer to the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

Requirements for Remote Console installation include:

- Remote server connected to the network.
- One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox.
- CD/DVD drive connected to the remote server.
- Media for installing the OS of your choice.
- SP of the server set up as instructed in the *Sun Netra X4270 Server Installation Guide*.
- You must be logged in to the remote server as `root` or as a user with administrator privileges.

1. **On a remote system, open a browser and enter the IP address of the service processor for the Sun Netra X4270 server on which you want to install the OS.**

   The ILOM login screen is displayed.

2. **Type the user name and password for an account with administrator privileges and click Login.**

   The ILOM main menu screen is displayed.

3. **Change the session timeout.**

   a. **From the main menu, click System Information -> Session Time-Out.**

      The System Information submenu tabs is displayed.

   b. **Select 15 minutes, 30 minutes, 1 hour, or 3 hours, and then click Apply.**

4. **Set launch redirection for the CD/DVD.**

   a. **From the main menu, click Remote Control -> Redirection.**

      A screen appears with a Launch button, your current host name, IP address, and user name.

   b. **Click Launch.**

5. **Insert the OS CD/DVD to be installed on the Sun Netra X4270 server into the remote CD/DVD drive.**

Note – If the local server has a CD/DVD drive, ensure that the CD/DVD drive does *not* contain a bootable disk. Or configure the server's BIOS so that the virtual CD/DVD drive is higher on the boot list than the local CD/DVD drive.

---

6. **In the remote console screen, select Storage -> Mount Devices.**

   The Device Configuration screen is displayed.

7. **In the Storage 1 Source drop-down list, select the CD/DVD drive to be used for installing the OS.**

8. **Click Submit.**

9. **Reboot the server.**

   On the Oracle ILOM screen main menu, select `Remote Control -> Remote Power Control -> Select Action -> Reset`.

   The server boots from the virtual CD.

Related Information

- "Install Solaris OS With CD/DVD Media and the Serial Port" on page 12

Installing Solaris Drivers

These topics describe how to install server-specific Solaris 10 drivers onto the server:

- "Solaris Driver Installation Script" on page 18
- "Install Solaris Drivers Using Remote Console" on page 18
- "Install Solaris Drivers Directly Onto the Server" on page 19
- "RAID Management Utility Software" on page 19

Related Information

- "Preparing to Install an Operating System" on page 1
- "Solaris OS Installation Task Map" on page 10
- "Installing the Solaris OS" on page 9

Solaris Driver Installation Script

The driver installation script is available on the Server Tools and Drivers DVD image.

Note – If you have created a new diagnostic partition, you also must run this script to mount the diagnostic partition. See the *Sun Netra X4270 Server Service Manual* for information about how to create a diagnostic partition.

Related Information

- "Install Solaris Drivers Using Remote Console" on page 18
- "Install Solaris Drivers Directly Onto the Server" on page 19

▼ Install Solaris Drivers Using Remote Console

This method is for installing the drivers on a server without an attached DVD drive or monitor.

- **See the instructions in** "Install Solaris OS Using Remote Console With Virtual CD/DVD" on page 16**.**

Related Information

- "Solaris Driver Installation Script" on page 18

▼ Install Solaris Drivers Directly Onto the Server

If the server has an on-board DVD drive or attached DVD drive, you can install the drivers, Mega RAID Storage Manager, impitool, and ipmiflash, directly using the Server Tools and Drivers DVD.

1. **Log in to the server as `root` (superuser).**
2. **Insert the Tools and Drivers DVD into the DVD drive.**

   The DVD is automatically mounted by the Solaris 10 OS.
3. **Change to the `/cdrom/cdrom0/Solaris` directory:**

```
# cd /cdrom/cdrom0/solaris/x86
```

4. **Run the installation script:**

```
# sh install.sh
```

   The AST2100 VGA driver, MSM, ipmitool and impiflash are now installed.
5. **Reboot the server when prompted.**

Related Information

- "Solaris Driver Installation Script" on page 18

RAID Management Utility Software

LSI does not provide Solaris OS support for its RAID management software. If your server is equipped with an LSI SAS3081E-R controller card, you must manage RAID using the controller card's BIOS.

