



Sun Fire™ V20z and Sun Fire V40z Servers

Linux Operating System Installation Guide

Sun Microsystems, Inc.
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How To Use This Guide

Note – This guide is intended for users installing Linux software. For instructions on installing Solaris™ software, refer to the Solaris documentation.

Overview

This guide contains instructions for installing Linux operating system (OS) software to Sun Fire™ V20z and Sun Fire V40z servers. The section [“Sun™ Installation Assistant CD” on page 5](#) explains how to use this CD for installing a Linux OS; this is an optional step.

The guide contains a separate chapter for each Linux OS that has been qualified for use with these servers by Sun Microsystems™ at the time of publishing.

For each operating system, instructions for installing from both disc media and from a networked PXE installation server are included. The appendix in this guide provides supplemental instructions for preconfiguring your network to support PXE installation.

Each of these chapters also contains detailed instructions for updating to the latest versions of the drivers and kernels that support server operation with each of these OSs.

Note – The system-administration procedures in this guide are intended for users with at least basic Linux administration experience.

To use this guide, follow these four steps:

1. Before you start the procedures in this guide, install your server hardware, perform initial service-processor configuration, and set up the network share volume (NSV) software on your server by performing the procedures in the *Sun Fire V20z and Sun Fire V40z Servers Installation Guide* (included on the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD).
2. Determine which chapter to use, based on which OS you have chosen to install. Alternatively, you can use the Sun Installation Assistant CD to guide you through the installation procedures; the CD also automatically installs the most up-to-date SCSI and network drivers for your hardware. See “[Sun™ Installation Assistant CD](#)” on page 5.
3. Determine whether you will install the OS from physical media (CD or DVD), or from a networked PXE installation server, then use the appropriate section in the chapter that corresponds to your OS. (If you have not already preconfigured your network to support PXE installation, you will be directed to perform the supplemental procedures in Appendix A of this guide.)
4. After installing the OS, use the instructions in the chapter that corresponds to your OS to update drivers and kernels to the most optimal versions available. In some cases, you will be directed to download sites, but many of the required network and SCSI driver files are included with your system on the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD, as indicated in the procedures.

User Documentation

For the most up-to-date user documentation, for both the Sun Fire V20z and Sun Fire V40z servers, please visit the following Web site:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_V20z/index.html

This site contains the user manuals, the Release Notes and the individual guides for each of the customer-replaceable units (CRUs).

To verify whether a document on the site is more recent than the document that you have, refer to the final two digits (the dash-roll) of the Part Number for that document.

Note – A document explaining the differences among the released versions of the Sun Fire V20z and Sun Fire V40z servers is also available at this Web site. Refer to part number (PN) 817-7185.

Related Documentation

Application	Title	Part Number
Safety information	<i>Important Safety Information for Sun Hardware Systems</i>	816-7190-xx
Safety notices and international compliance certification statements	<i>Sun Fire V20z and Sun Fire V40z Servers—Safety and Compliance Guide</i>	817-5251-xx
Hardware and system software installation	<i>Sun Fire V20z and Sun Fire V40z Servers—Installation Guide</i>	817-5246-xx
Maintenance procedures and other information	<i>Sun Fire V20z and Sun Fire V40z Servers—User Guide</i>	817-5248-xx
Server management	<i>Sun Fire V20z and Sun Fire V40z Servers—Server Management Guide</i>	817-5249-xx
Troubleshooting and diagnostics	<i>Sun Fire V20z and Sun Fire V40z Servers—Troubleshooting Techniques and Diagnostics Guide</i>	817-7184-xx
Late-breaking information	<i>Sun Fire V20z and Sun Fire V40z Servers Release Notes</i>	817-1771-xx

Sun™ Installation Assistant CD

The Sun™ Installation Assistant CD helps you to install a supported Linux operating system (OS). It provides a set of Sun-supported drivers that have been tested for quality assurance.

By using the Sun Installation Assistant CD, you can install the operating system, the appropriate drivers and additional software on your system. The Assistant eliminates the need to create a Drivers Update diskette.

Note – The Sun Installation Assistant CD does not automate the OS installation process. You will still need to follow the procedures provided in Chapters 3, 4, 5 and 6.

The Sun Installation Assistant performs the following tasks.

- Identifies the hardware on your system.
- Installs the operating system.
- Identifies and installs drivers and platform-specific software.

Note – The use of the Sun Installation Assistant CD is optional. It is provided as a convenience to the user.

Using the Sun Installation Assistant

Note – At [Step 10](#), you will proceed to Chapter 3, Chapter 4, Chapter 5 or Chapter 6, depending on the supported Linux distribution that you are installing. Once the installation is complete, you will return to the Sun Installation Assistant screen.

To use the Sun Installation Assistant:

1. **Insert the Sun Installation Assistant CD into the server's CD-ROM/DVDdrive.**
2. **Reboot the server.**

Once the server has rebooted, the Sun Installation Assistant launches. This may take a few minutes.

The first screen that appears is the Software License Agreement screen.

3. **Read through the terms of the agreement.**

Note – You must scroll to the bottom of the license-text window to make active the Accept radio button.

If you agree, select the Accept radio button and click Next to continue. (The Next button becomes active only when you select the Accept radio button.) The Welcome screen now appears, with an introduction to the Assistant.

If you do not agree, select the Decline radio button and click Exit to close the Sun Installation Assistant. The system then prompts you to reboot the server.

4. **On the Welcome screen, click Next.**

The Assistant now identifies the hardware in which it is installed and scans for any SCSI devices, as the following example shows:

```
Identifying hardware... identified as Sun Fire V20z.  
Scanning for SCSI devices... done.
```

5. The server ejects the Sun Installation Assistant CD and the screen displays a list of supported Linux distributions. This list of distributions is specific to your server hardware.

Note – This list is just a sample. Refer to the *Sun Fire V20z and Sun Fire V40z Servers Release Notes* (819-1771) for a complete list of supported Linux distributions.

- Red Hat Enterprise Linux 3 WS
- Red Hat Enterprise Linux 3 ES
- Red Hat Enterprise Linux 3 AS
- Red Hat Enterprise Linux 3 WS – 64bit
- Red Hat Enterprise Linux 3 AS – 64bit
- SUSE Linux 9.0 – 64bit

6. Insert Disc 1 for one of the supported distributions.

7. Click Next.

8. The Assistant identifies the Linux distribution, as the following example shows:

Identifying distribution... identified as SUSE Linux 9.0 - 64bit

9. To start the installer for this distribution, click Next.

The same installer screens for a manual installation of your distribution, through a GUI, now appear.

Note – If you are installing SUSE SLES 8 Service Pack 3 – 64bit, you begin with the Service Pack 3 CD. The system will then prompt you to insert the SUSE SLES 8 CD-1.

Insert this CD and click Next.

10. Proceed through the installer screens.

11. After the installation is complete, the Sun Installation Assistant reappears and automatically installs the correct drivers and additional software for your distribution.

The assistant installs only those RPMs for your specific OS kernel.

Note – This operation replaces the steps for manually upgrading the drivers for your server, as outlined in the sections “Upgrading SCSI and Network Drivers” in the following chapters.

12. The final screen identifies additional software that is installed, as the following example shows.

```
The SUSE Linux Pro 9.0 - 64bit installation has completed.  
Installing Sun Fire V20z drivers... completed.  
The installation has completed.
```

Note – If you provide an unsupported media, you will see an error message. See [“Error Messages” on page 8](#).

13. To boot the newly installed OS, click Reboot.

Error Messages

You may encounter a number of straightforward error messages such as the following example: “You have inserted Disc 3 but the system requires Disc 2. Please insert Disc 2.”

However, if you provide an unsupported media, you will see the following message:

```
“The media you have provided is not a release that is supported by  
Sun Microsystems, Inc. on this platform. You cannot use the Sun  
Installation Assistant to install this product and associated  
software.”
```

Choose one of the following options.

- To install a supported product, click Back and then insert the appropriate media.
- To install this unsupported product, click Exit to exit the Sun Installation Assistant and reboot the system. You can now install the unsupported product as you normally would.

Log File

A log file of the Sun Installation Assistant is written to the `/root` directory of the newly installed system.

To review this log file, refer to the file `/root/SunInstallationAssistant.log`.

Installing Red Hat Enterprise Linux 3 Software

This chapter describes how to install and update Red Hat Enterprise Linux 3 Software on Sun Fire V20 and Sun Fire V40z servers. Any differences in procedure between the two servers are noted.

Note – The system-administration procedures in this chapter are intended for users with at least basic Linux administration experience.

Note – You can use the Sun Installation Assistant CD to help you install the operating system. The assistant also takes care of upgrading the SCSI and Network drivers for your server.

This chapter is organized into the following sections.

- [“Installing Red Hat Enterprise Linux 3 Software From CDs” on page 10.](#)
- [“Installing Red Hat Enterprise Linux 3 Software From a Network” on page 14.](#)
- [“Updating the Operating System and Drivers” on page 19.](#)

Installing Red Hat Enterprise Linux 3 Software From CDs

The tasks for installing Red Hat Enterprise Linux 3 software from CDs consist of the following procedures.

1. Install the Red Hat Enterprise Linux 3 software. See [“Installing the Software” on page 10](#).
2. Update the Red Hat Enterprise Linux 3 software. See [“Updating the Operating System and Drivers” on page 19](#).

Required Items

The CD installation procedure requires the following items.

- A Sun Fire V20z or Sun Fire V40z server equipped with:
 - A CD-ROM or DVD-ROM drive
 - A PS/2 keyboard
 - A PS/2 mouse (optional, not used for installation)
- Monitor
- Red Hat Enterprise Linux 3 Media CD Set (AS, ES, or WS version)

Installing the Software

Note – If you are using the Sun Installation Assistant CD, you begin at [Step 5](#).

Note – This procedure provides the steps for a text-mode installation. The GUI mode combines several of these steps into one screen.

1. **Connect the keyboard and monitor to the appropriate connectors on the Sun Fire V20z or Sun Fire V40z server.**
2. **Power on the server and insert the Red Hat Enterprise Linux 3 CD 1 into the CD tray.**

The server will boot off of the CD and display a `boot:` prompt.

3. At the `boot:` prompt, type the following command:

```
boot: linux text
```

4. When prompted to test the CD media, select OK to test the media or select Skip to bypass the media test.

After the CD media test (if you choose to run it), the Anaconda installer starts. This takes a few minutes.

5. At the Welcome screen, select OK.

6. Make the following selections when prompted:

- a. Select the appropriate language.
- b. Select your keyboard type.
- c. Select No-mouse if you do not have a mouse connected, or verify that the mouse you have attached has been properly detected.

7. When prompted for disk partitioning, select Autopartition.

A dialog box appears, prompting you to choose whether you want to keep the existing partitions.

8. Select one of the following options in the Autopartition dialog box:

- *Remove all Linux partitions on this server:* Select this option if you can dual-boot your server with another OS, and want to replace only the Linux partitions.
- *Remove all partitions on this server:* Select this option if you want to use the entire disk and remove any OSs that might be installed.
- *Keep all partitions and use existing free space:* Select this option if you have installed other OSs and would like to keep them available.

9. If you chose *Remove all partitions on this server*, the system displays a warning about data being removed from the drives. Select Yes.

10. On the Partitioning screen, tab to OK and press Enter.

You now proceed through the configuration screens.