Related Information

- "Configuring RAID" on page 7

▼ Redirect Solaris Output to the Serial Port

1. **After Solaris is installed, log in to the server as `root` (superuser).**
2. **Redirect the output to the serial port. Type:**

```
# eeprom console=ttya
```

3. **Reboot the system:**

```
# reboot -- -r
```

   The SP CLI prompt appears.

4. **Type:**

```
-> start /SP/console
```

   You should now see console output of the system starting up.

Related Information

- "Install Solaris OS Using a Local Console" on page 16

Installing the Linux Operating System

These topics contain information about installing the Red Hat Enterprise Linux and SUSE Linux Enterprise System operating systems and system-specific drivers onto the server.

This chapter includes the following sections:

- "Installing the Linux OS" on page 21
- "Installing the Linux Drivers" on page 25
- "Run the `up2date` Utility for the RHEL OS" on page 28

Installing the Linux OS

These topics provide an overview of installation methods and some specific tasks for installing a supported version of Linux on this server. This is not meant to be a comprehensive source of information for installing a Linux OS.

- "Linux OS Installation Task Map" on page 22
- "Linux OS Installation Methods" on page 23
- "Install Linux OS Using CD/DVD or Using PXE" on page 23
- "Install Linux OS Using Remote Console With Virtual CD/DVD" on page 23

Related Information

- "Supported Operating Systems" on page 1
- "Installing the Linux Drivers" on page 25

Linux OS Installation Task Map

These procedures are for installing drivers if you are performing a fresh installation of a Linux OS. You do not need to reinstall the drivers if you are using the preinstalled version of the OS. Perform the tasks in the order given.

Step	Task	Description	Instructions
1.	Set up the server.	Install the server hardware and configure the service processor.	*Sun Netra X4270 Server Installation Guide*
2.	Prepare your system for OS installation.	Set the display environment. If necessary, erase the primary boot disk.	"Installing the Linux Operating System" on page 21
3.	Set up your system for a RAID or non-RAID configuration based on the SAS controller card.	The server supports two SAS controller cards. RAID setup is different for each card.	"RAID Configuration Options" on page 4
4.	Review the *Sun Netra X4270 Server Product Notes*.	The product notes contain late-breaking news about the Solaris OS software and patches.	*Sun Netra X4270 Server Product Notes*
5.	Install the Linux OS.	Choose an installation method and locate the installation instructions.	"Linux OS Installation Methods" on page 23
6.	Install the system-specific drivers from the Tools and Drivers DVD.	Install the system-specific drivers needed to run the Linux OS on the server.	"Installing the Linux Drivers" on page 25
7.	Run the `up2date` utility.	Patches are available from the SunSolve Patch Portal at: `http://sunsolve.sun.com`	"Run the `up2date` Utility for the RHEL OS" on page 28

Related Information

- "Preparing to Install an Operating System" on page 1
- "Linux OS Installation Methods" on page 23
- "Installing the Linux Drivers" on page 25

Linux OS Installation Methods

Determine the type of installation that you want to perform and the information source for the installation.

Method	Section or Procedure
Install from CD/DVD media.	"Install Linux OS Using CD/DVD or Using PXE" on page 23
Install from the network.	"Install Linux OS Using CD/DVD or Using PXE" on page 23
Install from a remote server.	"Install Linux OS Using Remote Console With Virtual CD/DVD" on page 23

Related Information

- "Linux OS Installation Task Map" on page 22

▼ Install Linux OS Using CD/DVD or Using PXE

- **Follow the basic installation instructions for your OS:**
  - Oracle Enterprise Linux

    (http://www.oracle.com/technology/tech/linux/index.html)
  - *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures*:

    (www.redhat.com/docs)
  - *SUSE Linux Enterprise Server Administration and Installation*

    (www.novell.com)

Related Information

- "Linux OS Installation Methods" on page 23
- "Installing the Linux Drivers" on page 25

▼ Install Linux OS Using Remote Console With Virtual CD/DVD

This method includes using a remote networked system to install the OS onto the server. The CD/DVD drive of the server is displayed on the remote system (Remote Console).

Specific details on the using the Remote Console in the Integrated Lights Out Manager (ILOM) are available in the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

Note – This procedure assumes that you are familiar with the ILOM web GUI administration. More information is available in the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

Requirements for Remote Console installation include:

- Remote system connected to the network.
- One of the following browsers on the remote system – Internet Explorer, Mozilla, or Firefox.
- CD/DVD drive connected to the remote system.
- Media for installing the OS of your choice.
- SP of the server set up as instructed in the *Sun Netra X4270 Server Installation Guide*.
- Log in to the remote system as `root` or as a user with administrator privileges.

1. **On a remote system, open a browser and type the IP address of the ILOM SP for the Sun Netra X4270 server on which you want to install the OS.**

   The ILOM login screen is displayed.

2. **Type the user name and password for an account with administrator privileges and click Login.**

   The ILOM main menu screen is displayed.

3. **Change the session timeout.**

   a. **From the main menu, click System Information -> Session Time-Out.**

      The System Information submenu tabs is displayed.

   b. **Select 15 minutes, 30 minutes, 1 hour, or 3 hours, and then click Apply.**

4. **Set launch redirection for the CD/DVD.**

   a. **From the main menu, click Remote Control -> Redirection.**

      A screen is displayed with a Launch button, your current host name, IP address, and user name.

   b. **Click Launch.**

5. **Insert the OS CD/DVD to be installed on the Sun Netra X4270 server into the local CD/DVD drive.**

6. **In the remote console screen, select Storage -> Mount Devices.**

   The Device Configuration screen is displayed.

7. **In the Storage 1 Source drop-down list, select the CD/DVD drive to be used for installing the OS.**

8. **Click Submit.**

9. **Reboot the server.**

   On the Oracle ILOM screen main menu, select `Remote Control -> Remote Power Control -> Select Action -> Reset`.

   The server boots from the virtual CD.

Related Information

- "Linux OS Installation Methods" on page 23
- "Installing the Linux Drivers" on page 25

Installing the Linux Drivers

You can use the methods described in the following topics to install system-specific drivers onto your server.

- "Linux Driver Installation Script" on page 25
- "Install Linux Drivers Using KVMS Over IP" on page 26
- "Install Linux Drivers Directly Onto the Server" on page 26
- "Install the LSI RAID Management Utilities" on page 27

Related Information

- "Preparing to Install an Operating System" on page 1
- "Linux OS Installation Task Map" on page 22
- "Installing the Linux OS" on page 21

Linux Driver Installation Script

A driver installation script is available on the *Sun Netra X4270 Server Tools and Drivers DVD*, available at:
`http://www.sun.com/servers/netra/x4270/downloads.jsp`

Note – If you have created a new diagnostic partition, you also must run this script to mount the diagnostic partition. See the *Sun Netra X4270 Server Service Manual* for information about how to create a diagnostic partition.

▼ Install Linux Drivers Using KVMS Over IP

- **See the instructions in** "Install Linux OS Using Remote Console With Virtual CD/DVD" on page 23 **or the** *Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* **for specific details.**

Note – Before performing a remote installation, use the ILOM web-based interface (web GUI) to disable the session timeout function. The installation process then can proceed without interruption.

Related Information

- "Install the LSI RAID Management Utilities" on page 27

▼ Install Linux Drivers Directly Onto the Server

If your server has a DVD drive, you can install the drivers directly onto the server using the Server Tools and Drivers DVD.

1. **Log in to the server as** `root` **(superuser).**
2. **Insert the Server Tools and Drivers DVD into the DVD drive and type:**

```
# cd /mountpoint/Linux/operating-system/version/Drivers/64bit
```

where */mountpoint* is the directory to which the DVD is mounted and *operating-system* is the type of Linux installed on the server (value is `RHEL` or `SLES`*version*).

- If the directory does not exist, the DVD did not automount. You must mount the DVD and change to the correct directory as shown in Step 3 and Step 4.
- If you were able to access the *operating-system* directory, go to Step 5.