- a. To change the boot-loader, select GRUB or no boot-loader. Tab to OK and press Enter.
- b. Specify the kernel options. Tab to OK and press Enter.
- c. Add a password for the bootloader. Tab to OK and press Enter.
- d. If you can dual-boot your server, select the OS to boot from your boot-loader. Tab to OK and press Enter.
- e. Select the device from which to boot. Tab to OK and press Enter.

Note – If you are performing a GUI-mode installation, the configuration screens appear in the following order:

1. To change the boot-loader, select GRUB or no bootloader. Click Next.
 2. If you can dual-boot your server, select the OS to boot from your boot-loader, and select the device from which to boot. Click Next.
 3. Add a password for the bootloader. Click Next.
-

11. The Network Configuration screen appears.

You can apply network settings to the embedded ethernet port(s).

You can have the server obtain its network settings over DHCP or you can enter the static network-configuration information.

The default choice is DHCP.

Note – In a text-mode installation, you will see one screen for the network settings and a second screen for entering a host name.

In a GUI-mode installation, these options are combined on one screen.

12. The Firewall Configuration screen appears.

You can enable or disable the firewall function. For greater network security, we recommend that you enable the firewall function.

The default setting is enabled.

13. In the Language Support screen, select any other additional languages you need to install.

14. In the Timezone screen, select the timezone in which the server is located.

15. In the Root Password screen, enter the `superuser` password of your choice.

Note – Ensure that you remember the password. If you forget it, you may have to re-install the operating system.

You will be prompted to choose whether or not to customize the package selection.

16. In the Workstation Defaults screen, check the box to Customize software selection, then select OK.

Note – In a GUI-mode installation, this screen is labelled as Package Defaults.

- 17. In the Package Group Selection setup screen, select the appropriate packages for your environment.**

Use the arrow keys to move the cursor, then press the Spacebar to check selections.

- 18. Read the dialog box about the installation log, then select OK.**

This installation of the RPMs will take about 10 minutes, depending on what you selected for installation. When you are prompted to switch a CD, the installer automatically ejects the CD.

- 19. When prompted to change CDs, insert the requested CD and press OK.**

You might not need all the CDs, depending on which options you selected for installation.

- 20. If prompted, perform the following steps:**

- a. Select the default video interface detected by the installer.
- b. Identify the connected monitor and select the best match in the installer.
- c. At the X-Customization screen, select Text Interface.

- 21. Select OK in the Complete dialog box.**

The installation is complete.

- 22. Continue to [“Updating the Operating System and Drivers”](#) on page 19 for information on updating the Red Hat Enterprise Linux 3 Software.**

Installing Red Hat Enterprise Linux 3 Software From a Network

The tasks for installing Red Hat Enterprise Linux 3 software from a networked PXE server consist of the following procedures.

1. Configure your network to support PXE installation. See [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).
2. Create a PXE install image on a system that will be the PXE server, from which the software is downloaded to other systems (PXE clients). See [“Creating a PXE Install Image on the PXE Server” on page 15](#).
3. Install the Red Hat software to the PXE clients from the PXE server. See [“Installing the Software from a PXE Server” on page 18](#).
4. Update the Red Hat software. See [“Updating the Operating System and Drivers” on page 19](#).

Required Items

The PXE installation procedure requires the following items.

- The DHCP server that you set up in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#), equipped with:
 - A CD-ROM or DVD-ROM drive
 - A PS/2 keyboard
- Monitor
- Red Hat Enterprise Linux 3 Media CD Set (AS, ES, or WS version)
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Creating a PXE Install Image on the PXE Server

This procedure describes how to create a PXE install image on the same server that is your DHCP server, so that it will also act as your PXE server. The PXE server provides the operating system files to your PXE client.

Note – For 32-bit users: The extracted directories described in the following procedure are for setting up a 64-bit network image. If you are setting up a 32-bit network image, some files and directories are slightly different.

For 64-bit, the extracted directory is: rhel3_64-pxefiles/

For 32-bit, the extracted directory is: rhel3_32-pxefiles/

All other directories and directions are the same for both 64-bit and 32-bit.

Note – Before you start this procedure, verify that your network has been configured as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).

1. Insert Red Hat Enterprise Linux 3 CD 1 into your DHCP/PXE server and copy its contents to your PXE server, by typing the commands listed below:

You can use a different target directory than the /home/pxeboot/SunFire_rhel3/ directory shown below. The examples in this procedure use this directory.

```
# mkdir -p /home/pxeboot/SunFire_rhel3/
# mount /dev/cdrom /mnt/cdrom
# cp -a /mnt/cdrom/RedHat /home/pxeboot/SunFire_rhel3/
```

2. Copy the initial ramdisk and kernel from CD 1 into the base of the PXE image with the following commands:

```
# cp /mnt/cdrom/images/pxeboot/initrd.img \
/home/pxeboot/SunFire_rhel3/
# cp /mnt/cdrom/images/pxeboot/vmlinuz \
/home/pxeboot/SunFire_rhel3/
```

3. Unmount CD 1 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

4. Insert Red Hat Enterprise Linux 3 CD 2 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /dev/cdrom /mnt/cdrom
# cp -a /mnt/cdrom/RedHat /home/pxeboot/SunFire_rhel3/
```

If you are prompted whether to overwrite any existing files, type **y** to overwrite the files.

5. Unmount CD 2 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

6. Insert Red Hat Enterprise Linux 3 CD 3 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /dev/cdrom /mnt/cdrom
# cp -a /mnt/cdrom/RedHat /home/pxeboot/SunFire_rhel3/
```

If you are prompted whether to overwrite any existing files, type **y** to overwrite the files.

7. Unmount CD 3 with the following command and remove it from the server: :

```
# umount /dev/cdrom
```

8. Insert Red Hat Enterprise Linux 3 CD 4 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /dev/cdrom /mnt/cdrom
# cp -a /mnt/cdrom/RedHat /home/pxeboot/SunFire_rhel3/
```

If you are prompted whether to overwrite any existing files, type **y** to overwrite the files.

9. Unmount CD 4 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

10. Copy the kickstart file **ks.cfg** to your PXE server by typing the following command:

```
# cp /tmp/rhel3_64-pxefiles/ks.cfg /home/pxeboot/SunFire_rhel3/
```

11. Copy the SCSI and network drivers from the temporary directory to the directory shown below:

```
# cp /tmp/rhel3_64-pxefiles/bcm* /home/pxeboot/SunFire_rhel3/
# cp /tmp/rhel3_64-pxefiles/lsi* /home/pxeboot/SunFire_rhel3/
```

12. On your PXE server, edit and save the kickstart file `/home/pxeboot/SunFire_rhel3/ks.cfg` so that the **nfs** line is as follows:

```
nfs --server n.n.n.n --dir /home/pxeboot/SunFire_rhel3/
```

Where *n.n.n.n* is the IP address of your PXE server. Double check that the location indicated after `--dir` is pointing to the top level of your image.

13. On your PXE server, modify and save the file `/home/pxeboot/pxelinux.cfg/default` to add the following entry to it:

Note that you should type the text block from `append ksdevice` through `ks.cfg` as one continuous string with no returns.

```
default SunFire_rhel3
label SunFire_rhel3
kernel SunFire_rhel3/vmlinuz

append ksdevice=eth0 console=tty0
load_ramdisk=1 initrd=SunFire_rhel3/initrd.img network
ks=nfs:n.n.n.n:/home/pxeboot/SunFire_rhel3/ks.cfg
```

Where *n.n.n.n* is the IP address of your PXE server.

Note – For console-based installations, add `console=ttyS0,19200` to the `append` line.

Installing the Software from a PXE Server

This procedure describes how to initiate the request from the target Sun Fire V20z or Sun Fire V40z server to download the boot image file from the PXE/DHCP server and to install the Red Hat Enterprise Linux 3 software onto the target server.

Note – This procedure assumes that you have already preconfigured your network and PXE server install image as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#) and [“Creating a PXE Install Image on the PXE Server” on page 15](#).

1. **Connect the PXE client to the same network as the PXE server and power on the PXE client.**

The PXE client is the target Sun Fire V20z or Sun Fire V40z server to which you are installing Red Hat Enterprise Linux 3 software.

2. **When the PXE client prompts you for a network boot, press the F12 key.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

3. **Press the F8 key to begin the downloading of the PXE boot image.**

4. **If you are prompted at the `boot :` prompt, type in the label you gave the image in [Step 13](#) of [“Creating a PXE Install Image on the PXE Server” on page 15](#).**

The Red Hat Enterprise Linux 3 install image downloads onto the target Sun Fire V20z or Sun Fire V40z server.

5. **To configure the Linux operating system for your server, refer to the manual that is shipped with your Red Hat Enterprise Linux 3 media kit.**

6. **Proceed to [“Updating the Operating System and Drivers” on page 19](#).**

Updating the Operating System and Drivers

The CD media may not contain the most up-to-date versions of the software. Since the media has been released, there have been many updates to the software.

See the following sections for instructions on updating the Red Hat Enterprise Linux 3 software.

- [“Updating Red Hat Enterprise Linux 3 Software” on page 19](#)
- [“Upgrading SCSI and Network Drivers” on page 19](#)

Updating Red Hat Enterprise Linux 3 Software

The CD media does not contain the most up-to-date versions of the software. Since the media has been released, there have been many updates to the Red Hat Enterprise Linux software. To keep your system protected against security threats and increase stability, you should run the up2date program when the system is fully installed.

Refer to the Red Hat manual included with your Red Hat Enterprise Linux 3 media kit for information about setting up the up2date program. When running up2date, select the kernel packages on the available package updates section. After up2date has completed, reboot the server.

Upgrading SCSI and Network Drivers

The kernel that is installed on the system might not contain the optimal drivers that Sun Microsystems recommends. Updating the drivers ensures proper system performance.

The instructions below describe how to copy the latest drivers from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. Determine which kernel is currently installed on the system by running the following command:

```
# rpm -qa | grep ^kernel
```

The following is an example of the output you might get:

```
kernel-2.4.21-4.EL.x86_64
kernel-smp-2.4.21-4.EL.x86_64
kernel-source-2.4.21-4.EL.x86_64
```

In this example, you are running the 2.4.21-4.EL.x86_64 kernel.

2. Insert the Documentation and Support Files CD into the server.
3. Mount the CD and locate the Ethernet and SCSI drivers by typing the following commands:

```
# mount /dev/cdrom /mnt/cdrom
# cd /mnt/cdrom/support/drivers/rhel3/64/
```

Note – If you are using the 32-bit version of Red Hat Enterprise Linux, the directory to change to is:

```
/mnt/cdrom/support/drivers/rhel3/32/
```

4. Determine which driver RPMs correspond to the kernel version, as determined in [Step 1](#).

The filenames of the RPMs contain the kernel version and type. Using the example kernel versions shown in [Step 1](#), the Ethernet (bcm5700) and SCSI (lsi) drivers would be:

```
bcm5700-7.1.22_2.4.21_4.EL-rhel3_1.x86_64.rpm
bcm5700-smp-7.1.22_2.4.21_4.EL-rhel3_1.x86_64.rpm
lsi-2.05.11_2.4.21_4.EL-rhel3_1.x86_64.rpm
lsi-smp-2.05.11_2.4.21_4.EL-rhel3_1.x86_64.rpm
```

5. Run the following command to install the RPM files:

```
# rpm -Uvh /mnt/cdrom/support/drivers/rhel3/64/bcm5700-drivers.rpm
# rpm -Uvh /mnt/cdrom/support/drivers/rhel3/64/lsi-drivers.rpm
```

Where *bcm5700-drivers* and *lsi-drivers* refer to the appropriate Ethernet and SCSI driver RPM files, as determined in [Step 4](#).

Note – Be sure to pick the correct architecture of the driver for the kernel you are running. For example, if you are running the i686 kernel, be sure to choose the correct driver rpm that ends with `.i686.rpm`.

Note – The following steps are for installing NPS drivers, which include JNET and machine check kernel drivers, as well as POCL, a monitoring daemon. This software is required in order to enable hardware monitoring, OS-state reporting and SNMP proxy service to the server's service processor.

6. Locate the NPS RPM on the Documentation and Support Files CD that corresponds to your operating system version and architecture.

The NPS RPM files are located in OS-specific directories within this top level path on the CD: `/support/sysmgmt/`

7. Install the NPS RPM by typing the following command:

```
# rpm -Uvh /mnt/cdrom/support/sysmgmt/redhat/rhel3/nps-V2.rpm
```

Where *nps-V2* represents the version and architecture of the NPS RPM file.

Alternatively, the NPS RPM can be compiled and installed from source by typing the following commands:

```
# cd /usr/src/redhat
# tar -xvf /mnt/cdrom/support/sysmgmt/src/nps-V2*.tar.gz
# rpm -bb SPECS/nps.spec
# rpm -ivh `find ./RPMS | grep nps`
```

Note – Some Linux variants might require the `rpmbuild` command instead of the `rpm` command. Check with the documentation for your version of Linux.

8. After successful installation, reboot the system by running the following command:

```
# reboot
```


Installing SUSE Linux Enterprise Server 8 (SLES 8) Software

This chapter describes how to install and update SUSE Linux Enterprise Server 8 (SLES 8) Software on Sun Fire V20 and Sun Fire V40z servers. Any differences in procedure between the two servers are noted.

Note – The system-administration procedures in this chapter are intended for users with at least basic Linux administration experience.

Note – The Sun Installation Assistant does not currently support SUSE Linux Enterprise Server 8 (64-bit) installations due to problems with handling the service packs. Future updates to the Sun Installation Assistant will include support for SLES8 installations and will be available online.

This chapter is organized into the following sections.

- [“Installing SUSE Linux Enterprise Server 8 From CDs” on page 24.](#)
- [“Installing SUSE Linux Enterprise Server 8 Software From a Network” on page 28.](#)
- [“Updating the Operating System and Drivers” on page 34.](#)

Installing SUSE Linux Enterprise Server 8 From CDs

This section describes how to install SUSE Linux Enterprise Server 8 software from the SUSE Linux Enterprise Server 8 CD media set.

Installing from CDs consists of the following procedures.

1. Install the SUSE Linux Enterprise Server 8 software. See [“Installing the Software” on page 25](#).
2. Update the SUSE Linux Enterprise software. See [“Updating the Operating System and Drivers” on page 34](#).

Required Items

The CD installation procedure requires the following items.

- A Sun Fire V20z or Sun Fire V40z server equipped with:
 - CD-ROM or DVD-ROM drive
 - A PS/2 keyboard
 - A PS/2 mouse
- Monitor
- SUSE Linux Enterprise Server 8 Media CD Set, including:
 - 1 SUSE Linux Enterprise Server CD
 - 3 UnitedLinux 1.0 CDs
 - 2 United Linux Service Pack 3 CDs
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Note – A mouse is recommended for the installation, but not required. If you are not using a mouse, you can use the Tab key to toggle the selections.

Installing the Software

1. **Connect the keyboard and monitor to the appropriate connectors on the Sun Fire V20z or Sun Fire V40z server.**
2. **Power on the server and insert SUSE Linux Enterprise Server 8, CD 1 into the server.**

The server boots off of the CD and a screen with installation options appears.

3. **Select an installation option (default is preferred) and press Enter.**

The screen will time out to the default selection if you do not press Enter.

Note – You can change the video resolution of the installer by pressing the corresponding Function key on the keyboard shown on the selection screen.

4. **Select the appropriate language and select Accept.**

The installer will probe the server in order to obtain the recommended settings after this selection.

5. **If a dialog box displays asking whether you want to perform a new installation, select New Installation and then OK.**

A recommended configuration is displayed in the Installation Settings screen.

6. **If the displayed configuration is acceptable for your environment, select Accept. Otherwise, select the component you wish to change and make the appropriate changes.**

For most users, the default settings will be appropriate. Refer to the *SUSE Linux Enterprise Server 8 Installation Guide* for more details about changing individual components.

7. **Select Yes when prompted to start the installation.**

8. **When you are prompted to switch the CD, eject the CD from the drive, insert the requested CD and press OK.**

You may not need all of the CDs, depending on which options you selected for installation. This installation of the RPMs will take about 15 minutes, depending on what you selected for installation.

After successful installation of the base system, a dialog box displays, instructing you to remove the inserted media.

9. **Remove any inserted media and select OK.**

After the system has rebooted, the installer will prompt you to enter the superuser password.

10. Enter a superuser password of your choice.

Note – Ensure that you remember the password. If you forget it, you may have to re-install the operating system.

The installer will now prompt you to add a new user.

11. You can add additional users at this point, or just select Next if you do not wish to add more users.

12. At the desktop settings menu, select Text mode only and press Accept.

The installer will write out some configuration files and then move on to the installation settings.

13. When prompted to detect printers, select Skip detection.

14. Verify the settings in the Installation Settings screen and select Next.

15. After the system saves the configuration settings, select OK.

The installation is complete.

16. Log in as `superuser`.

17. Insert the United Linux 1.0 Service Pack 3 CD 1 into the server.

18. Mount the United Linux 1.0 Service Pack 3 CD 1:

```
# mount /media/cdrom
```

19. Update the kernel by typing the following command:

```
# rpm -Uvh /media/cdrom/x86_64/update/UnitedLinux/1.0/ \
rpm/x86_64/k_smp-2.4.21-127.x86_64.rpm
```

20. Unmount the United Linux 1.0 Service Pack 3 CD 1:

```
# umount /media/cdrom
```

Updating the kernel before running the YaST Patch CD Update utility (in the following steps) helps to eliminate an `Installation Failed` message that might appear in some installation configurations

21. Start the YaST administration program by running the following command:

```
# yast
```

22. From the Software menu of the YaST program, select Patch CD Update.

Note – The update utility may require an Internet connection.

23. Under the Installation Source selection, select Expert by pressing Alt+E.
24. From the Type menu, select CD.
25. From the CD Installation menu, select ``/dev/cdrom'`.

26. Select Next to begin the update.

The update utility scans the CD media for updates and then installs them.

Note – The update utility may prompt you for actions during the update process. Read the dialogs and select “OK” to continue.

27. After the update process completes, exit the update utility and the YaST program.
28. Reboot the server with the following command:

```
# reboot
```
29. Proceed to [“Updating the Operating System and Drivers” on page 34](#).

Installing SUSE Linux Enterprise Server 8 Software From a Network

The tasks for installing SUSE Linux Enterprise Server 8 software from a networked PXE server consist of the following procedures.

1. Configure your network to support PXE installation. See [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).
2. Create a PXE install image on a system that will be the PXE server, from which the software is downloaded to other systems (PXE clients). See [“Creating a PXE Install Image on the PXE Server” on page 29](#).
3. Install the SUSE Linux software to the PXE clients from the PXE server. See [“Installing the Software from a PXE Server” on page 33](#).
4. Update the SUSE Linux software. See [“Updating the Operating System and Drivers” on page 34](#).

Required Items

The PXE installation procedure requires the following items.

- The DHCP server that you set up in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#), equipped with:
 - A CD-ROM drive or DVD-ROM drive
 - A PS/2 keyboard
- Monitor
- SUSE Linux Enterprise Server 8 Media CD Set
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Creating a PXE Install Image on the PXE Server

This procedure describes how to create a PXE install image on the same server that is your DHCP server, so that it will also act as your PXE server. The PXE server provides the operating system files to your PXE client.

Note – Before you start this procedure, verify that your network has been configured as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).

1. Set up the directory structure that will hold the SUSE Linux Enterprise Server 8 with Service Pack 3.

You can use a different target directory than the `/home/pxeboot/SunFire_sles8/` directory shown. The examples in this procedure use this directory.

```
# mkdir -p /home/pxeboot/SunFire_sles8/sles8-x86_64/CD1
# mkdir -p /home/pxeboot/SunFire_sles8/ \
unitedlinux-x86_64/CD{1,2,3}
# mkdir -p /home/pxeboot/SunFire_sles8/sp3-x86_64/CD{1,2}
```

2. Insert the SUSE Linux Enterprise Server 8 CD into your server and copy its contents to your PXE server by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/sles8-x86_64/CD1
```

3. Unmount the SUSE Linux Enterprise Server 8 CD with the following command and remove it from the server:

```
# umount /dev/cdrom
```

4. Insert UnitedLinux 1.0 CD 1 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/unitedlinux-x86_64/CD1
```

5. Unmount the UnitedLinux 1.0 CD 1 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

6. Insert UnitedLinux 1.0 CD 2 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/unitedlinux-x86_64/CD2
```

7. Unmount the UnitedLinux 1.0 CD 2 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

8. Insert UnitedLinux 1.0 CD 3 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/unitedlinux-x86_64/CD3
```

9. Unmount the UnitedLinux 1.0 CD 3 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

10. Insert UnitedLinux Service Pack 3 CD 1 into your server and copy its contents to your PXE server by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/sp3-x86_64/CD1
```

11. Unmount the UnitedLinux Service Pack 3 CD 1 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

12. Insert UnitedLinux Service Pack 3 CD 2 into your server and copy its contents to your PXE server by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles8/sp3-x86_64/CD2
```

13. Unmount the UnitedLinux Service Pack 3 CD 2 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

14. Set up the boot environment for the client system to boot from by typing the following commands:

```
# cd /home/pxeboot/SunFire_sles8/
# ln -s sles8-x86_64/CD1/boot .
```

15. Set up the content and media directories by typing the following commands:

```
# ln -s sles8-x86_64/CD1/content .
# ln -s sles8-x86_64/CD1/media.1 .
```

16. Set up the appropriate content and instorder files by typing the following commands:

```
# mkdir yast
# cp /tmp/sles8-pxefiles/order yast/
# cp /tmp/sles8-pxefiles/instorder yast/
```

17. Copy the `autoinst.xml` file from the `/tmp/sles8-pxefiles/` directory to the root of the PXE image by typing the following commands:

```
# cp /tmp/sles8-pxefiles/autoinst.xml \
/home/pxeboot/SunFire_sles8/
```

18. On your PXE server, modify and save the file `/home/pxeboot/pxelinux.cfg/default` to add the following entry to it:

Type the text block from `append` through `autoinst.xml` as one continuous string with no returns.

```
default SunFire_sles8
label SunFire_sles8
kernel SunFire_sles8/boot/loader/linux

append textmode=1
initrd=SunFire_sles8/boot/loader/initrd
install=nfs:/home/pxeboot/SunFire_sles8 insmod=bcm5700
autoyast=nfs://n.n.n.n/home/pxeboot/SunFire_sles8/autoinst.xml
```

Where `n.n.n.n` is the IP address of your PXE server.

Note – For console-based installations, add `console=ttyS0,19200` to the `append` line.

19. Copy the Ethernet and SCSI RPMs into the proper directory by typing the following command:

```
# cp /tmp/sles8-pxefiles/*.x86_64.rpm \
/home/pxeboot/SunFire_sles8/sles8-x86_64/CD1/suse/x86_64/
```

20. Copy the RPM selection file to the proper directory by typing the following command:

If the systems you are building are single-processor systems, type the following command:

```
# cp /tmp/sles8-pxefiles/Sunfire.sel.up \  
/home/pxeboot/SunFire_sles8/sles8-x86_64/ \  
CD1/suse/setup/descr/Sunfire.sel
```

If the systems you are building have more than one processor, type the following command:

```
# cp /tmp/sles8-pxefiles/Sunfire.sel.smp \  
/home/pxeboot/SunFire_sles8/sles8-x86_64/ \  
CD1/suse/setup/descr/Sunfire.sel
```

21. Update the package description files by typing the following commands:

```
# cd /home/pxeboot/SunFire_sles8/sles8-x86_64/CD1/suse/  
# /usr/lib/YaST2/bin/create_package_descr \  
-d /home/pxeboot/SunFire_sles8/sles8-x86_64/CD1/suse/ \  
-l english
```

Note – If the `create_package_descr` program is not found, be sure to install the `autoyast2` package.

22. Modify the available packages list by typing the following command:

```
# echo "Sunfire.sel" >> \  
/home/pxeboot/SunFire_sles8/sles8-x86_64/ \  
CD1/suse/setup/descr/selections
```

This ensures that the new selection package that was added will be seen by the installer.

Installing the Software from a PXE Server

This procedure describes how to initiate the request from the target Sun Fire V20z or Sun Fire V40z server to download the boot image file from the PXE/DHCP server and to install the SUSE Linux Enterprise Server 8 software onto the target server.

Note – This procedure assumes that you have already preconfigured your network and PXE server install image as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#) and [“Creating a PXE Install Image on the PXE Server” on page 29](#).

1. **Connect the PXE client to the same network as the PXE server and power on the PXE client.**

The PXE client is the target Sun Fire V20z or Sun Fire V40z server to which you are installing SUSE Linux Enterprise Server 8 software.

2. **When the PXE client prompts you for a network boot, press the F12 key.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

3. **Press the F8 key to begin the downloading of the PXE boot image.**

4. **When you are prompted at the `boot:` prompt, type in the label you gave the image during [Step 18 of “Creating a PXE Install Image on the PXE Server” on page 29](#).**

The SUSE Linux Enterprise Server 8 install image downloads onto the target Sun Fire V20z server.

5. **To configure the Linux operating system for your server, refer to the manual that is shipped with your SUSE Linux Enterprise Server 8 media kit.**

6. **Proceed to [“Updating the Operating System and Drivers” on page 34](#).**

Updating the Operating System and Drivers

The CD media may not contain the most up-to-date versions of the software. Since the media has been released, there have been many updates to the SUSE Linux Enterprise Server software.

See the following procedures for instructions on updating the SUSE Linux Enterprise 8 software.

- [“Updating SUSE Linux Enterprise Server 8 Software” on page 34.](#)
- [“Upgrading SCSI and Network Drivers” on page 35.](#)

Updating SUSE Linux Enterprise Server 8 Software

To keep your system protected against security threats and increase stability, you should run the `yast2` program when the system is fully installed. Refer to the SUSE Linux Enterprise Server 8 documentation for further details on YaST Online Update.

This procedure assumes you have your system configured to connect to the Internet.

1. **Log in as the superuser.**
2. **Run the following command:**

```
# yast2 online_update
```
3. **Follow the directions on the screen.**

Note – If a newer kernel is installed as part of the update, it might downgrade some drivers. Refer to [“Upgrading SCSI and Network Drivers” on page 35](#) for information on upgrading the drivers.

Upgrading SCSI and Network Drivers

The kernel that is installed on the system might not contain the optimal drivers that Sun Microsystems recommends. Updating the drivers ensures proper system performance.

The instructions below describe how to copy the latest drivers from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. Determine which kernel is currently installed on the system by running the following command:

```
# rpm -qa | grep ^k_
```

The following is an example of the output you might get:

```
k_deflt_2.4.21-127
```

2. Insert the Documentation and Support Files CD into the Sun Fire V20z or Sun Fire V40z server.
3. Mount the CD and locate the Ethernet and SCSI drivers by typing the following commands:

```
# mount /media/cdrom
```

```
# cd /media/cdrom/support/drivers/suse/sles8/
```

4. Determine which driver RPMs correspond to the kernel version as determined in [Step 1](#).

The filenames of the RPMs contain the kernel version and type. For example, for the kernel version in [Step 1](#), the Ethernet (bcm5700) and SCSI (lsi) drivers would be:

```
bcm5700-deflt-7.0.0_2.4.21_127-sles8_1.x86_64.rpm
```

```
lsi-deflt-2.05.06_2.4.21_127-sles8_1.x86_64.rpm
```

Where 2.4.21_127 represents the kernel number that corresponds to k_deflt_2.4.21-127.

5. Run the following command to install the RPM files:

```
# rpm -Uvh /media/cdrom/support/drivers/suse/sles8/bcm5700-driver.rpm
# rpm -Uvh /media/cdrom/support/drivers/suse/sles8/lsi-driver.rpm
```

Where *bcm5700-driver* and *lsi-driver* refers to the appropriate Ethernet and SCSI driver rpm files, as determined in [Step 4](#).

Note – The following steps are for installing NPS drivers, which include JNET and machine check kernel drivers, as well as POI, a monitoring daemon. This software is required in order to enable hardware monitoring, OS-state reporting and SNMP proxy service to the server's service processor.

6. Locate the NPS RPM on the Documentation and Support Files CD that corresponds to your operating system version and architecture.

The NPS RPM files are located in OS-specific directories within this top level path on the CD: /support/sysmgmt/

7. Install the NPS RPM by typing the following command:

```
# rpm -Uvh /mnt/cdrom/support/sysmgmt/suse/sles8/nps-V2.rpm
```

Where *nps-V2* represents the version and architecture of the NPS RPM file.

Alternatively, the NPS RPM can be compiled and installed from source by typing the following commands:

```
# cd /usr/src/packages
# tar -xvf /mnt/cdrom/support/sysmgmt/src/nps-V2*.tar.gz
# rpm -bb SPECS/nps.spec
# rpm -ivh `find ./RPMS | grep nps`
```

Note – Some Linux variants might require the *rpmbuild* command instead of the *rpm* command. Check with the documentation for your version of Linux.

8. After successful installation, reboot the system by running the following command:

```
# reboot
```

Installing SUSE Linux Enterprise Server 9 (SLES 9) Software

This chapter describes how to install and update SUSE Linux Enterprise Server 9 (SLES 9) Software on Sun Fire V20 and Sun Fire V40z servers. Any differences in procedure between the two servers are noted.

Note – The system-administration procedures in this chapter are intended for users with at least basic Linux administration experience.

Note – You can use the Sun Installation Assistant CD to help you install the operating system. The assistant also takes care of upgrading the SCSI and Network drivers for your server.

This chapter is organized into the following sections.

- [“Installing SUSE Linux Enterprise Server 9 From CDs” on page 38.](#)
- [“Installing SUSE Linux Enterprise Server 9 Software From a Network” on page 42.](#)
- [“Updating the Operating System and Drivers” on page 47.](#)

Installing SUSE Linux Enterprise Server 9 From CDs

This section describes how to install SUSE Linux Enterprise Server 9 software from the SUSE Linux Enterprise Server 9 CD media set.

Installing from CDs consists of the following procedures.

1. Install the SUSE Linux Enterprise Server 9 software. See [“Installing the Software” on page 39](#).
2. Update the SUSE Linux Enterprise software. See [“Updating the Operating System and Drivers” on page 47](#).

Required Items

The CD installation procedure requires the following items.

- A Sun Fire V20z or Sun Fire V40z server equipped with:
 - CD-ROM or DVD-ROM drive
 - A PS/2 keyboard
 - A PS/2 mouse
- Monitor
- SUSE Linux Enterprise Server 9 Media CD Set, including:
 - 6 SUSE Linux Enterprise Server CDs
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Note – A mouse is recommended for the installation, but not required. If you are not using a mouse, you can use the Tab key to toggle the selections.

Installing the Software

Note – If you are using the Sun Installation Assistant CD, you begin at [Step 5](#).

1. **Connect the keyboard and monitor to the appropriate connectors on the Sun Fire V20z or Sun Fire V40z server.**

2. **Insert SUSE Linux Enterprise Server 9 CD 1 and boot the server.**

The server boots off of the CD. The SLES9 Bootloader appears with a number of installation options.

Note – You can change the video resolution of the installer by pressing the corresponding Function key on the keyboard shown on the selection screen.

3. **Select “Installation” from the SLES9 Bootloader.**

The screen will timeout with the default selection if you do not press Enter.

4. **Read the Novell Software License Agreement. If you agree with the terms, choose Accept.**

5. **Select the appropriate language and select Accept.**

The installer will probe the server in order to obtain the recommended settings after this selection.

6. **If a dialog box displays asking whether you want to perform a new installation, select New Installation and then OK.**

A recommended configuration is displayed in the Installation Settings screen.

7. **If the displayed configuration is acceptable for your environment, select Accept. Otherwise, select the component you wish to change and make the appropriate changes.**

For most users, the default settings will be appropriate. Refer to the *SUSE Linux Enterprise Server 9 Installation Guide* for more details about changing individual components.

8. **Select Yes when prompted to start the installation.**

9. When you are prompted to switch the CD, eject the CD from the drive, insert the requested CD and press OK.

You might not need all of the CDs, depending on which options you selected for installation. This installation of the RPMs will take about 15 minutes, depending on what you selected for installation.

After successful installation of the base system, a dialog box displays, instructing you to remove the inserted media.

Note – If you are using the Sun Installation Assistant CD, the Assistant GUI reappears and automatically installs the correct drivers. Once finished, the Assistant prompts you to reboot the server.

10. Remove any inserted media and select OK.

After the system has rebooted, the installer will prompt you to enter the superuser password.

11. Enter a superuser password of your choice.

Note – Ensure that you remember the password. If you forget it, you may have to re-install the operating system.

The installer prompts you to verify your network configuration.

12. Adjust the parameters to match your installation needs and select Accept.

The installer prompts you to test the Internet connection. We recommend that you skip this step.

13. Select the appropriate options to skip this step.

14. The next step is Service Configuration. This step enables you to set up trusted certificates.

Refer to the *SUSE Linux Enterprise Server 9 Installation Guide* for more details.

15. The next step is to choose your Authentication method.

Based on your network configuration, select one of the following:

- NIS
- LDAP
- /etc/passwd

16. You can add additional users at this point, or just select Next if you do not wish to add more users.

- 17. The Release Notes for SUSE Linux Enterprise Server 9 are displayed. Read the notes and select Accept.**

The hardware configuration is now displayed. This step enables you to make hardware changes systems such as the video subsystem.

- 18. Make any changes to the hardware configuration and select Accept.**

If you are satisfied with the parameters displayed, simply select Accept.

- 19. Select Finish.**

The installation is complete.

- 20. Proceed to [“Updating the Operating System and Drivers”](#) on page 47.**

Installing SUSE Linux Enterprise Server 9 Software From a Network

The tasks for installing SUSE Linux Enterprise Server 9 software from a networked PXE server consist of the following procedures.

1. Configure your network to support PXE installation. See [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).
2. Create a PXE install image on a system that will be the PXE server, from which the software is downloaded to other systems (PXE clients). See [“Creating a PXE Install Image on the PXE Server” on page 43](#).
3. Install the SUSE Linux software to the PXE clients from the PXE server. See [“Installing the Software from a PXE Server” on page 46](#).
4. Update the SUSE Linux software. See [“Updating the Operating System and Drivers” on page 47](#).

Required Items

The PXE installation procedure requires the following items.

- The DHCP server that you set up in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#), equipped with:
 - A CD-ROM drive or DVD-ROM drive
 - A PS/2 keyboard
- Monitor
- SUSE Linux Enterprise Server 9 Media CD Set
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Creating a PXE Install Image on the PXE Server

This procedure describes how to create a PXE install image on the same server that is your DHCP server, so that it will also act as your PXE server. The PXE server provides the operating system files to your PXE client.

Note – Before you start this procedure, verify that your network has been configured as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#).

1. Set up the directory structure that will hold the SUSE Linux Enterprise Server 9 .

You can use a different target directory than the `/home/pxeboot/SunFire_sles9/` directory shown. The examples in this procedure use this directory.