3. **If the DVD does not automount, open a terminal window and mount the DVD:**

```
# mount /dev/cdrom /mountpoint
```

where */mountpoint* is the appropriate mount point for the OS and optical drive type.

For example:

```
# mount /dev/cdrom /mnt/dvdrom
```

4. **Change to the** */mountpoint*/Linux/*operating_system* **directory and run the installer.**

where */mountpoint* is the directory where the DVD is mounted and *operating_system* is the version of Linux installed on the server (value is RHEL or SLES*version*).

For example:

```
# cd /mountpoint/Linux/RHEL
# Run install.sh
  sh install.sh
```

5. **Eject the DVD after the driver installation is complete.**
6. **Reboot the server.**

Related Information

- "Install the LSI RAID Management Utilities" on page 27

▼ Install the LSI RAID Management Utilities

1. **Insert the Tools and Drivers DVD in the server's DVD drive.**
2. **Change to the** /Linux/*operating-system/version*/Tools/64bit **directory and list the directory contents:**

```
# cd /Linux/operating-system/version/Tools/64bit
# ls -al
```

3. **Copy the compressed MSM tar file to a directory of your choice and extract the RAID storage manager contents.**

Related Information

- "Install Linux Drivers Using KVMS Over IP" on page 26
- "Install Linux Drivers Directly Onto the Server" on page 26

▼ Run the `up2date` Utility for the RHEL OS

Run the `up2date` utility after installing the OS and drivers from the Server Tools and Drivers DVD.

1. **Set up the `up2date` utility on the server.**

   See the documentation included with your RHEL media kit for details.

2. **Run the `up2date` program.**

   Select the kernel packages in the available package updates section.

Related Information

- "Supported Operating Systems" on page 1
- "Linux OS Installation Task Map" on page 22
- "Installing the Linux OS" on page 21

Installing the Windows Operating System

These topics include information about installing the Windows Server Operating System and drivers onto your server.

The driver installation scripts are available on the Tools and Drivers DVD. The Tools and Drivers DVD ISO image is also available at:

`http://www.sun.com/servers/netra/x4270/downloads.jsp`

Note – If you plan to install Windows RAID drivers, you must install the RAID drivers *during* the installation of the OS.

- "Installing the Windows OS" on page 29
- "Run Windows Update" on page 34
- "Installing Windows Server for a RAID Configuration" on page 34
- "Installing the Drivers" on page 36

Installing the Windows OS

These topics do not provide comprehensive instructions for installing the Windows operating system. This section does provide guidelines for the tasks involved in the OS installation and the installation methods available.

- "Windows Server OS Installation Task Map" on page 30
- "Windows Server OS Installation Methods" on page 30
- "Install Windows Server Using Direct Installation With DVD or CD-ROM" on page 31
- "Install Windows Server Using PXE" on page 31
- "Install the Windows Server Using Remote KVMS Over IP With Virtual CD-ROM" on page 32

Windows Server OS Installation Task Map

Step	Task	Description	Instructions
1.	Set up your server.	Install your server hardware and configure the service processor.	*Sun Netra X4270 Server Installation Guide*
2.	Determine the SAS controller.	Configure the hard drives as required by the SAS controller on-board configuration utility.	"Preparing to Install an Operating System" on page 1 and"Configuring RAID" on page 7
3.	Review the *Sun Netra X4270 Server Product Notes*.	The product notes contain late-breaking news about the Windows OS software and patches.	*Sun Netra X4270 Server Product Notes*
4.	Install the Windows OS.	Choose an installation method and locate the installation instructions.	"Windows Server OS Installation Methods" on page 30 If you are using RAID, see "Installing Windows Server for a RAID Configuration" on page 34
5.	Install the system-specific drivers from the Tools and Drivers DVD.	Install the system-specific drivers needed to run the Windows OS on the server.	"Installing Windows Server for a RAID Configuration" on page 34 and "Installing the Drivers" on page 36
6.	Run Windows Update.	Run Windows Update to make sure that you have the latest Microsoft Windows features.	

Related Information

- "Preparing to Install an Operating System" on page 1
- "Windows Server OS Installation Methods" on page 30
- "Installing the Drivers" on page 36

Windows Server OS Installation Methods

See the following list of OS installation methods to determine the type of installation that you want to perform and the relevant procedure for the installation.

Method	Section or Procedure
Install from CD/DVD.	"Install Windows Server Using Direct Installation With DVD or CD-ROM" on page 31
Install from the network.	"Install Windows Server Using PXE" on page 31

Method	Section or Procedure
Install from a remote server.	"Install the Windows Server Using Remote KVMS Over IP With Virtual CD-ROM" on page 32

Note – If you plan to install Windows using the disks attached to the LSI SAS card, you need to install the RAID drivers *while* installing the OS. See "Installing Windows Server for a RAID Configuration" on page 34.

Related Information

- "Install Windows Server Using Direct Installation With DVD or CD-ROM" on page 31
- "Install Windows Server Using PXE" on page 31
- "Install the Windows Server Using Remote KVMS Over IP With Virtual CD-ROM" on page 32
- "Install Windows Server Using LSI SAS3081E-R RAID Drivers Boot Diskette" on page 35

▼ Install Windows Server Using Direct Installation With DVD or CD-ROM

1. **See the instructions for basic installation at:**

   `(www.microsoft.com)`

2. **Once you install Windows Server, see** "Run Windows Update" on page 34**.**

Related Information

- "Windows Server OS Installation Task Map" on page 30
- "Windows Server OS Installation Methods" on page 30

▼ Install Windows Server Using PXE

This procedure documents the initial steps to install Windows Server over the network using a WDS image. Specifically, it explains the steps for selecting the server PXE network interface card that will be communicate with your WDS installation server. For further information about using a WDS image to install the Windows Server 2008 operating system, see Microsoft's Windows Deployment Services documentation.

1. **Reset the power on the server.**

   See the *Sun Netra X4270 Server Administration Guide* for specific instructions.

2. **Immediately after system power on, press F8 to specify a temporary boot device.**

3. **In the Please Select Boot Device menu, select the appropriate PXE installation boot device and press Enter.**

   The PXE installation boot device is the physical network port configured to communicate with your network installation server.

   The Boot Agent dialog is displayed.

4. **In the Boot Agent dialog, press F12 for a network service boot.**

5. **Continue the normal Windows Server WDS network installation.**

   For additional information, consult Microsoft's Windows Deployment Services product documentation.

6. **Install the platform specific drivers.**

   See "Install the Drivers Directly Onto the Sun Netra X4270 Server" on page 37.

7. **Once you install Windows Server, see** "Run Windows Update" on page 34**.**

Related Information

- "Windows Server OS Installation Task Map" on page 30
- "Windows Server OS Installation Methods" on page 30

▼ Install the Windows Server Using Remote KVMS Over IP With Virtual CD-ROM

This method includes using a remote networked system to install the operating system onto the server. The CD or DVD drive of the remote system (virtual CD-ROM) is used to access the operating system media. The output of the server is displayed on the remote system (Remote Console).

Specific details on the using Remote Console in the Integrated Lights Out Manager (ILOM) are available in the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

Note – This procedure assumes that you are familiar with the ILOM web-based interface (web GUI) administration. More information can be found in the *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*

Requirements for Remote Console:

- Remote system connected to the network.
- One of the following browsers on the remote system – Internet Explorer, Mozilla, or Firefox.
- CD/DVD drive connected to the remote system.
- Media for installing the operating system of your choice.
- SP of the Sun Netra X4270 server set up as instructed in the *Sun Netra X4270 Server Installation Guide*.

1. **On a remote system, open a browser and type the IP address of the ILOM SP for the server on which you want to install the operating system.**
2. **Type the user name and password for an account with administrator privileges and click Login.**

   The ILOM main menu screen is displayed.
3. **Change the session timeout:**

   a. **From the main menu, click System Information -> Session Time-Out.**

      The System Information submenu tabs is displayed.

   b. **Select 15 minutes, 30 minutes, 1 hour, or 3 hours, and then click Apply.**
4. **Set launch redirection for the CD/DVD.**

   a. **From the main menu, click Remote Control -> Redirection.**

      A screen appears with a Launch button, your current host name, IP address, and user name.

   b. **Click Launch.**
5. **Insert the Operating System CD/DVD to be installed on the server into the local CD/DVD drive.**

Note – The LSI RAID drivers should be installed on the server. See "Installing the Drivers" on page 36 to install the LSI drivers.