```
# mkdir -p /home/pxeboot/SunFire_sles9/sles9/CD1
# mkdir -p /home/pxeboot/SunFire_sles9/core9/CD{1,2,3,4,5}
```

2. Insert the SUSE Linux Enterprise Server 9 CD 1 into your server and copy its contents to your PXE server by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles9/sles9/CD1
```

3. Unmount the SUSE Linux Enterprise Server 9 CD 1 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

4. Insert SUSE Linux Enterprise Server 9 CD 2 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles9/core9/CD1
```

5. Unmount the SUSE Linux Enterprise Server 9 CD 2 with the following command and remove it from the server:

```
# umount /dev/cdrom
```

6. Insert SUSE Linux Enterprise Server 9 CD 3 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom
# cp -a /media/cdrom/* \
/home/pxeboot/SunFire_sles9/core9/CD2
```

7. Unmount the SUSE Linux Enterprise Server 9 CD 3 with the following command and remove it from the server:

```
# umount /dev/cdrom
```
8. Insert SUSE Linux Enterprise Server 9 CD 4 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom  
# cp -a /media/cdrom/* \  
/home/pxeboot/SunFire_sles9/core9/CD3
```
9. Unmount the SUSE Linux Enterprise Server 9 CD 4 with the following command and remove it from the server:

```
# umount /dev/cdrom
```
10. Insert SUSE Linux Enterprise Server 9 CD 5 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom  
# cp -a /media/cdrom/* \  
/home/pxeboot/SunFire_sles9/core9/CD4
```
11. Unmount the SUSE Linux Enterprise Server 9 CD 5 with the following command and remove it from the server:

```
# umount /dev/cdrom
```
12. Insert SUSE Linux Enterprise Server 9 CD 6 into your server and copy its contents to your PXE server, by typing the following commands:

```
# mount /media/cdrom  
# cp -a /media/cdrom/* \  
/home/pxeboot/SunFire_sles9/core9/CD5
```
13. Unmount the SUSE Linux Enterprise Server 9 CD 6 with the following command and remove it from the server:

```
# umount /dev/cdrom
```
14. Set up the boot environment for the client system to boot from by typing the following commands:

```
# cd /home/pxeboot/SunFire_sles9/  
# ln -s sles9/CD1/boot .
```
15. Set up the content and media directories by typing the following commands:

```
# ln -s sles9/CD1/content .  
# ln -s sles9/CD1/media.1 .  
# ln -s sles9/CD1/control.xml .
```

16. Set up the appropriate content and instorder files by typing the following commands:

```
# mkdir yast
# cp /tmp/sles9-pxefiles/order yast/
# cp /tmp/sles9-pxefiles/instorder yast/
```

17. Copy the `autoinst.xml` file from the `/tmp/sles9-pxefiles/` directory to the root of the PXE image by typing the following commands:

```
# cp /tmp/sles9-pxefiles/autoinst.xml \
/home/pxeboot/SunFire_sles9/
```

18. On your PXE server, modify and save the file `/home/pxeboot/pxelinux.cfg/default` to add the following entry to it:

Type the text block from `append` through `autoinst.xml` as one continuous string with no returns.

```
default SunFire_sles9
label SunFire_sles9
kernel SunFire_sles9/boot/loader/linux
append textmode=1
initrd=SunFire_sles9/boot/loader/initrd
install=nfs://n.n.n.n/home/pxeboot/SunFire_sles9 insmod=bcm5700
autoyast=nfs://n.n.n.n/home/pxeboot/SunFire_sles9/autoinst.xml
```

Where `n.n.n.n` is the IP address of your PXE server.

Note – For console-based installations, add `console=ttyS0,19200` to the `append` line.

19. Create a directory to hold the updated Ethernet and SCSI driver RPMs.

```
# mkdir /home/pxeboot/SunFire_sles9/rpms
```

20. Copy the Ethernet and SCSI RPMs into this new directory by typing the following command:

```
# cp /tmp/sles9-pxefiles/*.x86_64.rpm \
/home/pxeboot/SunFire_sles9/rpms/
```

Installing the Software from a PXE Server

This procedure describes how to initiate the request from the target Sun Fire V20z or Sun Fire V40z server to download the boot image file from the PXE/DHCP server and to install the SUSE Linux Enterprise Server 9 software onto the target server.

Note – This procedure assumes that you have already preconfigured your network and PXE server install image as described in [“Preconfiguring Your Network to Support PXE Installation” on page 63](#) and [“Creating a PXE Install Image on the PXE Server” on page 43](#).

1. **Connect the PXE client to the same network as the PXE server and power on the PXE client.**

The PXE client is the target Sun Fire V20z or Sun Fire V40z server to which you are installing SUSE Linux Enterprise Server 9 software.

2. **When the PXE client prompts you for a network boot, press the F12 key.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

3. **Press the F8 key to begin the downloading of the PXE boot image.**

4. **When you are prompted at the `boot :` prompt, type in the label you gave the image during [Step 18 of “Creating a PXE Install Image on the PXE Server” on page 43](#).**

The SUSE Linux Enterprise Server 9 install image downloads onto the target Sun Fire V20z server.

5. **To configure the Linux operating system for your server, refer to the manual that is shipped with your SUSE Linux Enterprise Server 9 media kit.**

6. **Proceed to [“Updating the Operating System and Drivers” on page 47](#).**

Updating the Operating System and Drivers

The CD media may not contain the most up-to-date versions of the software. Since the media has been released, there have been many updates to the SUSE Linux Enterprise Server software.

See the following procedures for instructions on updating the SUSE Linux Enterprise 9 software.

- [“Updating SUSE Linux Enterprise Server 9 Software” on page 47.](#)
- [“Upgrading SCSI and Network Drivers” on page 48.](#)

Updating SUSE Linux Enterprise Server 9 Software

To keep your system protected against security threats and increase stability, you should run the `yast2` program when the system is fully installed. Refer to the SUSE Linux Enterprise Server 9 documentation for further details on YaST Online Update.

This procedure assumes you have your system configured to connect to the Internet.

1. **Log in as the superuser.**
2. **Run the following command:**

```
# you
```
3. **Follow the directions on the screen.**

Note – If a newer kernel is installed as part of the update, it might downgrade some drivers. Refer to [“Upgrading SCSI and Network Drivers” on page 48](#) for information on upgrading the drivers.

Upgrading SCSI and Network Drivers

The kernel that is installed on the system might not contain the optimal drivers that Sun Microsystems recommends. Updating the drivers ensures proper system performance.

The instructions below describe how to copy the latest drivers from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. Determine which kernel is currently installed on the system by running the following command:

```
# rpm -qa | grep kernel
```

The following is an example of the output you might get:

```
kernel-smp-2.6.5-7.97
```

2. Insert the Documentation and Support Files CD into the Sun Fire V20z or Sun Fire V40z server.
3. Mount the CD and locate the Ethernet and SCSI drivers by typing the following commands:

```
# mount /media/cdrom
# cd /media/cdrom/support/drivers/suse/sles9_64/
```
4. Determine which driver RPMs correspond to the kernel version as determined in [Step 1](#).

The filenames of the RPMs contain the kernel version and type. For example, for the kernel version in [Step 1](#), the Ethernet (bcm5700) and SCSI (mptlinux) drivers would be:

```
bcm5700-smp-7.3.5_2.6.5_7.97-sles9_2.x86_64.rpm
```

```
mptlinux-smp-3.01.14.23_2.6.5_7.97-sles9_1.x86_64.rpm
```

Where 2.6.5_7.97 represents the kernel number that corresponds to kernel-smp-2.6.5-7.97.

5. Run the following command to install the RPM files:

```
# rpm -Uvh  
/media/cdrom/support/drivers/suse/sles9_64/broadcom/bcm5700-driver.rpm
```

```
# rpm -Uvh  
/media/cdrom/support/drivers/suse/sles9_64/lsi/mptlinux-driver.rpm
```

Where *bcm5700-driver* and *mptlinux-driver* refers to the appropriate Ethernet and SCSI driver rpm files, as determined in [Step 4](#).

Note – The following steps are for installing NPS drivers, which include JNET and machine check kernel drivers, as well as POCI, a monitoring daemon. This software is required in order to enable hardware monitoring, OS-state reporting and SNMP proxy service to the server’s service processor.

6. Locate the NPS RPM on the Documentation and Support Files CD that corresponds to your operating system version and architecture.

The NPS RPM files are located in OS-specific directories within this top level path on the CD: /support/sysmgmt/

7. Install the NPS RPM by typing the following command:

```
# rpm -Uvh /mnt/cdrom/support/sysmgmt/suse/sles9/ \  
<nps-OS_name_version-Build_number-V2>.rpm
```

Where *nps-OS_name_version-Build_number-V2* represents the OS name and OS version number, the build number, the NSV version and the architecture of the NPS RPM file. A sample file name is:

```
nps-sles9-2.6.5-7.97-smp-V2.2.0.6-0.x86_64.rpm
```

Alternatively, the NPS RPM can be compiled and installed from source by typing the following commands:

```
# cd /usr/src/packages  
# tar -xvf /mnt/cdrom/support/sysmgmt/src/<nps_filename>.tar.gz  
# rpm -bb SPECS/nps.spec  
# rpm -ivh `find ./RPMS | grep nps`
```

Note – Some Linux variants might require the *rpmbuild* command instead of the *rpm* command. Check with the documentation for your version of Linux.

8. After successful installation, reboot the system by running the following command:

```
# reboot
```


Installing SUSE Linux Professional 9.0 Software

This chapter describes how to install and update SUSE Linux Professional 9.0 Software on Sun Fire V20 and Sun Fire V40z servers. Any differences in procedure between the two servers are noted.

Note – The system-administration procedures in this chapter are intended for users with at least basic Linux administration experience.

Note – You can use the Sun Installation Assistant CD to help you install the operating system. The assistant also takes care of upgrading the SCSI and Network drivers for your server.

This chapter is organized into the following sections.

- [“Installing SUSE Linux Professional 9.0 Software From CDs or DVD” on page 52.](#)
- [“Installing SUSE Linux Professional 9.0 Software From a Network” on page 55.](#)
- [“Updating the Operating System and Drivers” on page 59.](#)

Installing SUSE Linux Professional 9.0 Software From CDs or DVD

This section describes how to install SUSE Linux Professional 9.0 software using the SUSE Linux Professional 9 media set.