---

6. **In the remote console screen, select Storage -> Mount Devices.**

   The Device Configuration screen is displayed.
7. **In the Storage 1 Source drop-down list, select the CD/DVD drive to be used for installing the OS.**
8. **Click Submit.**

9. **Reboot the server.**

   On the Oracle ILOM screen main menu, select `Remote Control -> Remote Power Control -> Select Action -> Reset`.

   The server boots from the virtual CD.

10. **Once you install Windows Server, see** "Run Windows Update" on page 34**.**

Related Information

- "Windows Server OS Installation Task Map" on page 30
- "Windows Server OS Installation Methods" on page 30

▼ Run Windows Update

- **After installing the Windows Server, run the Windows Update utility.**

  Follow the instructions at the Windows Update download site at:

  `windowsupdate.microsoft.com`

Related Information

- "Preparing to Install an Operating System" on page 1
- "Windows Server OS Installation Task Map" on page 30

Installing Windows Server for a RAID Configuration

The server supports the LSI SAS3081E-R RAID card. Use these topics to install Windows Server with a RAID configuration.

- "Tools and Drivers" on page 35
- "Install Windows Server Using LSI SAS3081E-R RAID Drivers Boot Diskette" on page 35

Related Information

- "Configuring RAID" on page 7
- "Installing the Windows OS" on page 29

- "Windows Server OS Installation Methods" on page 30
- "Run Windows Update" on page 34
- "Installing the Drivers" on page 36

Tools and Drivers

The Sun Netra X4270 Tools and Drivers DVD contains the following drivers:

- Intel ICH10R SATA AHCI Controller Driver
- LSI MegaRaid SAS2 Controller Driver
- LSI MPT (Falcon) SAS2 Controller Driver
- LSI SAS 3000 1068E Controller Driver
- Intel Chipset Drivers
- Intel Network Drivers
- Emulex Fiber Channel Drivers
- Qlogic Fiber Channel Drivers
- Qlogic Fiber Channel over Ethernet Drivers
- lsi RAID MSM application
- Intel teaming
- ipmitool

▼ Install Windows Server Using LSI SAS3081E-R RAID Drivers Boot Diskette

This procedure describes how to create an LSI drivers boot diskette in preparation for installing Windows Server.

Note – This procedure requires a USB diskette drive.

---

1. **Copy drivers from the Tools and Drivers DVD to the diskette drive:**

```
# /windows/W2K8x/tools/64bit/Storage/lsiRAIDMSM USB floppy
```

2. **Attach a USB diskette drive to the server.**
3. **On a Windows system, insert the Server Tools and Drivers DVD.**

4. **Insert a blank diskette into the Windows system.**

5. **Copy the contents of the MSM directory on the Tools and Drivers DVD to the diskette:**

```
> Copy d:\Windows\W2K8x\tools\64Bbit\Storage\lsiRAIDMSM a:
```

Installing the Drivers

Choose one of the following procedures to install the drivers from the Tools and Drivers DVD.

Method	Section or Procedure
Use KVMS Over IP to install the drivers.	"Install the Drivers Using Remote KVMS" on page 36
Install the drivers using the on-board DVD.	"Install the Drivers Directly Onto the Sun Netra X4270 Server" on page 37

Related Information

- "Installing the Windows OS" on page 29
- "Windows Server OS Installation Methods" on page 30
- "Run Windows Update" on page 34
- "Tools and Drivers" on page 35

▼ Install the Drivers Using Remote KVMS

- **See instructions in** "Install the Windows Server Using Remote KVMS Over IP With Virtual CD-ROM" on page 32 **or the** *Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide* **for specific details.**

Related Information

- "Install the Drivers Directly Onto the Sun Netra X4270 Server" on page 37

▼ Install the Drivers Directly Onto the Sun Netra X4270 Server

If the server has an on-board DVD drive, you can install the drivers directly onto the server using the Tools and Drivers DVD.