Installing from CDs or DVD consists of the following procedures.

1. Installing SUSE Linux Professional 9.0 software. See [“Installing the Software from CDs or DVD” on page 53](#).
2. Updating SUSE Linux Professional 9.0 software. See [“Updating the Operating System and Drivers” on page 59](#).

Required Items

The procedure for [“Installing the Software from CDs or DVD” on page 53](#) requires the following items.

Note – A DVD-ROM drive must be installed on the system if you are installing from DVD. You can choose to have a DVD-ROM drive installed when ordering the server.

- A Sun Fire V20z or Sun Fire V40z server equipped with:
 - A CD-ROM or DVD-ROM drive (necessary for DVD installation)
 - PS/2 keyboard
 - PS/2 mouse
- Monitor
- SUSE 9.0 Professional Media CD Set (5 CDs or 1 DVD)
- Sun Fire V20z or Sun Fire V40z Documentation and Support Files CD

Note – A mouse is recommended for the installation, but not required. If you are not using a mouse, you can use the Tab key to toggle the selections.

If you are using the Sun Installation Assistant CD, you must use a mouse.

Installing the Software from CDs or DVD

Note – If you are using the Sun Installation Assistant CD, you begin at [Step 4](#).

1. **Connect the keyboard and monitor to the appropriate connectors on the Sun Fire V20z or Sun Fire V40z server.**

2. **Insert the SUSE Linux Professional 9.0 CD 1 (or the DVD) and boot the server.**

When the server boots off the CD/DVD, a menu with installation options will appear.

3. **Before the screen times out, select Installation from the menu of choices using the arrow keys and press Enter to proceed.**

Note – You may change the video resolution of the installer by pressing the F2 key on the keyboard during the boot menu screen, and by using the up and down arrows on the keyboard to select the appropriate resolution.

4. **Select the appropriate language and select Accept.**

The installer will probe the server in order to obtain the recommended settings after this selection.

5. **If a dialog box displays, asking whether you want to perform a new installation, select New Installation, then OK.**

A recommended configuration is displayed in the Installation Setting screen.

6. **If the displayed configuration is acceptable for your environment, select Accept. Otherwise, select the component you wish to change and make the appropriate changes.**

For most users, the default settings will be appropriate. Refer to the *SUSE Linux Professional 9.0 Installation Guide* for more details about changing individual components.

7. **Select Yes when prompted to start the installation.**

The installer will install the base system first. This will take about 5 to 10 minutes.

8. ***For CD Installation Only:*** If you are prompted to switch the CD, eject the CD from the drive, insert the requested CD and press OK.

After successful installation of the base system, the system will reboot.

Note – If you are using the Sun Installation Assistant CD, the Assistant GUI reappears and automatically installs the correct drivers. Once finished, the Assistant prompts you to reboot the server.

9. **When the boot menu appears, select the default option or wait for the boot menu to timeout.**

After the system has rebooted, the installer will prompt you for the remaining CDs to complete the installation, if you are installing with CDs.

10. ***For CD Installation Only:*** Insert the requested CD at the appropriate time.

All of the CDs may not be required, depending upon the software selected at the beginning of the installation process.

After the installer has finished with the needed media, the installer will prompt you to enter the root password.

11. **Enter a root password of your choosing.**

Note – Ensure that you remember the password. If you forget it, you may have to re-install the operating system.

The Network Configuration screen displays with network interfaces detected by the installer.

12. **Select Accept to accept the network configuration, or change the settings as necessary.**

13. **When prompted to test the Internet connection, select Yes or No.**

It is recommended that you skip this test.

14. **At the User Authentication Method screen, select the appropriate authentication method for your environment.**

- If you choose Stand-Alone, the installer prompts you to add a new user. You can add additional users, or select Next.
- If you chose for the server to become a network client, you are prompted for the appropriate configuration parameters.

15. **Read the displayed Release Notes and select Next.**

16. **Verify the settings in the Hardware Configuration screen and select Next.**

The system saves the configuration settings and the Installation Completed screen is displayed.

17. **Select Finish to complete the installation.**

18. **Proceed to [“Updating the Operating System and Drivers” on page 59.](#)**

Installing SUSE Linux Professional 9.0 Software From a Network

The tasks for installing SUSE Linux Professional 9.0 software from a networked PXE server consist of the following procedures.

1. Configure your network to support PXE installation. See [“Preconfiguring Your Network to Support PXE Installation” on page 63.](#)
2. Create a PXE install image on a system that will be the PXE server, from which the software is downloaded to other systems (PXE clients). See [“Creating a PXE Install Image on the PXE Server” on page 56.](#)
3. Install the SUSE Linux software to the PXE clients from the PXE server. See [“Installing the Software from a PXE Server” on page 58.](#)
4. Update the SUSE Linux software. See [“Updating the Operating System and Drivers” on page 59.](#)

Required Items

The PXE installation procedure requires the following items.

- The DHCP server that you set up in [“Preconfiguring Your Network to Support PXE Installation” on page 63,](#) equipped with:
 - A CD-ROM or DVD-ROM drive (DVD-ROM necessary for DVD installation)
 - PS/2 keyboard
- Monitor
- SUSE 9.0 Professional Media CD Set (5 CDs or 1 DVD)
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Creating a PXE Install Image on the PXE Server

This procedure describes how to create a PXE install image on the same server that is your DHCP server, so that it will also act as your PXE server. The PXE server provides the operating system files to your PXE client.

Note – Before you start this procedure, verify that your network has been configured to support PXE installation, as described in [“Preconfiguring Your Network to Support PXE Installation”](#) on page 63.

1. **On your DHCP/PXE server, set up the directory structure that will hold the SUSE Linux Professional 9.0 software.**

You can use a different target directory than the `/home/pxeboot/SunFire_suse9/` directory shown below. The examples in this procedure use this directory.

```
# mkdir -p /home/pxeboot/SunFire_suse9/
```

2. **Insert SUSE Linux Professional 9.0 CD 1 (or the DVD) into your PXE server and copy its contents to your PXE server by typing the following commands:**

```
# mount /media/cdrom
```

```
# cp -a /media/cdrom/* /home/pxeboot/SunFire_suse9/
```

3. *For CD installation only:* **Unmount the CD with the following command and remove it from the server:**

```
# umount /dev/cdrom
```

4. *For CD installation only:* Repeat [Step 2](#) and [Step 3](#) for all five CDs of the SUSE Linux Professional 9.0 Media Kit.

5. **Copy the `autoinst.xml` file from the `/tmp/suse9-pxefiles/` directory to the root of the PXE image with the following commands:**

```
# cp /tmp/suse9-pxefiles/autoinst.xml \  
/home/pxeboot/SunFire_suse9/
```

6. On your PXE server, modify and save the file

/home/pxeboot/pxelinux.cfg/default to add the following entry to it:

Note that you should type the text block from append through autoinst.xml as one continuous string with no returns.

```
default SunFire_suse9
label SunFire_suse9
kernel SunFire_suse9/boot/loader/linux

append textmode=1 initrd=SunFire_suse9/boot/loader/initrd
install=nfs:/home/pxeboot/SunFire_suse9 insmod=bcm5700
autoyast=nfs://n.n.n.n/home/pxeboot/SunFire-suse9/autoinst.xml
```

Where *n.n.n.n* is the IP address of your PXE server.

Note – For console-based installations, add **console=ttyS0,19200** to the append line.

7. Copy the Ethernet and SCSI RPMs into the proper directory by typing the following command:

```
# cp /tmp/suse9-pxefiles/*.x86_64.rpm \
/home/pxeboot/SunFire_suse9/suse/x86_64/
```

8. Copy the RPM selection file to the proper directory by typing the following command:

If the systems you are building are single-processor systems, type the following command:

```
# cp /tmp/suse9-pxefiles/Sunfire.sel.up \
/home/pxeboot/SunFire_suse9/suse/setup/descr/Sunfire.sel
```

If the systems you are building have more than one processor, type the following command:

```
# cp /tmp/suse9-pxefiles/Sunfire.sel.smp \
/home/pxeboot/SunFire_suse9/suse/setup/descr/Sunfire.sel
```

9. Update the package description files by typing the following commands:

```
# cd /home/pxeboot/SunFire_suse9/suse/
# create_package_descr -d /home/pxeboot/SunFire_suse9/suse/ \
-l english
```

This process takes a few minutes.

Note – If the `create_package_descr` program is not found, be sure to install the `autoyast2-utils` package.

10. Modify the available packages list by typing the following command:

```
# echo "Sunfire.sel" >> \
/home/pxeboot/SunFire_suse9/suse/setup/descr/selections
```

This ensures that the new selection package that was added will be seen by the installer.

Installing the Software from a PXE Server

This procedure describes how to initiate the request from the target Sun Fire V20z or Sun Fire V40z server to download the boot image file from the PXE/DHCP server and to install the SUSE Linux Professional 9.0 software onto the target server.

Note – This procedure assumes that you have already preconfigured your network and PXE server install image as described in [“Preconfiguring Your Network to Support PXE Installation”](#) on page 63 and [“Creating a PXE Install Image on the PXE Server”](#) on page 56.

1. **Connect the PXE client to the same network as the PXE server and power on the PXE client.**

The PXE client is the target Sun Fire V20z or Sun Fire V40z server to which you are installing SUSE Linux Professional 9.0 software.

2. **When the PXE client prompts you for a network boot, press the F12 key.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

3. **Press the F8 key to begin the downloading of the PXE boot image.**

4. **When you are prompted at the `boot :` prompt, type in the label you gave the image during Step 6 of [“Creating a PXE Install Image on the PXE Server”](#) on page 56.**

The SUSE Linux Professional 9.0 install image downloads onto the target Sun Fire V20z or Sun Fire V40z server.

5. **To configure the Linux operating system for your server, refer to the manual that is shipped with your SUSE Linux Professional 9.0 media kit.**
6. **Refer to [“Updating SUSE Linux Professional 9.0 Software”](#) on page 59 to obtain the most up-to-date drivers and software.**

Updating the Operating System and Drivers

The CD media may not contain the most up-to-date versions of the software. Since the media has been released, there have been many updates to the SUSE Linux Professional 9.0 software.

See the following procedures for instructions on updating the SUSE Linux Professional 9.0 software.

- [“Updating SUSE Linux Professional 9.0 Software” on page 59.](#)
- [“Upgrading SCSI and Network Driver Upgrades” on page 60.](#)

Updating SUSE Linux Professional 9.0 Software

To keep your system protected against security threats and increase stability, you should run the `yast2` program when the system is fully installed.

Refer to the SUSE Linux Professional 9.0 documentation for further details on YaST Online Update.

This procedure assumes you have your system configured to connect to the Internet.

1. **Log in as the superuser.**
2. **Run the following command:**

```
# yast2 online_update
```
3. **Follow the directions on the screen.**

Note – If a newer kernel is installed as part of the update, it might downgrade some drivers. Please refer to [“Upgrading SCSI and Network Driver Upgrades” on page 60.](#)

Upgrading SCSI and Network Driver Upgrades

The kernel that is installed on the system might not contain the optimal drivers that Sun Microsystems recommends. Updating the drivers ensures proper system performance.