1. **Insert the Tools and Drivers DVD into the DVD drive.**
2. **Change to the relevant directory for your version of Windows Server:**

   `D:\Windows/W2K8R2/Tools/64bit/Storage/`

3. **Install the drivers from the CD-ROM.**

   See your Windows documentation for specific installation procedures.

4. **Reboot the server.**

Related Information

- "Install the Drivers Using Remote KVMS" on page 36

Configuring Network Interfaces

This topic contains information about:

- "NIC Connectors" on page 39

NIC Connectors

The network interface card connectors are labeled physically on the server as follows:

TABLE: NIC Connector Label

NIC Connector Label	Interface Type
net0	First Intel interface (Intel igb 0)
net1	Second Intel interface (Intel igb 1)
net2	Third Intel interface (Intel igb 2)
net3	Fourth Intel interface (Intel igb 3)

Glossary

Numerics

2U two rack units (3.5 in./89 mm).

A

ACPI advanced configuration and power interface.

AWG American wire gauge.

B

BIOS basic input/output system.

BMC baseboard management controller.

C

CLI command-line interface.

CMA cable management arm, used to route and secure cables extending from the rear of the system.

CMOS complementary metal-oxide semiconductor. Refers to the memory used to store BIOS settings.

CTS clear to send.

D

DB-15 15-pin d-subminiature connector.

DDR3 SDRAM double-data rate three synchronous dynamic random access memory.

DHCP Dynamic Host Configuration Protocol.

DIMM dual in-line memory module.

DR dual-rank DIMM.

E

ECC error correction code.

EMI electromagnetic interference.

ESD electrostatic discharge.

ESM energy storage module.

G

GRUB GNU grand unified bootloader. An open source boot loader.

H

HBA host bus adapter.

I

ILOM Oracle Integrated Lights Out Manager. Firmware that enables you to manage the system even when system is shut down.

IM integrated mirror.

IME integrated mirror enhanced array.

IPMI intelligent platform management interface.

IS integrated striping array.

J

JBOD just a bunch of disks.

K

KBC BAT keyboard controller basic assurance test.

L

LED light-emitting diode.

LSF Low smoke fume.

M

MPS multiprocessor specification.

N

NEBS Network Equipment-Building Standards. Defined standards for equipment to be installed in a telecommunications central office. Telecordia maintains these standards and tests equipment for NEBS certification.

NET MGT network management port. After connecting a network cable to this NET MGT port, you can configure the system ILOM SP through this port.

NIC network interface card.

NTP network time protocol.

NVRAM non-volatile random access memory.

O

OS operating system.

OSP outside plant.

P

PCIe2 peripheral component interconnect express 2.0. Refers to cards or slots that support the PCI Express 2.0 specification.

PDB power distribution board.

POST power-on self-test.

PSH predictive self-healing.

PSU power supply unit.

PXE preboot execution environment.

Q

QR DIMM quad-rank DIMM.

R

RAID redundant array of independent disks.

RAS Reliability, Availability, and Serviceability.

RIS remote installation services.

RPM rotations per minute.

RTS request to send.

S

SAS serial attached SCSI.

SATA serial advanced technology attachment.

SCSI small computer system interface.

SER MGT serial management port. The default port for system management, especially during the initial system configuration.

SFF small form factor.

S.M.A.R.T. self-monitoring, analysis, and reporting technology.

SP service processor.

SR DIMM single-rank DIMM.

SSH secure shell.

STP shielded twisted pair.

T

TCG Trusted Computing Group.

TPM trusted platform module. For more information, refer to the Microsoft Windows Trusted Platform Module Management documentation.

U

USB universal serial bus.

US NEC United States National Electrical Code. A United States standard for the installation of electrical wiring and equipment.

V

VAC volts of alternating current.

VDC volts of direct (continuous) current.

VGA video graphics array.

VT-d virtualization technology for directed I/O.

W

WDT watchdog timers.

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