The instructions below describe how to copy the latest drivers from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. **Determine which kernel is currently installed on the system by running the following command:**

```
# rpm -qa | grep ^k_
```

The following is an example of the output you might get:

```
k_deflt_2.4.21-102
```

2. **Insert the Documentation and Support Files CD into the Sun Fire V20z or Sun Fire V40z server.**

3. **Mount the CD and locate the RPMs on the CD.**

```
# mount /media/cdrom
```

```
# cd /media/cdrom/support/drivers/suse/suse9
```

4. **Determine which driver RPMs correspond to the kernel version as determined in [Step 1](#).**

The filenames of the RPMs contain the kernel version and type. For the example kernel version in [Step 1](#), the Ethernet (bcm5700) and SCSI (lsi) drivers would be:

```
bcm5700-deflt-7.0.0_2.4.21_102-suse9_1.x86_64.rpm
```

```
lsi-deflt-2.05.06_2.4.21_102-suse9_1.x86_64.rpm
```

Where 2.4.21_102 represents the kernel number that corresponds to to k_deflt_2.4.21-102.

5. Run the following command to install the RPM files:

```
# rpm -Uvh /media/cdrom/support/drivers/suse/suse9/bcm5700-driver.rpm
# rpm -Uvh /media/cdrom/support/drivers/suse/suse9/lsi-driver.rpm
```

Where *bcm5700-driver* and *lsi-driver* refer to the appropriate Ethernet and SCSI driver rpm files, as determined in [Step 4](#).

Note – The following steps are for installing NPS drivers, which include JNET and machine check kernel drivers, as well as POI, a monitoring daemon. This software is required in order to enable hardware monitoring, OS-state reporting and SNMP proxy service to the server's service processor.

6. Locate the NPS RPM on the Documentation and Support Files CD that corresponds to your operating system version and architecture.

The NPS RPM files are located in OS-specific directories within this top level path on the CD: /support/sysmgmt/

7. Install the NPS RPM by typing the following command:

```
# rpm -Uvh /mnt/cdrom/support/sysmgmt/suse/suse9/nps-V2.rpm
```

Where *nps-V2* represents the version and architecture of the NPS RPM file.

Alternatively, the NPS RPM can be compiled and installed from source by typing the following commands:

```
# cd /usr/src/packages
# tar -xvf /mnt/cdrom/support/sysmgmt/src/nps-V2*.tar.gz
# rpm -bb SPECS/nps.spec
# rpm -ivh `find ./RPMS | grep nps`
```

Note – Some Linux variants might require the *rpmbuild* command instead of the *rpm* command. Check with the documentation for your version of Linux.

8. After successful installation, reboot the system by running the following command:

```
# reboot
```


Preconfiguring Your Network to Support PXE Installation

This appendix contains procedures for preconfiguring your network prior to performing a PXE installation.

Follow the procedures in the section appropriate for your operating system.

- [“Preconfiguring Your Network to Support Red Hat Linux Installation” on page 64.](#)
- [“Preconfiguring Your Network to Support SUSE Linux Installation” on page 72.](#)

Preconfiguring Your Network to Support Red Hat Linux Installation

The procedures provided in this appendix describe how to preconfigure your Linux network to support PXE installation of Red Hat Linux software. Some of the following procedures might not be necessary if you confirm that the server packages are already in place and configured.

Note – For 32-bit users: The compressed files and extracted directories described in the Red Hat Linux procedures in this appendix are given for a 64-bit installation. If you are performing a 32-bit installation, the files and directories are slightly different.

For 64-bit, the compressed file image is: `rhel3_64-pxefiles.tar.gz`
and the extracted directory is: `rhel3_64-pxefiles/`
For 32-bit, the compressed file image is: `rhel3_32-pxefiles.tar.gz`
and the extracted directory is: `rhel3_32-pxefiles/`

All the other directories and directions are the same for both 64-bit and 32-bit.

Required Items

Preconfiguring your network for PXE installation requires the following items.

- A Red Hat Enterprise Linux 3 server equipped with:
 - A CD-ROM drive
 - PS/2 keyboard
- Monitor
- Red Hat Linux Enterprise Server 3 Media Set
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

This task includes the following procedures:

- [“Copying Files From the Documentation and Support Files CD” on page 65](#)
- [“Configuring a DHCP Server” on page 66](#)
- [“Installing Portmap” on page 67](#)
- [“Configuring the TFTP Service” on page 67](#)
- [“Installing and Configuring the `neopxe` Boot Server Daemon” on page 68](#)
- [“Configuring the NFS Service” on page 70](#)
- [“Disabling the Firewall” on page 71](#)

Copying Files From the Documentation and Support Files CD

This section describes how to copy the PXE support files, which are required for PXE configurations, from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. Insert the Sun Fire Documentation and Support Files CD into the DHCP/PXE server.
2. Type the following commands to copy the files to the `/tmp/` directory.

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

```
# cp /mnt/cdrom/support/pxeboot/rhel3_64-pxefiles.tar.gz /tmp/
```
3. Uncompress and extract the contents of the tar file into the `/tmp/` directory by typing the following command:

```
# tar -xzf /tmp/rhel3_64-pxefiles.tar.gz
```

When you extract the file, a directory with all required files is created at `/tmp/rhel3_64-pxefiles/`

Configuring a DHCP Server

Complete the following steps on the server that will be your DHCP server.

1. Power on the server and log in as superuser.
2. Determine whether the DHCP server package is already installed on the server by typing the following command:

```
# rpm -qa | grep dhcp-
```

3. If the DHCP server package is not listed, insert Red Hat Enterprise Linux CD 1 and type the following commands:

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

```
# rpm -Uvh /mnt/cdrom/RedHat/RPMS/dhcp-*.rpm
```

4. Remove CD 1 from the server after you type the following command:

```
# umount /dev/cdrom
```

5. Set up your DHCP configuration file (for example, `/etc/dhcpd.conf`) so that only PXEClient requests receive PXEClient responses.

Add the following entry to the DHCP configuration file. Refer to the `dhcpd.conf` man page for more information.

```
class "PXE" {match if substring(option vendor-class-identifier, 0, 9) =  
"PXEClient"; option vendor-class-identifier "PXEClient";}
```

Note – If the server does not already have a `dhcpd.conf` file in the `/etc` directory, start with the supplied sample DHCP configuration file. Copy, then modify the file: `/tmp/rhel3_64-pxefiles/dhcpd.conf`

6. Start the DHCP service by typing the following command:

```
# service dhcpd start
```

7. Configure the server to always start DHCP by typing the following command:

```
# chkconfig dhcpd on
```


Installing Portmap

Complete the following steps on your DHCP server.

1. Determine whether the portmap server package is already installed on the server by typing the following command:

```
# rpm -qa | grep portmap
```

2. If portmap is not listed, insert the Red Hat Enterprise Linux CD 2 and type the following commands to install the package from the CD:

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

```
# rpm -Uvh /mnt/cdrom/RedHat/RPMS/portmap-*.rpm
```

3. Remove CD 2 from the server after you type the following command:

```
# umount /dev/cdrom
```

Configuring the TFTP Service

Complete the following steps on your DHCP server.

1. Determine whether the TFTP server package is already installed on the server by typing the following command:

```
# rpm -qa | grep tftp-server
```

2. If the TFTP server package is not listed, insert the Red Hat Enterprise Linux CD 1 and type the following commands to install the package from the CD:

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

```
# rpm -Uvh /mnt/cdrom/RedHat/RPMS/tftp-server-*.rpm
```

3. Remove the CD from the server after you type the following command:

```
# umount /dev/cdrom
```

4. Edit and save the `/etc/xinetd.d/tftp` file to make the following changes:

- a. Change the `-s /tftpboot` entry to `-s /home/pxeboot`.

- b. Change the `disable` attribute to `no`.

5. Restart the `xinetd` service by typing the following command:

```
# service xinetd restart
```

Installing and Configuring the neopxe Boot Server Daemon

Complete the following steps on your DHCP server.

Note – The neopxe server is designed for use with a DHCP server that is running on the same system.

1. Type the following commands to install the neopxe boot server daemon on your system that is your DHCP server:

```
# cd /tmp/rhel3_64-pxefiles/neopxe-0.2.0/
# ./configure
# make
# make install
```

2. Append the path /usr/local/sbin/neopxe to the rc.local file by typing the following command, making sure to use two greater-than signs:

```
# echo "/usr/local/sbin/neopxe" >> /etc/rc.d/rc.local
```

3. Copy the PXE Linux image to the /home/pxeboot directory by typing the following commands:

```
# mkdir /home/pxeboot
# cp /tmp/rhel3_64-pxefiles/pxelinux.0 /home/pxeboot
```

4. Configure the PXE Linux image by typing the following commands:

```
# mkdir /home/pxeboot/pxelinux.cfg/
# touch /home/pxeboot/pxelinux.cfg/default
```

5. Edit the /usr/local/etc/neopxe.conf configuration file, which is read by neopxe at startup.

- If the neopxe.conf file is not at the location shown above, you can copy it from /tmp/rhel3_64-pxefiles/neopxe-0.2.0/ if you downloaded the files as shown in [“Copying Files From the Documentation and Support Files CD”](#) on page 65.
- A valid configuration file must have entries for each of the following lines, including at least one service line.

```
ip_addr=n.n.n.n
prompt=boot-prompt-string
prompt_timeout=timeout
service=service-number,boot-server,boot-file,label
```

Where:

- *n.n.n.n* is the IP address of your PXE server.
- *boot-prompt-string* is the character string displayed during a network boot that prompts the user to press the F8 key for a boot menu.
- *timeout* is the number of seconds the prompt is displayed before the server defaults to the first service for booting.
- *service-number* is an integer in the range of 1 to 254 that identifies the boot service.
- *boot-server* is the IP address of the boot server for that boot service.
- *boot-file* is the name of the boot file that is read from your `/home/pxeboot` directory.
- *label* is the text string that is displayed when the boot menu is invoked by pressing the F8 key.

For example:

```
ip_addr=192.168.0.1
prompt=Press [F8] for menu...
prompt_timeout=10
service=1,192.168.0.1,pxelinux.0,Linux
service=2,192.169.0.1,nbp.unknown,Solaris
```

Note – Refer to the `neopxe.conf` man page for more information.

6. Start the neopxe daemon by running the following command:

```
# /usr/local/sbin/neopxe
```

Configuring the NFS Service

Complete the following steps on your DHCP server.

1. Determine whether the NFS service package is already installed on the server by typing the following command:

```
# rpm -qa | grep nfs-utils
```

2. If the NFS server package is not listed, insert the Red Hat Enterprise Linux CD 2 and type the following commands to mount the CD and install the package from the CD:

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

```
# rpm -Uvh /mnt/cdrom/RedHat/RPMS/nfs-utils-*.rpm
```

3. Remove the CD from the server after you type the following command:

```
# umount /dev/cdrom
```

4. Edit and save the `/etc/exports` file to add the following line to it:

```
/home/pxeboot *(no_root_squash,no_subtree_check,insecure)
```

5. Start the NFS service by typing the following command:

```
# service nfs start
```

6. Configure the server to always start the NFS service by typing the following command:

```
# chkconfig nfs on
```

Note – If you are using a DNS server, make sure that DNS entries exist for the range of addresses defined in the pxe subnet `dynamic-bootp` entry in the `dhcpd.conf` file.

If you are not using a DNS server, edit the `/etc/hosts` file to add the range of host addresses found in the pxe subnet `dynamic-bootp` entry in the `dhcpd.conf` file.

Disabling the Firewall

If you enabled firewall security when you installed Red Hat Enterprise Linux software on the system that will be your PXE server, complete the following steps to disable the firewall so that PXE clients can download from the server.

Note – When you disable the firewall protection on the system that is your PXE server, the security of the data on that server cannot be assured. If this server is networked outside of your local intranet, be sure to re-enable the firewall after downloading software to PXE clients.

1. Stop the `ipchains` service by typing the following command:

```
# service ipchains stop
```

2. Stop the `iptables` service by typing the following command:

```
# service iptables stop
```

3. Stop the `ipchains` service from starting when you restart the server by typing the following command:

```
# chkconfig ipchains off
```

4. Stop the `iptables` service from starting when you restart the server by typing the following command:

```
# chkconfig iptables off
```

Note – You might encounter error messages if the `ipchains` service is not installed on the server. You can safely ignore these messages.

Installing Red Hat Linux From the Network

1. Reboot the server when you have finished all of the configuration steps.
2. Refer to [“Installing Red Hat Enterprise Linux 3 Software From a Network” on page 14](#) for instructions on completing the PXE installation.

Preconfiguring Your Network to Support SUSE Linux Installation

The procedures provided in this appendix describe how to preconfigure your Linux network to support PXE installation of SUSE Linux software. These procedures assume that you already have a bootable server that is running the appropriate SUSE Linux operating system.

Note – Some of the following procedures might not be necessary if you confirm that the server packages are already in place and configured. You may be prompted for a UnitedLinux CD.

This task includes the following procedures:

- [“Copying Files From the Documentation and Support Files CD” on page 73.](#)
- [“Configuring a DHCP Server” on page 73.](#)
- [“Installing Portmap” on page 74.](#)
- [“Configuring the TFTP Service” on page 75.](#)
- [“Installing and Configuring the `neopxe` Boot Server Daemon” on page 76.](#)
- [“Configuring the NFS Service” on page 78.](#)
- [“Disabling the Firewall” on page 79.](#)

Required Items

Preconfiguring your network for PXE installation requires the following items.

- A SUSE Linux Enterprise 8 server (for SUSE Linux Enterprise 8 network installation) or SUSE Professional 9.0 server (for SUSE Professional 9.0 network installation) equipped with:
 - A CD-ROM or DVD-ROM drive (DVD-ROM necessary for DVD installation)
 - PS/2 keyboard
- Monitor
- SUSE Linux Media Set
- Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD

Copying Files From the Documentation and Support Files CD

This section describes how to copy the PXE support files, which are required for PXE configurations, from the Sun Fire V20z and Sun Fire V40z Servers Documentation and Support Files CD. You can also download the driver RPMs from the product pages for the Sun Fire V20z and Sun Fire V40z servers. The following URL is valid for both servers:

<http://www.sun.com/servers/entry/v20z/downloads.html>

1. Insert the Sun Fire Documentation and Support Files CD into the DHCP/PXE server.

2. Create a temporary directory to copy the PXE support files to:

```
# mkdir /tmp/
```

3. Type the following commands to copy the files to the /tmp/ directory.

```
# mount /media/cdrom
```

```
# cp /media/cdrom/support/pxeboot/version-pxefiles.tar.gz /tmp/
```

Where *version* is *sles8* for SUSE Linux Enterprise Server 8, *sles9* for SUSE Linux Enterprise Server 9, and *suse9* for SUSE Linux Professional 9.0 software.

4. Uncompress and extract the contents of the tar file into the /tmp/ directory by typing the following command:

```
# tar -zxvf /tmp/version-pxefiles.tar.gz
```

When you extract the file, a directory with all required files is created at /tmp/sles8-pxefiles/ , /tmp/sles9-pxefiles/ or /tmp/suse9-pxefiles/

Configuring a DHCP Server

Complete the following steps on the server that will be your DHCP server.

1. Power on the server and log in as superuser.
2. Determine whether the DHCP server package is already installed on the server by typing the following command:

```
# rpm -qa | grep dhcp-server
```

3. If the DHCP server package is not listed, install the package using yast with the following command:

```
# yast -i dhcp-server
```

4. Set up your DHCP configuration file (for example, `/etc/dhcpd.conf`) so that only PXEClient requests receive PXEClient responses.

Add the following entry to the DHCP configuration file. Refer to the `dhcp.conf` man page for more information.

```
class "PXE" {match if substring(option vendor-class-identifier, 0, 9)
="PXEClient"; option vendor-class-identifier "PXEClient";}
```

Note – You can start with a sample DHCP configuration file in the directory `/tmp/sles8-pxefiles`, `/tmp/sles9-pxefiles` or `/tmp/suse9-pxefiles`.

5. *For SUSE Linux Enterprise Server 9 or SUSE Linux Professional 9.0:* Edit the `/etc/sysconfig/dhcpd` file and be sure the `DHCPD_INTERFACE` is set to the interface that is connected to the network you are planning to run the PXE server.

For example, if you are using Ethernet interface 0, the `DHCPD_INTERFACE` variable would be set as follows:

```
DHCPD_INTERFACE="eth0"
```

6. Start the DHCP service by typing the following command:

```
# /etc/init.d/dhcpd start
```
7. Configure the server to always start DHCP by typing the following command:

```
# chkconfig dhcpd on
```

Installing Portmap

Complete the following steps on your DHCP server.

1. Determine whether the portmap server package is already installed on the server by typing the following command:

```
# rpm -qa | grep portmap
```
2. If portmap is not listed, install the package using `yast` with the following command:

```
# yast -i portmap
```


Configuring the TFTP Service

Complete the following steps on your DHCP server.

1. Determine whether the TFTP server package is already installed on the server by typing the following command:

```
# rpm -qa | grep tftp
```

2. If the TFTP server package is not listed, install the package using `yast` with the following command:

```
# yast -i tftp
```

3. Edit the file that corresponds to the appropriate version of SUSE Linux:

- *For systems using inetd:* Edit and save the `/etc/inetd.conf` file to make the following changes:
 - Locate and remove the comment before the `tftp` service.
 - Change the `-s /tftpboot` entry to `-v -s /home/pxeboot`.
- *For systems using xinetd:* Edit and save the `/etc/xinetd.d/tftp` file to make the following changes:
 - Change the `-s /tftpboot` entry to `-v -s /home/pxeboot`.
 - Change the `disable` attribute to `no`.

4. Restart the `inetd` server by typing the following command:

- For systems using `inetd`:

```
# /etc/init.d/inetd restart
```
- For systems using `xinetd`:

```
# /etc/init.d/xinetd restart
```

Installing and Configuring the neopxe Boot Server Daemon

Complete the following steps on your DHCP server. The neopxe server is designed for use with a DHCP server that is running on the same system.

1. If a compiler is not installed on the server, use `yast` to install `gcc` with the following commands:

```
# yast -i gcc
# yast -i make
```

2. Type the following commands to install the neopxe boot server daemon on your system that is your DHCP server:

```
# cd /tmp/version-pxefiles/neopxe-0.2.0
# ./configure
# make
# make install
```

Where *version* is `sles8` for SUSE Linux Enterprise Server 8, `sles9` for SUSE Linux Enterprise Server 9 and `suse9` for SUSE Linux Professional 9.0 software.

3. Append the path `/usr/local/sbin/neopxe` to the `rc.local` file by typing the following command, making sure to use two greater-than signs:

```
# echo "/usr/local/sbin/neopxe" >> /etc/rc.d/boot.local
```

4. Copy the PXE Linux image from the `/tmp/` directory by typing the following commands:

```
# mkdir /home/pxeboot
# cp /tmp/version-pxefiles/pxelinux.0 /home/pxeboot
```

Where *version* is `sles8` for SUSE Linux Enterprise Server 8, `sles9` for SUSE Linux Enterprise Server 9 and `suse9` for SUSE Linux Professional 9.0 software.

5. Configure the PXE Linux image by typing the following commands:

```
# mkdir /home/pxeboot/pxelinux.cfg/
# touch /home/pxeboot/pxelinux.cfg/default
```

6. Edit the `/usr/local/etc/neopxe.conf` configuration file, which is read by `neopxe` at startup.

- If the `/usr/local/etc/` directory does not exist, create it with the following command:

```
# mkdir /usr/local/etc
```
- If you need to create the `neopxe.conf` file, you can copy it from the `/tmp/sles8-pxefiles/neopxe-0.2.0/`, `/tmp/sles9-pxefiles/neopxe-0.2.0/` or `/tmp/suse9-pxefiles/neopxe-0.2.0/` directory.

- A valid configuration file must have entries for each of the following lines, including at least one service line.

```
ip_addr=n.n.n.n
prompt=boot-prompt-string
prompt_timeout=timeout
service=service-number,boot-server,boot-file,label
```

Where:

- *n.n.n.n* is the IP address of your PXE server.
- *boot-prompt-string* is the character string displayed during a network boot that prompts the user to press the F8 key for a boot menu.
- *timeout* is the number of seconds the prompt is displayed before the server defaults to the first service for booting.
- *service-number* is an integer in the range of 1 to 254 that identifies the boot service.
- *boot-server* is the IP address of the boot server for that boot service.
- *boot-file* is the name of the boot file that is read from your `/home/pxeboot` directory.
- *label* is the text string that is displayed when the boot menu is invoked by pressing the F8 key.

For example:

```
ip_addr=192.168.0.1
prompt=Press [F8] for menu...
prompt_timeout=10
service=1,192.168.0.1,pxelinux.0,Linux
service=2,192.169.0.1,nbp.unknown,Solaris
```

Note – Refer to the `neopxe.conf` man page for more information.

7. Start the `neopxe` daemon by running the following command:

```
# /usr/local/sbin/neopxe
```

Configuring the NFS Service

Complete the following steps on your DHCP server.

1. Determine whether the NFS service package is already installed on the server by typing the following command:

```
# rpm -qa | grep nfs-utils
```

2. If the NFS server package is not listed, install the package using `yast` by typing the following command:

```
# yast -i nfs-utils
```

3. Edit and save the `/etc/exports` file to add the following line to it:

```
/home/pxeboot *(sync,no_root_squash,no_subtree_check,insecure)
```

4. Start the NFS service by typing the following command, as appropriate:

```
# /etc/init.d/nfsserver start
```

5. Configure the server to always start the NFS service by typing the following commands:

```
# chkconfig nfslock on
```

```
# chkconfig nfsserver on
```

Note – If you are using a DNS server, make sure that DNS entries exist for the range of addresses defined in the `pxe subnet dynamic-bootp` entry in the `dhcpd.conf` file.

If you are not using a DNS server, edit the `/etc/hosts` file to add the range of host addresses found in the `pxe subnet dynamic-bootp` entry in the `dhcpd.conf` file.

Disabling the Firewall

If a firewall is enabled on your PXE/DHCP server, make sure to disable it before attempting to install the PXE image onto the client system.

Note – When you disable the firewall protection on the system that is your PXE server, the security of the data on that server cannot be assured. If this server is networked outside of your local intranet, be sure to re-enable the firewall after downloading software to PXE clients.

Installing SUSE Linux From the Network

1. Reboot the server when you have finished all of the configuration steps.
2. Refer to the appropriate procedure to complete the installation.
 - [“Installing Red Hat Enterprise Linux 3 Software From a Network” on page 14.](#)
 - [“Installing SUSE Linux Enterprise Server 8 Software From a Network” on page 28.](#)

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